Immingham Eastern Ro-Ro Terminal ("IERRT")

PINS Ref: TR030007

Comments on Deadline 3 submissions and Responses to ExQ2 and other ISH3 questions

A: Comments on ABP's Interim Response to the IOT Operators' NRA [REP3-012]

Paragraph No.	ABP Response	Comments by the IOT Operators
1.3	**Stakeholder Consultation – consensus**: It is the view of the Applicant that the additional NRA produced on behalf of the IOT Operators does not meet the principles of the Port Marine Safety Code. This is because it fails to achieve a consensus in that no form of stakeholder engagement has taken place as a consequence of which there can be no consensus. In place of this, the IOT operator's Additional NRA produced by NASH Maritime makes assumptions and presents a biased assessment, with no evidence that any port stakeholder confirmed or validated their internally held opinion on risk consequence or frequency. It is the Applicant's' view that for this reason alone, this additional NRA is valueless and can be given no weight.	The reason the IOT Operators' shadow NRA ("**sNRA"**) [REP2-064] was drafted was the Applicant not addressing the concerns raised by IOT Operators. As such the sNRA should be given the full weight of IOT as operator of nationally significant infrastructure. It should be noted that IOT commissioned NASH Maritime to undertake an independent assessment, which has been carried out. The Applicant's NRA fails to use an adequate risk assessment methodology, as it; • does not provide a clear baseline of vessel traffic in relation to IERRT development – the IERRT infrastructure is not included on any of the plots provided and swept path analysis of coastal tankers and estuarial barges using IOT Finger per was not provided. *This is corrected in the IOT sNRA at Section 7.* • Does not use appropriate likelihood classifications for hazard scoring and relies on "word descriptions" only, akin to a basic "slips, trips and falls risk assessment". *This is corrected in the IOT sNRA at Table 4.* • Does not provide any "standard of acceptability" as mandated by the PMSC for the risk assessment to define tolerability levels. This is partly due to the informal use of hazard likelihood "word descriptions", but also because no references

		to "*appropriate standards*" or even a defined approach to risk appetite is proved. *This is corrected in the IOT sNRA at para. 212.* • Does not provide key details associated with the proposed design of the IERRT or the vessels using it (e.g. the impact protection proposed does not appear to be designed to any particular parameter, and neither does ethe IERRT infrastructure itself appear to be designed with withstand an errant IERRT vessel). *This is corrected in the IOT sNRA at Appendix D.* • Conflates and combines embedded and additional risk control measures. *This is corrected in the IOT sNRA at Section 11 and Table 2.* • Does not explain or provided any detail on the cost benefit analysis assessment mentioned in their NRA which justifies that there is not a need for the impact protection. *This is corrected in the IOT sNRA at Section 10 & 12.4.* • Does not provide any costs for mitigation measures in their cost benefit assessment in order to determine that hazards are ALARP *This is corrected in the IOT sNRA at Section 12.4* A particular concern raised by the Applicant is in relation to consultation. It is however clearly stated in the IOT Operators' sNRA that the consequences scores of hazards in the qualitative assessment (see sNRA para. 198) were reviewed in conjunction with consequence scores collected as part of the Applicant's hazard workshops. Therefore, the consequence of hazard occurrence in the IOT qualitative assessment is directly linked to the outputs of the two hazard workshops attended by IOT and other operators. As such the useful and proactive attendance by IOT Operators and other stakeholders is fully embedded in the qualitative navigation risk assessment of the IOT sNRA.

		It should be noted that had the requested details on historical incident magnitude, or the current baseline risk assessment, etc. for the IERRT area been provided by the Applicant, then these could have been included in the IOT Operators sNRA as well. Indeed, IOT Operators have sought to include the Applicant and ABP in the sNRA process through repeated requests for this information (See section 2.3 for summary of requests) and have not received a response on these matters from the Applicant.
		
		The only exception to this is the Port of Immingham Marine Safety Management System, which was provided at Deadline 3, as required by the ExA, following submission of the IOT Operators sNRA. As such this was not available for the IOT Operators sNRA. However, IOT Operators note that the Port of Immingham Marine Safety Management System as provided is a version that includes the following updates from ABP Group:
		• 8 May 2023
		  ○ Section 4.7 Pilotage
		  ○ Section 1.2 Marine SMS Components
		• 4 September 2023
		  ○ Port Marine Ops Manual Overview
		  ○ Section 1.1.1 Associated British Ports
		  ○ Section 1.2 MSMS Components
		  ○ Section 1.5 Designated Person
		  ○ Section 1.7 Director Safety, Engineering and Marine
		  ○ Section 2.2 Use of Formal Risk Assessment
		  ○ Section 2.2.5 Significant High Risk
		  ○ Section 2.3 Implement a Marine SMS
		  ○ Section 2.5.1 MARNIS Incident Database
		  ○ Section 2.7.4 Enhanced Internal Audits
		  ○ Section 2.7.5 External Audits
		  ○ Section 3.4 Local Port Services
		  ○ Section 3.9 Civil Contingencies Duty
		  ○ Section 4.16 Mooring and Berthing

		○ Section 4.9 Port Passage Plan and MPX In relation to the manual the IOT Operators have not been consulted on any of these changes, and it should be noted that the manual as provided postdates the manual in effect at the time of the IERRT NRA. IOT Operators therefore require that the appropriate version for the manual (e.g. Version 4.4 Dated 02 Feb 2022 [REP3-017]) be provided and that an appropriate consultation exercise is established for IOT Operators to understand that changes made such as "*Significant High Risk*" tolerability levels for hazards. The Applicant has stated that the sNRA is biased. No evidence of bias has been identified and as such IOT Operators are not able to respond to this statement in any detail. However, the IOT Operators commissioned NASH Maritime to undertake an independent, open and transparent NRA to address the short comings of the Applicant's NRA, which is what has been provided. The sNRA report notes at Section 12.2 Recommendations that the sNRA could be updated if further information as requested from the Applicant is provided.
1.4 – 1.6	**Intolerable assessments**: In the additional NRA produced for the IOT Operators, two risk assessments have been identified as intolerable at the baseline (embedded stage). These risks are – • ID 10, Contact (Allision) - IERRT Ro-Ro Vessel with IOT Trunkway; and, • ID 13, Contact (Allision) - IERRT Ro-Ro Vessel with IOT Finger Pier. For these risks, NASH Maritime consider that the worst credible scenarios would occur between 1 in 10,000 years to 1 in 100 years. This is a totally unrealistic and quite untenable	It should be noted that the Applicant is referring to the results of the qualitative assessment of navigation risk as presented in Section 9 of the IOT Operators sNRA. The likelihood classifications provided at Table 4 of the sNRA, are directly derived from the IOT Operators' COMAH risk assessment (provided at Appendix B of the sNRA and previously shared with the Applicant on 25 July 2022), which is based on HSE COMAH regulations, which provides for defined "standards of acceptability". As such the Applicant is simply demonstrating that they either are not aware of, or do not understand, risk assessment in the context of major accident hazards. The Applicant should look beyond a single site life span only likelihood approach (using "word pictures") and instead use a risk assessment method that addresses broader

	timescale within which to consider frequency when it is immediately evident that there is a substantial lack of granularity. In addition, NASH Maritime have concluded that the appropriate 'description' for a risk that can occur up to once in every 10,000 years is 'Reasonably Likely'. This conclusion does not stand against the application of reasoned logic.	societal risk – such an approach is mandated by the HSE in Reducing Risks Protecting People (see para. 181 of the sNRA). Is it not clear why the Applicant states that a once in a 10,000 years event is considered 'Reasonably Likely', as at Table 4: IOT COMAH Hazard Likelihood Categories it is an event that could occur **between** 1 in 100 years to one in 10,000 years. This range is used as it is derived from the IOT HSE COMAH Safety Report, which derives likelihood bands from HSE through Reducing risks, protecting people - R2P2 – see sNRA para. 320 for an explanation.
1.7 – 1.8	**Use of COMAH**: The Additional NRA applies HSE/COMAH tolerability guidelines in reaching its outcomes. The use of COMAH as assessment criteria in an NRA is not considered appropriate for information 'navigational risk'. COMAH relates to a port's terrestrial infrastructure. In a comparable NRA, also written by NASH Maritime and cited by DFDS in their NRA, the 'Solent Gateway NRA' (NASH Maritime; 2021) does not apply COMAH assessment criteria whilst being a COMAH site. It is neither appropriate nor correct to apply HSE/COMAH tolerances or assessment matrix for navigational assessments.	IOT Operators are a COMAH site and are required under regulation to undertake COMAH Safety Assessment. This is a legal requirement of IOT Operators under the COMAH Regulations 2015 (see IOT sNRA para. 178). Whereas the Applicant is relying on a code of practise (Port Marine Safety Code), which in any event relies on very similar requirements to HSE for the assessment of risk. Further, the PMSC does not provide an exact requirement on the risk assessment methodology that is employed, whereas the HSE provide more guidance (as noted at Section 5.2.2 and 5.2.3 of the IOT Operators sNRA). It is therefore a legal requirement for IOT to address COMAH hazards, which can and do relate to marine operations and their possible impact on the IOT Operators' facility (as has been communicated to the Applicant numerous time and is included in Appendix B of the sNRA).
1.9 – 1.10	**Inappropriate use of receptor descriptions**: The Additional NRA produced for the IOT Operators attempts to present a perspective based information as fact in several areas. For example, the translation of likelihood descriptors into frequency year bands where 'rare' is summarised as 1 in a	IOT Operators have explained, prior, during and following the hazard workshops that the "word picture" frequency bands used by the Applicant (which include that hazard is occurrence is "almost certain", "likely, possible", "unlikely" and "rare"), is not appropriate as it does not follow any guidance and is different between different phases on the IERRT development.

	million year chance. In so doing, the NRA has invalidated any data that has been drawn from the HAZID workshops as they have guessed that stakeholders had 1 in 1 million year event in mind when they selected the associate word picture for 'rare'. This is but one example and can be applied to the other likelihood descriptors.	IOT Operators have adopted a HSE-approved approach. The Applicant's consultants should be able to assimilate rare event probabilities for stakeholders to comprehend. For example, a once in 1,000 year event for a particular ferry terminal could be said to be equal to a 1 in 10 year event for 100 ferry terminals (e.g. which could relate to the number of ferry terminals in Europe). In any event however, the qualitative stage of a risk assessment need only identify the hazards that are of concern, and which require further investigation through more quantitative means – such as is provided in the sNRA at Section 6.3.
1.11 – 1.13	**Selective use of methodology**: In addition, NASH Maritime endeavour to lead the reader to believe that they are the arbiter of what elements should or should not be present within an NRA. There are countless claims that 'x' element 'should' be present in an NRA, when the authors of the NRA have not historically included such elements in work which they have produced, both when contracted by ABP and for other clients. An exceptionally poignant consideration in this regard comes from an NRA produced by NASH Maritime as cited by the NRA submitted by DFDS, namely the NRA produced for the Solent Gateway scheme which interestingly, that development included a COMAH site. In the NRA produced by NASH there is no consideration given to any HSE or COMAH regulations. There is certainly no consideration given to using COMAH based tolerances to identify whether risk is or is not acceptable. That is a correct stance in the context of an NRA as the risks considered are for navigation. The stance represented by the authors of the IOT	The Applicant has not understood the basic premise of the International Maritime Organization Formal Safety Assessment[1] risk assessment methodology (which is the overarching methodology for risk assessment in the UK when referencing both the PMSC and the MGC MGN 654), which defines in section 3.1.2: *3.1.2.1 The depth or extent of application of the methodology should be commensurate with the nature and significance of the problem; however, experience indicates that very broad FSA studies can be harder to manage. To enable the FSA to focus on those areas that deserve more detailed analysis, a preliminary coarse qualitative analysis is suggested for the relevant ship type or hazard category, in order to include all aspects of the problem under consideration. Whenever there are uncertainties, e.g. in respect of data or expert judgement, the significance of these uncertainties should be assessed.* The qualitative assessment as identified by the IMO FSA is provided in Section 9 of the IOT Operators sNRA, and hence the detailed

[1] See appendix to this document

	Operator's NRA, therefore, is clearly at odds with their own historic work and the precedent and work performed across the industry and it is disappointing that such an unbalanced additional NRA has been produced.	quantitative assessment provided at Section 10, 11 and 12 is focused on the high-risk hazards only. NASH Maritime conducted a Navigation Risk Assessment for Marchwood Port Development for Solent Gateway in early 2021. The assessment was undertaken in consultation with the ABP Southampton Harbour Master, who had specific concerns with regards to the increase in vessel traffic brought about by the commercial development at Marchwood port for the commencement of automotive, general cargo and aggregate trade of up to around 200 vessel arrivals in total. COMAH related issues were not considered in the NRA as the additional vessel traffic brought about by the development did not impact the Solent Gateway COMAH Safety Assessment and the ABP Southampton Harbour Master had no concerns in this regard. Also, as Solent Gateway were the developer of the Marchwood Port Development and the holder of the COMAH site status then any COMAH issues that may have arisen would already be addressed prior to the development being proposed. This is not the case for the IERRT where the Applicant is not the operator of IOT. A qualitative assessment of risk was undertaken using the ABP Southampton MarNIS risk assessment methodology – although as noted in the Solent Gateway report, the ABPmer MarNIS risk algorithms had to be updated to address several systemic errors in software risk algorithm identified by NASH Maritime in its review of the ABP Southampton baseline risk assessment: *"The ABP Southampton navigation risk assessment was extracted from MarNIS into an excel format and reviewed by the project team. The review showed that many of the resulting risk score calculations appeared incorrect and did not follow the prescribed risk assessment methodology as presented. This observation was raised with ABP Southampton for clarification and ABPmer Ltd subsequently*

		confirmed an error in the MarNIS software causing the calculated risk scores to be incorrect due to a software 'glitch'. Following a software update by ABPmer Ltd to rectify the issue, the majority of the hazards risk scores in the ABP Southampton risk assessment changed. Hazard risk scores presented in this report are based on the correct risk calculation. Based on the revised scoring subsequently, some hazards were reviewed by ABP Southampton to ensure and confirm that all hazards were mitigated to acceptable levels." (see page 48 of the Marchwood Port Development: Navigation Risk Assessment). As noted above however, the key issue identified by the ABP Harbour Master for the Marchwood Port Development was the increase in vessel traffic (up to approximately 200 vessels per year), and how this could increase risk in high vessel traffic density areas of the Port of Southampton. This was addressed **quantitatively** in detail by conducting Collision Risk Modelling (See Section 3.3) for the additional vessel movements within the ABP approach channels – this approach is as per the IMO FSA recommendations. The risk modelling proved the increase in risk was minimal in the context of between 23,000 to 45,000 vessel movements per year in the Port of Southampton, and therefore risk could be managed with the current control measures in place, so no further controls were necessary. Given the relatively small increase in vessel traffic for the Marchwood Port Development Navigation Risk Assessment, of between 0.66% to 1.3% for the Port of Southampton and the ABP Southampton Harbour Masters requirement for complex collision risk modelling (as noted in MGN 654 Annex 1 as a higher level quantitative assessment technique), it is incongruous that for the IERRT, which has a significantly greater increases in vessel movements of between 6.1% to 12.2%, that neither the ABP Humber Estuary Services or the ABP Harbour Master Immingham required Collision Risk Modelling to be undertaken. This is despite the increase in absolute percentages

		terms to be an order of magnitude higher than for Marchwood Port Development in ABP Southampton. IOT Operators make these observations to make clear that **quantitative** modelling techniques are available and can be deployed to further investigate complex navigational risk situations. These methodologies can determine hazard likelihood to a high degree of precision and to a granular level (as compared to **qualitative** approaches). Similar approaches are commonplace in COMAH assessments and for process safety. However, the Applicant does not seem to be aware these techniques exist and can be deployed for the Humber Estuary. Note that to calculate % increase for IERRT the following figures were used: • IERRT Arrivals 1,094 arrivals • Humber Estuary Ship movements (from the Applicant's NRA at Table 4) as follows o 9,000 - 18,000 commercial ship movements based on ▪ Passenger Vessels 1,435, ▪ Cargo vessels 12,956 and ▪ Tankers 3,525 • Note is it not clear whether these numbers relate to arrivals or arrivals and departures.
1.14 – 1.18	**Use of controls**: The additional NRA produced by NASH Maritime for the IOT Operators takes an exceedingly lean view of the possible controls that could be implemented to reduce the risk of an allision occurring between a Ro-Ro vessel and the Finger Pier or the IOT Trunkway. Surprisingly, albeit only in some respects, there are only 3 controls identified for implementation to reduce the intolerable risks to a tolerable state. These are, move the finger pier,	The IOT Operators sNRA does not take a "lean" approach to risk controls, but accurately and clearly classifies risk controls such as the provision of pilotage as embedded. Whereas the Applicant's NRA does not even mention pilotage as an embedded measure and seems to suggest that it is provided by the project to mitigate the risk of the development. This is at odds with the Applicant's Hazard workshops, where it was understood by attendees that scoring included all controls that were already in place, and that pilots (and Pilot Exemption Holders) should be appropriately trained for IERRT (see IOT Operators Letter of 16 September 2022 – Section 3 [REP2-063].

	establish impact protection measures and develop a marine liaison plan. The NRA submitted by the Applicant as part of its DCO application already acknowledges the need for a Marine Liaison plan and has stated that the Applicant has not ruled out impact protection. These two controls along with a substantial list of other controls identified by the Applicant are sufficient to reduce the risk associated with allision to the point where the risk is considered ALARP and tolerable by the SHAs. This, unlike HSE/COMAH policy, is what can be considered an appropriate standard of acceptability for Navigational Risk Assessments as the Harbour Authorities are Statutorily empowered to make this determination for safe conduct within their Harbour areas. The additional NRA produced by NASH Maritime is, therefore, distinctly narrow in terms of assessment and approach. This is evidenced by the 'Qualitative Risk Assessment Hazard Logs' at Appendix C by only considering the 3 controls referenced above, when in fact there are many other ways that risk could be reduced to an ALARP and tolerable state. It is not surprising as NASH Maritime came to these conclusions in isolation, without conducting any form of HAZID or stakeholder engagement which is in direct contravention to the PMSC which states this to be essential.	If the Applicant is of the view that pilotage is not an embedded risk control for the Project (to which IOT Operators would dispute), then the hazard workshop should be rerun with this clearly documented to attendees, such that hazard likelihoods could be scored properly, alternately the methodology needs to be revised for the Applicant's NRA – note that hazard risk would increase significantly if the assumption that Pilots (and Pilot Exemption Certificate Holders) were not required for the IERRT in the base case. The IOT Operators sNRA shows that in effect the only additional risk controls identified and adopted to mitigate impact with the IOT for the Operational Phase (see sNRA *Table 21: ABPmer and IOT Risk Control applied to IERRT NRA Operation Hazards* which provides a summary of adopted risk controls of the Applicant's NRA as none is provided by the Applicant) is ABPmer RC2: Additional pilotage training/ familiarisation. If the Applicant considers IOT Operators three controls as lean, then the Applicant's number of controls could be described as sparse, or more accurately non-existent as pilotage is already provided. Applicant seems to imply that a "Marine Liaison Plan" is an adopted risk control measures for the Operational phase of the IERRT – however this is not a risk control that is even mentioned in the Applicant's NRA. The closest reference in the Applicant's NRA is to a "Marine Liaison Officer" which seems only to be adopted as a control measure for the Construction and Construction Stage of the IERRT development. It is not clear in the Applicant's NRA where even the "Marine Liaison Officer" control measure is secured, even if it does not relate to operational phase of the IERRT development.
1.19 – 1.23	**Application of intolerability concept**: The IOT Operator's additional NRA produced by NASH Maritime states that any outcome that is scored at 6 or above (on a 1 to 10 scale) has been considered as intolerable.	IOT Operators sNRA has been very clear around the standards or acceptability used in the assessment (see sNRA Section 5 and how this relates the risk matrix at sNRA para. 212 and the ensuring categorisation of hazard risk and acceptability). This is entirely transparent and based on HSE approved thresholds.

	This is simply an arbitrary and simplistic view of tolerability and does not apply the concept of tolerability appropriately. There is no reasonable justification for selection 6 as a threshold. ABP, as the Statutory Harbour Authority, has defined its tolerability thresholds based on four receptor criteria (as identified in the Port Marine Safety Code). The receptor criteria are individually applied for each risk assessments in the NRA prepared as part of the DCO. This is far better practice for determining tolerability because the appropriate authority for hazards and safety has been able to consider, in plain language, the stance adopted in relation to risk acceptability across the entire ABP Group. Further, by considering each receptor individually, it is possible to differentiate between the tolerance of different aspects as the set of consequence descriptors change. The arbitrary score of 6 that has now been used in the DFDS NRA, the two NRAs cited by DFDS and the NRA produced for the IOT Operator's, are all based on different consequence and frequency descriptors and it demonstrates how dangerous it can be to place reliance on the representation of a risk outcome as a number to determine whether a risk is or is not tolerable.	The tolerability thresholds described by the Applicant are nonsensical as they do not relate to any accepted standards. The subjective approach used to likelihood classification ("word pictures") simply prevents any objective or evidence-based classification of tolerability. Further the Applicant has not realised that the whole point of building up a consequence table (see Table 15 in the Applicant's NRA and Table 5 in the sNRA) is to try and benchmark the consequence classification across each consequence type to be broadly the same. For example, for business and property similar cost values are used across the same level of consequence, so that the same tolerability scores can be used. Further correlation between consequence classifications is demonstrated when cost of fatalities is considered, which are broadly comparable cost to property damage in direct relation to cost of life parameters (see sNRA para. 321). The Applicant has either not understood or not realised this as a key tenet to developing a qualitative risk assessment methodology (although it is used by the Applicant's own marine risk consultants ABPmer in the MarNIS software which is used for all marine risk assessment in ABP ports as mandated by the MSMS although for some reasons it has not been used on the IERRT project). The Applicant has instead developed a more complicated process of multiple tolerability levels for each consequence classifications (e.g. people, property, planet and port) and "word pictures", despite them being broadly the same in cost terms (the only common denominator). A particular challenge in standardising consequence levels across the different classifications relates to environmental impacts (defined as "planet" by the Applicant). IOT Operators have however used defined categories for environmental impact based on the Department of the Environment, Transport and the Regions Guidance on the

		interpretation of Major Accident to the Environment for the purposes of COMAH regulation (see Table 5 of the sNRA). No references are provided by the Applicant in relation to environmental impact. For the Applicant to have a risk assessment methodology that is over simplistic on hazard likelihood, benchmarks similar consequences levels, but then has different tolerability levels across different consequence types is an enigma – it simply does not make any sense and is also at odds with the: • Methodology employed by ABP who use the ABPmer MarNIS software across the group as per the Port of Immingham MSMS. • Methodology mandated by ABP Southampton for the Marchwood Port Development. • Methodology mandated by ABP Humber for the Able NRA. • Methodology proposed by ABP for the Immingham Green Energy Terminal.

B: Comments on ABP's Response to the IOT Operators' Written Representation [REP3-011]

Paragraph No.	ABP Response	Comments by the IOT Operators
2.1 – 2.4	**Need**: The Applicant notes that the IOT Operators are not directly challenging the need case that has been presented. The analysis of policy contained within section 2 of the IOT written representation is directed at demonstrating, having regard to the content of relevant policy and guidance, the importance of the IOT facility. The Applicant does not dispute the importance of the IOT facilities or the associated refineries. The issue raised by IOT in this section of its written representation is a more detailed repeat of the point raised	The IOT Operators reiterate that the IOT and refineries are deemed to be Critical National Infrastructure by the National Protective Security Authority and there is clear policy support in favour of the IOT and refineries which is set out in further detail in Section 2 of the IOT Operators' Written Representation [REP2-062] and in the IOT Operators' written summary of oral submissions at ISH3 and ISH4 submitted at Deadline 4. For the reasons set out in the Written Representation [REP2-062], sNRA [REP2-064] and other submissions to the examination, the IOT Operators consider that the

	during the ISH2 session. In summary it is understood that IOT's concerns relate to the implications of the proposed IERRT development on its facility. As explained elsewhere within the Applicant's evidence, the Applicant does not consider that the IERRT development will have a significant adverse impact on the IOT facility or its operations. As such, the Applicant's evidence is that any adverse impact of the proposed development on the IOT facility – even having regard to the stated significance of that facility and the refineries it serves – would not outweigh the benefits of the IERRT development.	proposed development as currently proposed will have serious implications on the ability of the IOT and refineries to operate safely.
4.1 – 4.3	**COMAH Implications**: With reference to paragraph 4.1, the Applicant is not clear on the underpinning rationale to the statement that the IERRT development has the potential to have a significant impact on the IOT Operators' COMAH safety case. The Applicant does accept that there will be a small increase in shipping movements in the area, as referenced in paragraph 4.2, but does not agree that there will be an increased risk to the IOT Operators' safety case arising from maritime operations at the IERRT. The Applicant does not consider that the use of COMAH is appropriate in undertaking an NRA and has explained this point in its response to the ExQ1 submitted at Deadline 2 [REP2-009], its Preliminary Response to the IOT's Navigational Risk Assessment submitted at Deadline 3 and will further supplement this in advance of the examination hearings scheduled to commence 27 September.	IOT Operators have repeatedly stated (most recently in the sNRA para. 180 Appendix B, but although through attendance at hazard workshops, simulation and various meetings / correspondence) that vessel allision with IOT infrastructure is amongst the most significant and highest hazards contained within the IOT COMAH Safety Plan. As the IERRT proposals will bring about over two thousand IERRT Ro-Ro vessel movements in close proximity of the IOT per year (over one hundred thousand vessel movements over the 50 year life span of the proposed IERRT), there is a commensurate increase in exposure of IERRT vessel allision risk with the IOT with the IERRT in place. Further, the control measures that are applied to IOT vessels in the sNRA (especially IOT Finger Pier bound vessels) are more restrictive and therefore more effective than those proposed in the Applicant's NRA. The Applicant has also not provided the detail on a procedural control for the management of vessel allision risk with the IOT and as such their use to demonstrate risk acceptability cannot be guaranteed by IOT Operators.

		Therefore, the impacts to the COMAH safety plan for the IOT is both real and likely to result in unacceptable risk and consequent requirement for IOT Operators to mitigate, if the Applicant is not able provide the requisite mitigation in the form of impact protection.
5.1 – 5.4	**Mitigation and Protective Provisions**: With reference to paragraphs 5.4(a) and 5.4(b), the Applicant notes that IOT has reiterated its views regarding the claimed inadequacy of the risk control measures identified in the Applicant's NRA [APP-089]. Table 7.17, Row 1.12 of document [REP1-013] (the Applicant's Response to Relevant Representations) sets out the Applicant's position in relation to these matters, concluding that "*Following a comprehensive risk assessment exercise, which culminated in the NRA (APP-089), the Statutory Harbour Authorities have satisfied themselves that such additional mitigation measures (which in themselves would represent a material betterment for IOT Operator's existing use of its own facility) are not required as part of the proposed development to ensure the safe continued operations of the IOT*." Further, and as stated in the Applicant's Response to the ExA's First Written Questions [REP2-009] at question NS.1.12, the NRA [APP-089] has concluded that impact protection measures for the IOT trunk way are not required to meet the ALARP required condition. The Applicant's response to question NS.1.13 then sets out the process should the Navigation Authority considers that that the provision of impact protection measures may be necessary. With reference to paragraph 5.4(c), Marine Liaison Plan, the Applicant has committed to liaising with the IOT Operators as described in the NRA [APP089] in Annex B, Table B1, where there is an 'Applied Control' identified for a 'Port Liaison Officer' to be implemented by the Port of Immingham. This will be managed through the MSMS and a dialogue with the IOT to	The Applicant's commitment to provide and consult with IOT on a Marine and Liaison Plan was not considered in the Applicant's NRA. IOT Operators have clearly set out the requirements for the Marine and Liaison Plan (see sNRA Section 11.2.3), which IOT Operators consider captures a number of themes of procedural risk control measures identified by the Applicant, but which are not clearly presented within the Applicant's NRA. Specifically, the Applicant's NRA does not provide the detail of each control measure (for example the impact protection additional risk control measures don't appear to be designed to withstand the impact from an errant IERRT vessel – no details are provided). Further at ISH 3, the Applicant confirmed that procedural controls would not be included in the DCO, and that it would be left to the Humber Estuary Services Harbour Master or Port of Immingham Dock Master to establish, manage and police procedural control measures. As a result these measures cannot be considered as adopted / secured additional risk control measures in the Applicant's NRA / DCO. The IOT Operators question the independence of the Harbour Master and Dock Master functions, which report to the Applicant (ABP) and are paid by the Applicant (ABP). Further the ABP Designated Person, charged with ensuring independence of marine safety decision to the Duty Holders (HASB), is a member of the HASB and employee and Director of the Applicant and a line manager for the Applicant's engineering teams, responsible for designing the IERRT. In relation to the Marine Liaison Officer specified as required in the Applicant's NRA, it is only listed against construction and construction / operation phases of the IERRT and is not assigned as an adopted

	ensure that safe construction can occur without adversely affecting the IOT's operations. As such, the Applicant considers that the IOT's amendments to their protective provisions [REP1-039] are neither appropriate in the circumstances, nor can they be justified as being necessary. The Applicant will continue to engage with IOT in order to settle protective provisions which provide IOT with adequate protections, whilst being appropriate and proportionate.	measure for the operation phase of the IERRT (note that the IOT sNRA only considered the operational phase of the IERRT).

C: Comments on ABP's Response to ExQ1 Submissions by the IOT Operators [REP3-016]

Question		ABP Comments	Comments by the IOT Operators
NS.1.1	**Stakeholder consensus in NRA** Expand on the views made at ISH2 that the Applicant is required to produce a Navigational Risk Assessment (NRA) with stakeholder consensus. (If not already included in written note following representations made at ISH)	In response to NS.1.1, DFDS and the IOT Operators have provided an excerpt of the PMSC which describes the 'essential' nature of involving those who work in the port by establishing good channels of consultation. The Applicant notes that DFDS's NRA [REP2-043] only included DFDS and one additional port user (excluding consultants) and the IOT Operators' NRA did not include any stakeholder engagement at all. The DFDS response to NS.1.1 mentions that during the HAZID there were "occasions" when there was disagreement between attending stakeholders. This is to be expected when a large group of people with differing viewpoints meet. Importantly,	IOT Operators consider that the Applicant's NRA makes no attempt the reach consensus with stakeholders, especially IOT Operators who have clearly required impact protection, relocation of the finger pier and implementation of a Marine and Liaison plan for the project to be considered navigationally safe.

		there was a process in place to deal with disagreement – to take the median value of the disagreeable positions or, if the positions were adjacent, the upper category of the two was taken. The Applicant disagrees with DFDS's comment that ABP/ABPmer "appeared to ignore the views of the stakeholders and set out their own views as the record of the meeting." ABPmer facilitated the workshop and did not register its own position on the risks. Rather, ABPmer simply repeated back to stakeholders what had been said. The example provided regarding the Applicant being told that the tidal flow is wrong is not relevant to the HAZID process of resolving issues around consensus. However, the Applicant has responded to this point at NS.1.21 in this document. Further, the section of the PMSC highlighted by the IOT Operators describes how an organisation should seek consensus. There has been considerable attempt by the Applicant to seek consensus with stakeholders in workshops and additional meetings. Where consensus has not been possible in respect to risk assessment, the method described previously in this response was applied.	

NS.1.9	**Bunkering from barges** Do vessels at the finger pier berths 8 and 9 ever need to be bunkered from barges rather than the jetty's infrastructure?	The Applicant notes the response from the IOT Operators that vessels at the Finger Pier berths 8 and 9 are not bunkered from barges. The Applicant is aware of the request to accommodate tank washings from alternative feedstocks. This is a new proposed operation under consideration by the IOT Operators.	Although the utilisation of barges for MARPOL Annex II tank washings is new, the terminal has historically utilized Slops barges for cargo tank washings in conjunction with using direct discharge via pipeline to its shore recovery system to responsibly collect and process oily slops from vessels utilising the terminal. However, *MSN 1829* entered into force in May 2012, which set out further guidance and regulations for ship-to-ship (Annex 1 Oil cargo) transfer operations. Curtailing the use of Slops Barges as an option for disposal. This recent request to use barges for Annex II Cargo washings was to facilitate the efficient waste management of new sustainable feedstocks to the refineries (Such as Used Cooking Oil) which are listed under MARPOL Annex II rather than as a "normal" crude oil & products which are listed under MARPOL Annex 1. The IOT has engaged with the Harbour Authority to procure additional licences and permissions which will permit such operational transfers. This is another example of how Oil Terminals must have the scope to remain dynamic enough to react with the ever-evolving challenges posed by new sustainable feedstocks to meet the future supply demands of Green Energy.
NS.1.10	**Tug assistance at IOT Berths 8 and 9** How frequently is it necessary to use a tug or tugs for arriving or departing vessels and what are	The Applicant notes the response from the IOT Operators and has no further comments.	IOT Operators note the Applicant's response and have no further comments.

	the factors that determine when and how many tugs will be required?		
NS.1.14	**Consequences of decision to abort berthing manoeuvre** If a pilot or ship's master with a pilot exemption certificate for Immingham decides dynamically that conditions would make it unsafe to continue with a berthing manoeuvre or entry into the Port's lock, what are the consequences for that physically and administratively?	The Applicant notes the response from the Harbour Master Humber and has no further comments. The Applicant notes the response from the IOT Operators. The Applicant does not agree with the response provided by DFDS and would note that the DFDS operation at the Port of Immingham takes place in the Outer Harbour, which is highly constrained by existing sensitive port infrastructure.	IOT Operators note the Applicant's response and have no further comments.
NS.1.17	**Societal Risk Assessment** Explain what risks have been assessed in the application with respect to the potential impact of the Proposed Development's proximity to Control of Major Accident Hazards (COMAH) sites, including collateral societal risk for energy supply in the United Kingdom and how any necessary mitigation would be secured in a made DCO.	As explained by the Applicant in its response to ExQ1 [REP2-009], it is not appropriate to apply COMAH risks or controls to an NRA, as the NRA covers Navigational Risk only, and any societal risk posed by the development to the COMAH site should be considered as part of the COMAH risk assessments as part of the safety plan for the COMAH site as explained in the Applicant's response at Deadline 2. The HSE as the Competent Authority for COMAH in the UK are the lead authority and should be satisfied that the risk has be addressed and mitigated for the COMAH site and not the port infrastructure. The Applicant has engaged with HSE in	The IOT Operators sNRA [REP2-064] follows the IMO Formal Safety Assessment (as requested by the ExA [PD-013] for submission to the Examination at NS2.45 by the Applicant), Port Marine Safety Code [REP1-015] and elements of MCA MGN 654 [REP1-017] including Annex 1 (also requested by the ExA at NS2.46). None of these guidance documents specifies a specific risk matrix (including likelihood / consequence levels). As a result, and to ensure the findings of the IOT Operators sNRA meets IOT requirements, the sNRA uses the same risk matrix as used by IOT Operators for the COMAH safety report. The likelihood and consequence levels contained within this matrix are consistent with standard approaches to port NRA's. IOT Operators are not clear how the Applicant considers that the HSE will not have any issues with the IERRT development, and the Applicant has not updated the IOT

		respect of the IERRT and the HSE has confirmed that it would not advise against the proposed development. The Alternative NRA provided by the IOT Operators at Deadline 2 incorrectly draws from COMAH and HSE Guidance as noted by the Applicant in its comments on the two submitted Alternative NRAs.	Operators COMAH Safety Report to include the IERRT, which will significantly increase the likelihood and consequences of a vessel allision with the IOT infrastructure – something that is already amongst the most significant hazard that IOT Operators have identified in the COMAH safety Plan. There are significant COMAH implications given the proximity of the IOT trunkway to the IERRT development. The fact that the IERRT project may have implications for IOT's own COMAH assessment and plan is an aspect of the agent of change principle – the IOT must comply with COMAH requirements and if, as is the case, this requires change then that change is directly the result of the DCO. It is not therefore appropriate to ignore COMAH considerations in making the risk assessment – the hazards exist regardless of the direct duties under COMAH.

D: Comments on Harbour Master, Humber's Deadline 3 submission relating to the IOT Operators [REP3-025]

IOT Submission	**Harbour Master, Humber Comments**		**Comments by the IOT Operators**
Paragraph 3 of Written Representation [REP2-062] – Navigation and Shipping	Para 2.1.1	Of paragraph Para 3.2 (f), HMH considers that IOTT's criticism of the simulations is misplaced. It is agreed that simulations do not completely represent reality, but they do have merit both as a learning tool and as a tool to inform the assessment process, The benefit of doing them is that it is better to fail and learn in the simulated environment than on the river. In the	By using the most accurate, most representative ship and port models possible the validity of the exercise scenarios can be optimised. It is agreed that, as broadly stated by the Applicant's simulation provider, it is not yet possible to simulate real operations in full complexity and it would indeed be normal to commence simulations in non-complex scenarios prior to increasing the professional challenge with more difficult scenarios. However, recognising this fact, at some point, a detailed comparison of simulated parameters versus real-world

		view of HMH, they are fit for the purposes of assessing navigational scenarios and informing assessment of risk as long as their limitations are understood. While there are elements of simulation that can appear sterile or less challenging, there are a number of reasons why it can be more challenging to operate in the simulated environment than in real life. In the simulations, the master or pilot will have a number of different scenarios to consider rather than a single plan and is dropped straight into the critical part of the manoeuvre with little time to assess the surroundings and, importantly, given the human element, is having every action critiqued by a large group of observers. The simulator itself, while advanced, is limited in the amount of situational awareness it can provide both technically and from a reality perspective. In real life, the master or pilot has the support of bridge team members and, on a well-run vessel, each experienced crew member has their own clear responsibility. HES has been using simulation for training, assessment and development purposes for almost 20 years and it is our experience that the conditions of simulation have value in assessing scenarios, taking into account their positive and negative aspects.	parameters must be made by a suitably experienced, unbiased team of maritime professionals. Only through this process can the mariner adequately test the terminal design parameters, identify areas of hazard and risk, determine likely mitigations and inform the risk assessments. In so doing, it is therefore imperative not only for the infrastructure visually portrayed to be fully representative (including ships or tugs alongside adjacent infrastructure where likely), but for the tidal and wind modelling to be representative of that experienced in the area, and the marked differences between what has been simulated and the conditions occurring in real life to be adequately taken into account. To do otherwise introduces the possibility that risks have been underestimated and the likely operational parameters or commercial viability of the development has been inaccurately determined. Given the lack of clarity over tidal modelling and wind (simulated mean, gusting peak speed and duration of those gusts versus actual conditions experienced in the immediate area of IERRT), the IOT Operators remain of the view that, as evidenced in simulation reports, assumptions have been made on the basis of inadequate justification and which has not adequately completed the above appraisal process. IOT Operators additionally note that no night scenarios were trialled simulating the hours of darkness nor runs in restricted visibility where situational awareness of a bridge team could be expected to be reduced compared with the optimal clear weather, daylight scenarios. Converse to the Applicant's comment regarding a master being 'dropped straight into the critical part of a manoeuvre', multiple simulation runs actually gave the pilot or master conning the vessel model an unprecedented opportunity to become familiar with the manoeuvring characteristics of that model and the simulator, whereas a pilot conducting a vessel to a berth for the first time would have no such advantage and would not have the benefit of having manoeuvred the vessel many times previously.

Paragraph 7 of Written Representation [REP2-062] – Response to ExQ1 NS 14: ***Consequences of decision to abort berthing manoeuvre*** *If a pilot or ship's master with a pilot exemption certificate for Immingham decides dynamically that conditions would make it unsafe to continue with a berthing manoeuvre or entry into the Port's lock, what are the consequences*	Paras 2.2.1 – 2.2.3	HMH notes that the question is about the consequences of "aborting" a berthing manoeuvre, which is when the vessel changes its plan in order to avoid something going wrong. He considers it unlikely that an abort would be carried out in a manner where a RO/RO vessel would end up being pushed towards the Finger Pier by the ebb tide as, in that case, the vessel would be head west and not be required to turn around in the same way as a vessel for the Finger Pier. In practice, a vessel should always abort from a point of safety. IOTT's response appears to suggest a situation in which a vessel loses control and that no planning, preventative or remedial action is taken by it. HMH does not accept that a Ro-Ro abort would necessarily have the effect described on any IOTT vessels. In practice, a tanker is likely to be prioritised over a Ro-Ro vessel in any event.	An early decision to abort may have the benefit of time and planning, and therefore be conducted in a controlled manner e.g., when an inward vessel is advised early-on that its berth is no longer available, the visibility has fallen below an acceptable level or non-availability of towage. However, a decision to abort is normally taken when a manoeuvre has already been commenced and for some reason it is not going to plan e.g., the vessel is failing to respond as envisaged, wind stronger than predicted or an item of ship's equipment failed. It is therefore rarely undertaken from a position of comfort, prediction or safety. In this case there is no time for planning; remedial action has to be quick and intuitive to have any chance of success. Assumptions regarding the eventual heading or orientation of a vessel when forced to abort from a suboptimal situation may not be achievable in conditions of strong tidal flow or the effect of wind. An IOT tanker movement, even if prioritised over a concurrent other vessel movement, is always dependent on the progress of the vessel immediately ahead of it. Therefore, any consequent delay to an inbound or outbound tanker would impact IOT as described.

for that physically and administratively?			
The IOT Operators' Navigation Risk Assessment (NRA) [REP2-064]	Paras 3.1.1 – 3.1.3	HMH has read the additional Navigational Risk Assessments produced on behalf of IOTT and DFDS. It seems to him that in broad terms, despite the technical differences in approach and methodology, the important elements of hazard identification and ranking of risk are broadly similar with both each other and that of the ABP NRA, in that each ranks very similar highest risks and identifies similar potential control measures. It seems to HMH that the main difference of significance is that the two shadow NRAs require the implementation of the Impact Protection Measures and relocation of the finger pier in order to reach ALARP rather than identifying them as potential future controls. There are a number of other potential controls which are identified in all three NRAs. HMH does not intend to comment on detail on either shadow NRA, but there are some areas of the IOTT assessment where he would like to set the record straight:	IOT Operators note that the HM agrees with the findings of the sNRA in relation to risk of hazard occurrence, and that similar control measures are identified. However, he does not confirm whether he agrees that measures such as impact protection, relocation of the finger pier and a Marine and Liaison Plan are required, despite three independent assessments confirming that they would reduce risk, and with the IOT sNRA confirming this through a detailed cost benefit approach.
The IOT Operators' NRA – Paragraph 24	Para 3.1.4	With regard to paragraph 24 of the NRA, HMH wishes to point out that IOTT is a regular attendee at the stakeholder liaison meetings chaired by HES for operators on the Humber which are encouraged by the Port Management Safety Code, and at which matters affecting the Port of Immingham and HES are discussed as	The ABP Harbour Masters (HES Harbour Master and Port of Immingham Dock Master) undertake consultation through annual liaison meetings which IOT Operators attend. These meetings are not risk assessment or hazard workshops and primarily deal with promulgation of information by ABP. Where safety issues have been raised by IOT Operators these have often been brushed aside.

		well as operational and other issues of concern to individual operators. Minutes of those meetings are circulated to IOTT.	IOT Operators have not been engaged in any regular formal risk assessment process to define and assess baseline (current) navigation risk, and identify and implement risk control measures needed to mitigate risk for either the ABP Humber Estuary Services statutory port area or the ABP Port of Immingham Statutory port area to acceptable levels. Analysis undertaken in the sNRA [REP2-064] shows the ABP Humber has the highest alision rate of any port with Ro-Ro traffic in the UK. Where specific navigation mitigation measures are in place for IOT, then these have often been led by IOT Operators keen to maintain the safety of IOT. As the existing baseline NRA for the area has not been shared with IOT, and neither has IOT Operators been engaged in either the production or continuous review of the baseline NRA. As a result IOT Operators are not able to comment on management risk and are not aware of whether these risk controls are contained within the ABP PMSC baseline NRA. For example, the limitation imposed on Coastal Tankers berthing only during flood tide conditions at the IOT Finger Pier, was implemented to protect the IOT Finger Pier and Trunkway, was raised and implemented by IOT Operators (in consultation with ABP Harbour Masters).
The IOT Operators' NRA – Paragraphs 88 – 97	Paras 3.1.5 – 3.1.6	HMH is also concerned about the way that session three of the simulations – at which he was present, as were IOTT and DFDS, is described in paragraphs 88 to 97 of the Nash Maritime NRA. The largely negative description does not reflect the collaborative approach or verbal positive feedback during the sessions. As an independent party who understood the concerns raised by other parties, HMH effectively took the lead in shaping the session with the clear aim of ensuring that all concerns were dealt with satisfactorily. Everyone present	IOT Operators maintain that the content of REP2-064 is primarily factual and therefore is representative of the conduct of the simulations including in the paragraphs outlined by the Applicant. IOT Operators, and in particular NASH Maritime observers during sessions 1 and 2, highlighted the use of ship models which were suboptimal due to either length, handling characteristics or deadweight and demonstrated a collaborative approach themselves by suggesting alternatives with the aim of obtaining the most realistic outcomes from the simulation sessions for the benefit of all parties. Similarly, the introduction of wind shading, originally deemed as not required by ABP and HR Wallingford ("**HRW**") was reluctantly introduced in a very limited

		was encouraged to provide input to scenarios and have their say. At the end of the session, all present confirmed that they were satisfied with the process they had witnessed and did not need any further runs. With regard to paragraph 91, HMH was simply helping to move the process forward by, entirely properly, pushing the users of the simulator to test the parameters. It is worth noting (i) in relation to paragraph 94 that IOTT provided input into the emergency scenarios and those present discussed being ready with the anchors as a potential additional control to reduce risk and (ii) in relation to paragraph 97 that the Rix Phoenix Captain confirmed that he was comfortable with the possibility of changing his current practice to reflect the new conditions.	number of simulation runs during Session 3. The eventual agreement of ABP and HRW to develop more appropriate ship models and wind shading for Session 3 was appreciated by IOT and did indeed highlight issues not apparent during Sessions 1 and 2. IOT operators question the independent nature of HMH given that he is an employee of the Applicant. It is correct that in many of the simulation runs, IOT observers confirmed that they were content and in agreement with the recorded outcomes. However, in others, contrary opinions verbally expressed by observers were either ignored, derided or overruled by HMH and were not always correctly reflected in the HRW report. Session 3 post event discussion was held in an adjacent room at the request of HMH between HRW/ABP and NASH/IOT at which concerns regarding the outcomes from some simulation runs was voiced and agreement was not reached. There was a pre-determined scripted run plan during Session 3 and no time for observers to request additional runs, if required, due to the intended use by ABP of the simulation facility to commence simulations on another project. With regard to paragraph 91, in order to realistically determine the time taken to conduct a manoeuvre and therefore understand the impact to other river and lock traffic in the compact area adjacent to Immingham Lock bellmouth, and therefore the risk, it is necessary to allow simulations to progress independent of interference by facilitators. Facilitators should also allow an aborted manoeuvre to complete in order to demonstrate that such an abort can be safely concluded rather than simply terminating an exercise ‘for the sake of time’. In relation to paragraph 94, the scenario was agreed between ABP, HRW and Stena but not by IOT (or DFDS) in their capacity as observers. IOT therefore supports that comment in paragraphs 94 and 95 of REP2-064 is justified and correct, especially in that more

			scenarios should have been trialled, with greater stern speed and a greater time delay in deploying anchor(s) including an event where anchors were unable to be deployed at all. In respect of paragraph 97, it is correct that Rix Phoenix PEC holder stated that he would need to (and potentially could) amend his current approach due to the intended footprint of IOT infrastructure. However, he also commented that some manoeuvres, especially those currently taking place on spring tides and in high winds would not be possible with the proposed IERRT infrastructure in place.
The IOT Operators' NRA – Paragraphs 103 - 104	Para 3.1.7	With regard to paragraphs 103 and 104, all pilotage at Immingham is challenging and all pilots are obliged to undergo training and re-training as part of the normal day to day management of navigation on the Humber. Anyone using the new berths will be obliged to undergo appropriate training to use them, and HMH does not consider this to be impractical. HMH has described in his written representations how safety will be managed for IERRT just as it is for the other destinations on the Humber.	IOT agrees with the Applicant that any Pilotage, especially that on the Humber and in particular the density of traffic, tidal regime and mutual proximity of terminals in the Immingham area can be extremely challenging, especially navigating in an area so close to an existing multi-berth Oil Terminal. Therefore, IOT reiterate that the IERRT terminal should not be placed in such close proximity to an area that requires such challenging pilotage where allision could result in catastrophic consequences. In other UK ports, pilots, whilst following the prescribed training matrix for that port, are expected to advance to authorisation for the largest vessels as soon as possible. Humber Pilotage is unusual in that it limits (and routinely fails to meet) the number of authorised Class 1 pilots i.e., those with sufficient experience and authorisation to conduct design vessels to IERRT. As a result of this policy, advancement above Class 2 is seen by pilots themselves as discretionary, whereby many choose to remain at a lower grade in recognition that acts of pilotage on smaller vessels generally are less onerous and stressful than conducting the largest ships. This results in the roster of pilots suitably authorisation for IERRT vessels being substantially under manned and pilots being fully

			occupied during rostered periods. Tripping on vessels to IERRT or attending simulation training would therefore rely on a very limited number of off-watch pilots making themselves available for training to coincide with a time when ships and/or simulation facilities are available. This would be difficult to administer and cannot be guaranteed. Pilots could (and do) elect to make themselves unavailable for training for berths which they deem to be particularly challenging so that they effectively avoid being authorised for them. In undergoing 'appropriate' training and in recognition of the agreed complexities of manoeuvring at IERRT, it is presumed at an individual pilot would be required to undertake at least as many arrival and departure manoeuvres from each IERRT berth or the terminal as a PEC holder. Humber PEC guidelines state the PEC requirement as 9 trips in and 9 trips out of the dock, plus one tug trip in and one tug trip out (see appendix to this document). However, it is noted that the current training requirement for pilot authorisation to the terminals at IOH and HRT, which are technically easier, is only 'one trip in and one trip out' per terminal (not per berth). This level of familiarisation would be wholly inadequate for a terminal with the degree of complexity and difficulty posed by IERRT and the ethos of a Humber Pilot being 'jack of all trades but master of none' would be wholly inadequate for a terminal with the agreed complexities of IERRT. Given that the terminal does not yet exist, it is not clear how each PEC holder would obtain the required number of trips in and out prior to commissioning. Initial pilotage authorisation for a terminal is just the first step. A total of up to approximately 50 Class 1 pilots, once 'trained' would have little opportunity to remain individually familiar with the terminal when the vast majority of pilotage acts each year would be undertaken by PEC holders.

			IOT Operators note that the Applicant has made no comment regarding the content of paragraph 109-111.

E: Comments on ABP's Cover Letter [REP3-001] and MSMS Manual [REP3-017]

ABP Submission		**Comments by the IOT Operators**
Marine Safety Management System (MSMS)	Action Point 30 arising from ISH2 [EV3-012] requested that the Applicant "consider what parts of the Marine Safety Management System can be shared with the IOT's Operator's request". In the cover letter submitted at Deadline 2 [REP2-001], the Applicant confirmed that it intended to release the MSMS manual at Deadline 3. An effective MSMS is a requirement of the Port Marine Safety Code. It must be based on formal risk assessment and include an approach for incident investigation. The Code also strongly recommends that Organisations that are not Statutory Harbour Authorities seek proportionate compliance through the adoption of key measures, including an MSMS. The Code, in Section 2.12-2.14, goes on to elaborate on the contents of an MSMS, which should include safety policies and procedures; assigning responsibility for matters of marine safety and preparations for emergencies. The form and function of the MSMS is tailored to each Organisation.	In relation to the MSMS manual provided by the Applicant IOT Operators have a number of principal concerns: 1. **Baseline NRA**. The inadequate presentation of baseline documentation in the Applicant's NRA on existing control measures, particularly in relation to the current navigation risk assessment for the IERRT which documents existing control measures to manage shipping and navigation risk. To date no baseline navigation risk assessment has been provided (even though the ABP Port of Immingham and ABP Humber Estuary Services are required to by the PMSC [REP1-015] Section 2.7) despite an the MSMS mandating that an assessment is undertaken and in place.. **2. MSMS updates.** At the request of the ExA the Applicant submitted the Port of Immingham Marine Safety Management System [REP3-017], although it is noted that this has been updated recently and is not the Marine Safety Management System that was in place at the time the Applicant's NRA was conducted, and that substantial updates were made on 4-Sep-2023, including updates to "Section 2.2.5 Significant High Risk Section updated to include intolerant risk outcome and reporting lines to the HASB." showing recent changes by ABP in its process of dealing with intolerant risk – which presumably would have included those associated with the IERRT. IOT Operators

	ABP has a centralised document control method, with a 'core' MSMS manual, updated at Group level. The MSMS Manual which the Applicant is submitting for Deadline 3 is a component part of the MSMS. This manual is used at each port in the Group as a standardised format, with blue local port information boxes. The Immingham MSMS manual is a sign-posting document, which is accessed by port staff on the company intranet 'iPorts'.	should therefore require that the Marine Safety Management System that was in place at the time the IERRT development NRA was completed, should be made available. **3. Applicant's NRA approach** The Marine Safety Management System for the Port of Immingham requires navigation risk assessments for the area are undertaken using the ABPmer MARNIS risk software. This software follows a standard risk assessment methodology, and it is unclear why the Applicant chose to use a different method for the IERRT development to that mandated by ABP, and a method which is different to that used on other development projects in the Humber estuary for Able Marine NRA conducted 2021 and different to that proposed for the Immingham Green Energy Terminal which is also being proposed by the same Applicant and which is located immediately downstream of IOT. The NRA and risk assessments and assumptions made which underpin it have not been transparently or clearly explained as set out in the IOT sNRA [REP2-064] and in correspondence and representations. What is now clear is that the current version of the ABP Immingham MSMS (September 2023) sets out a different methodology than that applied by the Applicant in 2022 and in its NRA [APP-089]. The key decisions appear to have been made in October 2022 as is clear from the following documents: Methodology underpinning the NRA: • Section 10.3 of Chapter 10 of the Environmental Statement [APP-066] • Section 9.7.4 of the Applicant's NRA [APP-089] Decisions were taken in October 2022: • Section 6 of the Applicant's NRA [APP-089]

		• Paragraph 11.1 of REP1-014 It is appropriate for ABP to provide - a. Documentations relating to the decisions that appear to have been made as a result of what was discussed in October 2022, including risk and cost benefit issues, and which fed into the NRA in December 2022; and b. MSMS as it applied when these decisions were made and in force at the time of the NRA in December 2022 (see above) rather than a version that has plainly been amended at least 3 times in 2023 including the apparent replacement of the methodology (see MSMS v. 5.1.2. REP3-017 and the revisions history pp 4-9). While it is understood that the MSMS goes through various iterations over time, it is necessary to see the version which was in force at the time the NRA was under consideration and produced both (i) to compare its approach in the NRA with what is now considered the appropriate approach and (ii) to compare with the approach said by Nash and other experts to be the appropriate approach.

F: Summary of responses to ExA ISH 3 Agenda Questions [EV6-001]

The IOT Operators agreed during Issue Specific Hearing 3 (ISH3) not to make detailed oral submissions on the Applicant's NRA on the basis that discussions had been taking place between the Applicant and the IOT Operators. These discussions led to a letter (with an accompanying plan) being submitted to the Examination on 28 September 2023 [AS-020] which outlined the intention of the Applicant to make a request to amend the DCO application in order to enable the delivery of mitigation measures required by the IOT Operators. Notwithstanding these discussions, the IOT Operators wish to respond in writing to some of the agenda items and questions raised during ISH3.

a) The management of an allision or collision incident within the Port of Immingham by the Dock Master and the Harbour Master Humber.

1.1. IOT Operators note that the ABP Harbour Master Humber and the ABP Dock Master Immingham (collectively the ABP Harbour Masters) manage allision and collision risk through their Marine Safety Management Systems which are development based on the production of the NRA (this is a requirement of the PMSC [REP1-015]).

1.2. The PMSC states at para. 10 that Harbour Authorities should have a "*Marine Safety Management System: Operate an effective MSMS which has been developed after consultation, is based on formal risk assessment and refers to an appropriate approach to incident investigation*."

1.3. The ABP Harbour Masters undertaken consultation through annual liaison meetings, which the IOT Operators attend. These meetings are not hazard workshops and primarily deal with promulgation of information from ABP. Where safety issues have been raised by IOT Operators these have often been brushed aside.

1.4. IOT Operators have not been engaged in any formal risk assessment process to define and assess the baseline (current) navigation risk for the area, and identify and implement risk control measures needed to mitigate risk for either the ABP Humber Estuary Services statutory port area or the ABP Port of Immingham Statutory port area.

1.5. Where specific mitigation measures are in place for IOT, then these are often led by IOT Operators, who do not know whether these risk controls are contained within the ABP PMSC baseline NRA. For example, the limitation imposed on Coastal Tankers berthing only during flood tide conditions at the IOT Finger Pier, implemented to protect the IOT Finger Pier and Trunkway, was raised and implemented by IOT Operators (in consultation with ABP Harbour Masters).

1.6. When incidents have historically occurred, involving vessels berthing and departing the IOT, IOT Operators are often not provided with incident reports (or even invited to attend and assist with investigations) or provided with corrective actions taken by ABP Harbour Masters. For example, this is evident for recent incidents involving ABP pilot error at IOT where IOT Operators have still

not been provided with incident investigation reports into *Selin S* (28 July 2022) and *Heinrich* (19 March 2023) incidents (noted at Section 8.2.2 and 8.2.3 of the IOT sNRA).

b) Any examples of any port layouts in the United Kingdom where Ro-Ro berths and fuel import/export berths have siting relationships comparable to what is being proposed for the Port of Immingham.

1.7. The response to this question by ABPmer representative at ISH3 was fanciful and ill informed. IOT Operators cannot identify any other Ro-Ro facilities located in the vicinity of an Oil Terminal trunkway (not least to a piece of nationally significant infrastructure) in the UK, where errant berthings would result in catastrophic outcomes.

1.8. Comparable multi-berth, multi-purpose riverine petrochemical terminals with trunkways in the UK include Fawley (Port of Southampton) and Pembroke (Port of Milford Haven) which were deliberately sited, and remain, some miles distance from any other terminals or RoRo facilities, in recognition of the nature of the petrochemical products handled and associated risks.

1.9. There are several other UK harbours where both riverine Ro-Ro facilities and oil jetties exist e.g. Port of Liverpool, Teesport, Port of London (Purfleet), Firth of Forth, but these locations are wholly incomparable with the Application in that Ro-Ro and oil jetty facilities are smaller and comprise fewer jetties (so consequences are less catastrophic with more potential options in the event of redundancy of that terminal) and with no danger of breach of trunkways due to shallow water depths inshore of the jetties. RoRo and oil jetties are located at significant distances apart in other UK ports, often on opposite sides of a river and RoRo vessels do not manoeuvre inshore of the line of any of the oil jetties.

1.10. In 2008, the MAIB recognised the vulnerability of an oil terminal trunkway in the event of a nearby vessel attaining an unfavourable angle with the tide. The report into the SICHEM MELBOURNE incident at Coryton, UK (see appendix to this document) refers in particular to this in paragraph 10 of Section 1.2.2 of that report. It should be noted that Coryton ceased refining operations in 2012.

c) Differences in approach taken by the Applicant, IOT Operators and DFDS in preparing their respective Navigational Risk Assessments (NRA) [APP-089], [REP2-064] and [REP2-043] and the consequent implications for the conclusions reached in those NRAs about risk controls and acceptability.

Principal Differences

1.11. The IOT Operators have the following principal concerns with the Applicant's NRA in order of significance (all are addressed in sNRA).

1. Cost Benefit
2. Acceptability Of Risk / Risk Assessment Methodology

3. Control Measures
4. Design Of IERRT / Impact Protection / IERRT Vessel
5. Simulation
6. Data Analysis
7. Baseline NRA – no link to the current risk assessment for the area which is needed to determine.

Cost Benefit

1.12. The Applicant has yet to explain or provide any detail (in either the Applicant's NRA, or any written responses to date) on the methodology employed to conduct the cost benefit analysis assessment process used to determine that the impact protection and other IOT operator risk control measures are not required as ALARP is reached without it.

1.13. *This is corrected in the IOT sNRA in that a quantitative assessment of risk is undertaken which enables determination of risk reduction for mitigation measures (such impact protection) and provides a transparent cost benefit analysis (see IOT sNRA Section 10, 11 and 12). The IOT sNRA cost benefit analysis confirms that IOT Operators' risk controls measures are required to demonstrate that ALARP can be met for the IERRT development.*

Acceptability Of Risk / Risk Assessment Methodology

1.14. The Applicant's NRA uses inappropriate likelihood classifications for hazard scoring relying on "word descriptions" only. This methodology is akin to using a basic "slips, trips and falls risk assessment" to assess the impacts brought about by a major passenger ferry terminal located in a "challenging area" [HM / HRW] or navigation and in close proximity to a COMAH site with significant national infrastructure status - IERRT development.

1.15. *This is corrected in the IOT sNRA at Section 6.2.*

1.16. The Applicant's NRA does not provide any "standard of acceptability" to shipping and navigation risk as mandated by the PMSC (Section 2.7 [REP1-015]), and therefore the Applicant's NRA does not adequately define tolerability levels. This is also partly due to the informal use of hazard likelihood "word descriptions" as opposed to empirical probabilities (e.g. return periods).

1.17. *This is corrected in the IOT sNRA at Section 6 para. 186. That identified that the "HSE proposes that the risk of an accident causing the death of 50 people or more in a single event should be regarded as intolerable if the frequency is estimated to be more than one in five thousand years".*

Control Measures

1.18. The Applicant's NRA conflates and combines embedded and additional risk control measures. For example, Pilotage is not identified as an embedded mitigation measure (a measure that is currently used to manage risk) and is instead identified as an additional measure (a measure used by the project to minimise risk of the development). Also, many of the additional controls identified are very similar and so double counting of risk reduction is evident in the Applicant's NRA.

1.19. *The IOT Operators sNRA addresses these issues by providing a clear overview of risk control measures proposed by the Applicant at Table 21 and a detailed description of IOT operations proposed risk control measures at Section 11.2 of the sNRA.*

Design Of IERRT / Impact Protection / IERRT Vessel

1.20. The Applicant's NRA does not provide key details associated with the proposed design of the IERRT infrastructure or the IERRT vessels that will use the facility. This is important as, until these details are provided, IOT Operators are not able to assess the likelihood and consequences of a IERRT vessel aliding with the IOT Finger Pier (including vessel alongside) or the IOT Trunkway. Also, the impact protection proposed does not appear to be appropriately designed to withstand an errant IERRT vessel, and neither does the IERRT infrastructure itself either appear to be designed to withstand an errant IERRT vessel.

1.21. The IOT Operators sNRA addresses this through provision of a technical note from Beckett Rankine Marine Civil Engineers on Cost and Design Review of the IERRT Impact Protection at Appendix D: Impact Protection Engineering Note of the IOT sNRA.

Simulation

1.22. Reliance on simulation by Applicant underestimates risk as it does not adequately address all three IERRT berths, is sterile and doesn't represent reality of commercial pressures, uses inadequate quality of tidal and wind data, lacks adequate emergency scenario simulations and does not provide for failure of control systems of IERRT vessels.

1.23. Risks associated with Eastern Jetty have also been inadequately addressed, especially given that MR2 vessels loaded with noxious chemicals and flammable hydrocarbons are frequently moored at this berth and engaged in cargo operations. Simulations determined that in achieving the angle of approach and departure required on various tides, RoRo vessels and associated tugs approaching and departing IERRT 2 and 3 become extremely close to a vessel at Eastern Jetty, especially during strong tides and/or strong northerly winds. Any allision with a tanker at Eastern Jetty could result in a port closure, pollution event, explosion and/or breakout of a tanker from the berth.

1.24. Simulation for revised Impact Protection and Relocation / Reconfiguration of IOT Finger Pier is proposed and IOT Operators are awaiting details from the Applicant in this regard.

Data Analysis

1.25. There is inadequate presentation of baseline documentation in the Applicant's NRA, particularly in relation to the current baseline navigation risk assessment or the Marine Safety Management system for the area of the proposed IERRT which documents existing control measures to manage shipping and navigation risk. To date no baseline navigation risk assessment has been provided (even though the ABP Port of Immingham and ABP Humber Estuary Services are required by the PMSC [REP1-015] to one in place at Section 2.7).

1.26. At the request of the ExA the Applicant submitted the Port of Immingham Marine Safety Management System [REP3-017], although it is noted that this has been updated recently and is not the Marine Safety Management System that was in place at the time the Applicant's NRA was conducted, and that substantial updates were made on 4-Sep-2023, including updates to "*Section 2.2.5 Significant High Risk Section updated to include intolerant risk outcome and reporting lines to the HASB." s*howing recent changes by ABP in its process of dealing with intolerant risk – which presumably would have included those associated with the IERRT. IOT Operators should therefore require that the Marine Safety Management System that was in place at the time the IERRT development NRA was completed, should be made available.

1.27. Further the Marine Safety Management System for the Port of Immingham requires that ports undertake a baseline risk assessments using the ABPmer MARNIS risk software. This software follows a standard risk assessment methodology, and it is unclear why the Applicant chose to use a different method for the IERRT development to that mandated by ABP for operational risk assessments, and a method which is different to that used on other development projects throughout the group or the for Able Marine NRA conducted on the Humber in 2021[2] and different to that proposed for the Immingham Green Energy Terminal, proposed to be located immediately downstream of IOT.

1.28. The baseline presentation of vessel traffic in relation to the IERRT development is inadequate in the Applicant's NRA as:

- the IERRT infrastructure is not included on any of the plots provided, so judgement on the impact on shipping and navigation brought based on the presented analysis is difficult to determine.
- swept path analysis showing the sea room required during various meteorological conditions by coastal tankers and estuarial barges using IOT Finger Pier is not provided, despite this being identified by IOT Operators as a requirement.

Methodological Differences

1.29. The IOT sNRA is based on a standard methodology for the assessment of risk as used by the IOT Operators in the COMAH safety case. It has standards of acceptability as defined by the Health and Safety Executive and meets the requirements of the:

[2] AMEP NRA 2021: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR030006/TR030006-000135-TR030006-APP-6A-14-1.pdf

- PMSC [REP1-015],
- MCA MGN 654 [REP1-017]
- International Maritime Organization Formal Safety Assessment[3]

1.30. The IOT sNRA provides both a:

- A qualitative assessment of risk (see Section 9 of the sNRA) based on a review of the baseline navigation data, the outputs of the Applicant's hazard workshops and the expertise of the project team.
- A quantitative assessment of risk for those hazards identified as high (intolerable) risk during the qualitative assessment so that a transparent and empirical cost benefit analysis can be undertaken to determine the need for additional risk control measures.

1.31. The Applicant's NRA provides a qualitative assessment of risk only with little detail on how cost benefit analysis has been performed.

1.32. The DFDS shadow NRA [REP2-043] provides a qualitative assessment of risk only.

Phases of operation

1.33. The following phases of IERRT operation are covered by the NRAs:

- The IOT sNRA [REP2-064] assesses the operational phase of the IERRT only.
- The DFDS shadow NRA [REP2-043] assesses the operational phase of the IERRT only.
- The Applicant's NRA assesses the construction, construction & operation phase and the operational phase of the IERRT.

Consultation

- The IOT sNRA utilised project team members and the consultation undertaken for the Applicant's NRA.
- The DFDS shadow NRA utilised DFDS project team members.

[3] See appendix to this document

- The Applicant's NRA undertook a number of hazard workshops, and stakeholder engagement, although consensus on results has not been achieved. No consultation was undertaken on the Cost Benefit Analysis approach used by the Applicant to demonstrate ALARP status of key hazards.

d) Operating limits and harbour directions for the proposed IERRT berths and how they might change over time.

1.34. The IOT Operators sNRA has required that the Applicant develops a detailed IERRT Marine and Liaison plan in conjunction with IOT Operators and other applicable stakeholders to develop and manage procedural controls related to the IERRT development. It is envisaged that this control measure will bring together several procedural controls, for the operational phase of the IERRT identified during the hazard workshops as follows:

- Berth limits
    - Detailed wind limits (mean and gust) by vessel type / specification for IERRT Berths 1, 2 and 3 should be developed. A review of limits for the relocated IOT Finger Pier Berths 8 and 9 should also be considered. It is considered by IOT Operators that limits should be conservative in nature, with the option to review and relax as operational familiarisation is gained. The limits should be related to wind direction as well as speed. To this end, wind data should be collected at the IERRT to compare with the speeds simulated and assist with operational planning. Where limits are exceeded the use of tugs for IERRT vessels should be adequately considered and documented (see below).
    - Detailed tidal limits should be defined by vessel type specification for IERRT Berths 1, 2 and 3, particularly strong ebb tide berthing and departures. It is envisaged that the current limit on flood tide berthing only for IOT Coastal tankers should remain. It is considered by IOT Operators that limits should be conservative in nature, with the option to review and relax as operational familiarisation is gained. Where limits are exceeded the use of tugs should be considered and documented (see below).
- Towage requirements
    - Towage requirements for IERRT vessels should be defined both for normal operations, when wind and tidal restriction are in place (see above) and if IERRT vessels have defects. Towage assets should be appropriate for the size and types of vessels (both IERRT and IOT vessels) and the geometry / layout of the IERRT berths.
    - Currently a standby tug is available to IOT vessels as prescribed in the IOT COMAH report and the also Humber Estuary Services Operational procedures. Extending this provision to IERRT vessels should be considered.

- Operational Deconfliction
    - The introduction of the IERRT significantly increases the frequency of vessel vessels navigating between the IOT and the Immingham dock, with a commensurate increase in collision and allision risk in the area. A procedural control limiting the number of vessels navigating in the same water space is therefore necessary to mitigate collision risk between IERRT vessel, IOT vessel and other 3rd party vessels as well. It is anticipated that this should be put in place by the SHAs (Port of Immingham and Humber Estuary Services) and monitored and policed by the Humber Estuary Services Vessel Traffic Service / Port of Immingham Local Port Service. IOT Operators require that vessels bound for IOT have operational priority due to the limited tidal states at which they can currently berth.
    - It is envisaged the Marine and Liaison plan will also capture, document and mandate measures required for the construction phase of the IERRT, once construction methodology, timings and plant requirements have been defined.
    - The provision of the Marine and Liaison Plan therefore considers the following IERRT Risk controls identified in the Applicant's NRA and summarised at Section 11.1 of the IOT sNRA:
        - ABPmer RC1: Berthing criteria
        - ABPmer RC4: Tidal limitations/ weather restrictions
        - ABPmer RC7: Berth specific weather parameters
        - ABPmer RC6: Increased use of tugs/ Additional tug provisions

<u>Process for specifying limits.</u>

1.35. The process for specifying procedural limits should be as follows:

- **Simulation**: Undertake full bridge simulations based on updated and agreed tidal and wind conditions (mean and gusts) for the vessel types likely to initially utilise the IERRT and the future IOT Finger Pier design. The simulations should define a clear set of pass / marginal / fail criteria for each simulation run, so as to define conservative thresholds for implementation of procedural controls. Stakeholders should be invited to attend and be involved in the simulations. A collaborative and inquisitive ethos should be fostered to ensure all stakeholder views are bought into the process.
- **Workshop:** Convene a workshop with stakeholders to finalise the detail of the procedural controls necessary.

- **Trials**: Conduct trials once the IERRT is constructed with the intended vessels to refine and update the procedural controls, with an emphasis on ensuring that conservative limits are identified.
- **Familiarisation**: Over the course of several months, collect quantitative (e.g. vessel track data, incident / near miss) and qualitative (e.g. feedback from IERRT masters/deck officers, ABP pilots and other local stakeholders) data, to confirm the procedural controls in place are robust and fit for purpose.
- **Operations**: Conduct regular engagement meetings with IERRT users and stakeholders, including review of any incidents, to determine whether procedural controls can be updated / changed.

e) The identification of risk controls and why potential controls identified by IPs either prior to the application's submission or during the Examination, such as the full or partial relocation of the IOT Finger Pier berths, have been discounted by the Applicant, including the consideration of cost and effectiveness.

1.36. IOT Operators are not able to respond to this question details are not provided in the Applicant's NRA.

f) Harbour Authority and Safety Board (HASB) consideration on 12th December 2022 of the Proposed Development risk acceptability (tolerability) and the cost effectiveness analysis of controls

1.37. IOT Operators are not able to respond to this question as the Applicant's NRA does not detail the process of cost benefit or the detail of the HASB meeting on the 12-Dec-22 (*and meetings running up to it identified therein). IOT Operators understand that the meeting likely focused on ABP wide risk acceptability thresholds (rather than IERRT specific issues) and likely resulted in subsequent ABP group wide updates to the Port of Immingham Marine Safety Management System [REP3-017] in May and Sept 2023.

G: Additional Questions Raised by the ExA during ISH 3

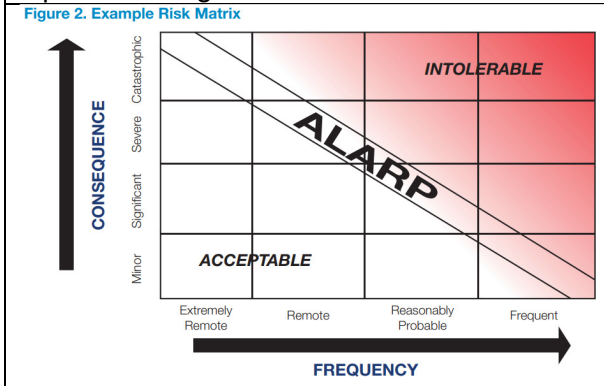
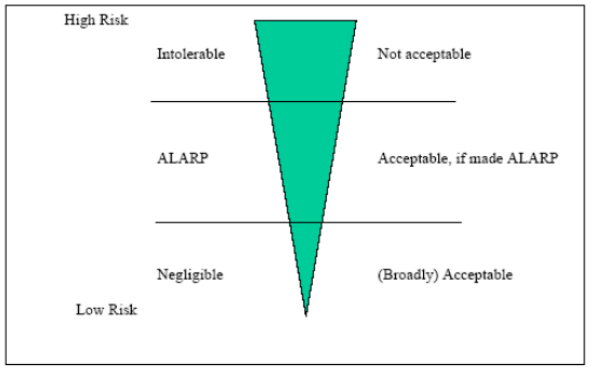
The following questions were raised by ExA in relation to approach to NRA:

1. Is it correct that ALARP and tolerability are inseparable?

1.1. There are in effect a series of tests that apply to a risk assessment. The first test is whether the hazard is tolerable or not. If a hazard is tolerable then no further assessment is required. If the results show that a hazard is not tolerable then further assessment can be made to say determine whether the hazard could be considered tolerable if additional control are implemented. In some cases the results of the assessment will indicate that no additional controls can be applied that are cost effective in reducing risk, and in this regard a Tolerable if ALARP assessment can be made. In effect this means that there are three possible outcomes of a risk assessment for a particular hazard:

- Hazard is tolerable
- Hazard is not tolerable
- Hazard could be considered tolerable if it can be considered to be ALARP – Tolerable if ALARP

1.2. As documented in the IOT Operators' sNRA at Section 5.2.3, Tolerability and ALARP are entirely inseparable, and this is confirmed in various guidance documents (see table below):

PMSC Guide to Good Practise on Port Operations Figure 2.	MGN 654 Annex 1 Section C4:	*Appendix 5 IMO FSA.*[4]
Figure 2. Example Risk Matrix 	*"C4 Tolerability of Risk Determining whether the predicted level of risk from an OREI development is tolerable or not is, in the first instance, a matter of asking the following questions:* *a. is the risk below any unacceptable limit that has been established?* *b. if so, has it also been reduced to as low as reasonably practicable (ALARP)* *The risk is only tolerable if the answer to both these questions can be demonstrated to be 'Yes'.*	 Figure 2: The ALARP principle
Risk matrix showing conceptualrelationship between Acceptable / ALARP / Intolerable.	Extract detailing relationship between AKAR and tolerability.	ALARP principle as provided by IMO clearly showing the ALARP relationship between Intolerable and Acceptable risk.

1.3. In both the Applicant's NRA at para. 1.4.16 and during oral submissions at ISH 3 the Applicant considered that they are separate and first the ALARP principle must be determined. This is however in direct contravention of the guidance (as noted in the table above) and as documented in the IOT Operators' sNRA at para. 16 and 17 and Section 5.2.3

2. Is ALARP a matter for the duty holder?

2.1. ALARP definition and use should not solely be a matter for the ABP duty holder, as IOT Operators as key stakeholder and also a party that will be adversely impacted by the realisation of hazards brought about by the IERRT. Essentially ALARP is inseparably linked to tolerability as noted above and as such the risk appetite which is linked to ALARP should reflect the appetite of IOT Operators, as well as society at large.

3. Can tolerability be linked to methodology and scoring?

[4] MSC-MEPC 2-Circ 12-Rev 2.pdf (imo.org)

3.1. The whole purpose of a risk assessment is to provide a formal process to determine the level of risk brought about by an activity or development (IERRT) in this case and benchmark risk to standards of acceptability. The FSA process (as mandated by the PMSC, MCA MGN 654, and the overarching IMO FSA methodology) essentially does this and the level of detail and analysis applied should relate to complexity and severity of risk brought about.

3.2. In terms of a qualitative risk assessment process as provided in the Applicant's NRA then the PMSC Guide to Good Practice on Marine Operations is very clear that a methodology and scoring can be applied to hazards which needs to be linked to tolerability. Once a scored list of hazard is created using a qualitative risk matrix approach, then furthermore detailed analysis, modelling and assessment (including quantitative risk modelling, simulation or trials) can be undertaken to understand risk and determine effectiveness of possible control options. This is not provided for the in the Applicant's NRA but is in the IOT Operators sNRA.

4. Is a 50 year period acceptable for assessing risk?

4.1. IOT Operators are required to assess risk for much greater periods of time due to the HSE COMAH regulations. Even in a qualitative NRA, then longer periods of time are required to assess risk objectively. For example, a hazard return period of 1 in 500 years, can be related to a 10% change of a hazard occurring in 50 year period.

5. The purpose of the NRA and comments on it being a 'living document'

5.1. In managing Marine and Navigation safety then an NRA can be considered to be live assessment that requires updating based on incident occurrence, change in conditions (e.g. more or larger vessel) or on a recurring basis. However, for the DCO the NRA needs to be finite, and ensure that the necessary controls to maintain risk levels at acceptable levels are identified and secured.

6. Comments on similar port examples mentioned by ABP including DFDS in Humber, London (near Queen Elizabeth crossing), Milford Haven and Portsmouth.

6.1. See above - we don't consider there to be similar examples. We will revert in detail on the examples noted by the Applicant at the next deadline.

7. Anything to note on additional simulations / risk assessment for amended scheme

7.1. No details have been provided on any further iterations to the NRA, and how the changes proposed will be addressed. They must be assessed against an agreed NRA methodology, not a repeat of the process used to date. The IOT Operators NRA provides the most robust and transparent methodology and should therefore be updated to include the proposed updated risk control measures (including procedural controls such the Marine and Liaison plan).

8. IOT's role in additional simulations

8.1. IOT Operators require that they are fully engaged and included in any further simulation sessions.

9. Comments on independence of ABP, harbour master and dock master.

9.1. There can be no basis on which it can be said that the ABP team or the HMH or DM is independent since they are all employees or members of ABP group companies and they are line managed by senior ABP staff. Regardless of the discharge of statutory functions, they remain employees who are retained and remunerated by ABP. The Designated Person is a member of the ABP Board so the person advising the ABP Board is a member of the board. It should be remembered in this context that the existence of a statutory duty does not guarantee independence. The audit is entirely an internal process therefore without independent scrutiny. Independence simply does not exist.

9.2. For there to be independence a person or body must be independent of government and the parties. For example, in the article 6 ECHR jurisprudence PINS is not fully independent of the Government (*Bryan v UK* (1996) 21 E.H.R.R. 342 and the *Alconbury* litigation [2003] 2 AC 295), housing review boards lack independence from their local authorities (*Tsfayo v UK* [2007] H.L.R. 19) and the Gaming Board is not independent (*Kingsley v UK* (2001) 33 E.H.R.R. 13). The *Tsfayo* judgment is included as an appendix to this document.

9.3. While this does not mean that these persons cannot be involved in the DCO process it does mean that with a lack of independence any evidence produced must be subject to more than usual careful scrutiny and their differences from the experts employed by IOT Operators (and other IPs) approached with caution especially where there are significant disputes with other experts and where information has not been provided which is properly transparent.

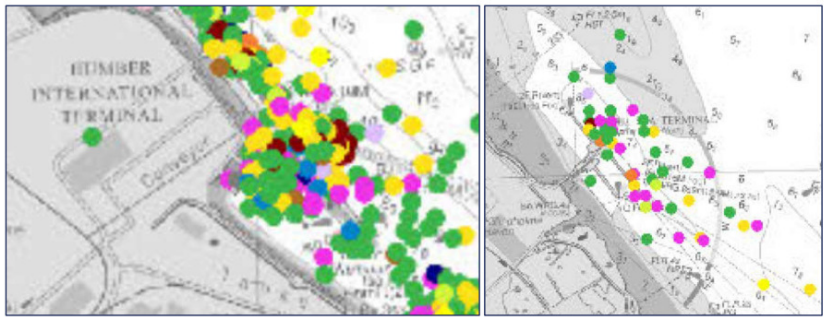
H: ExQ2: 15 September 2023 Responses due by Deadline D4: 9 October 2023

Ref#	Question To	Question	Response
BGC Broad, General and Cross-topic+ question			
BGC.2.02	Applicant, CLdN, DFDS, IOT Operators, Marine Management Organisation (MMO) and Natural England (NE)	**Government policy concerning need and sustainable port development** With respect to the Government's policy relating to the need for port development and the encouragement for "sustainable port development", including what is stated in the entirety of paragraph 3.3.3 of the National Policy Statement for Ports 2012 (NPSfP), and having regard to the cases you have made to date, explain in policy terms, why you consider the Proposed Development would or would not comply with the Government's encouragement for sustainable port development. In answering this question, the Applicant and other IPs are encouraged to make concise submissions and to address the matters listed in paragraph 3.3.3 of the NPSfP, as relevant.	As set out in the IOT Operators' written summary of oral submissions, the question of whether the IERRT is sustainable development and meets the requirements set out in paragraph 3.3.3 of the NPSfP must be considered in light of the agent of change principle and the implications of the proposed development on the IOT and the two refineries which rely on the IOT. The project will only be sustainable development provided appropriate measures are delivered to protect the IOT. The IOT Operators do not consider that the proposed development is well designed and the potentially serious impacts on the IOT and refineries means that it will have detrimental impacts on security of energy supply, the local and national economy and access to ports. These are all requirements set out in paragraph 3.3.3 of the NPSfP.
NS Navigation and Shipping			
NS.2.05	Applicant, CLdN, DFDS and IOT Operators	**Stakeholder input to assessment of risks** Further to the Maritime and Coast Guard Agency's (MCA) advice in [REP1-021] that the organisation responsible for Port Marine Safety "should strive to maintain consensus	See section above

		…through … stakeholder engagement and …review of risk assessments with users…" what are the main obstacles to achieving consensus and what are the prospects of achieving consensus by Deadline 5 of this Examination?	
NS.2.07	Applicant, CLdN, DFDS and IOT Operators	**Examples of any comparable Ro-Ro berths and fuel import/export berths siting relationships** Give examples of any port layouts in the United Kingdom where Ro-Ro berths and fuel import/export berths have comparable siting relationships with what is being proposed for the Port of Immingham	See section above
NS.2.19	IOT Operators	**HSE-imposed acceptability levels** When were the HSE-imposed acceptability levels to risk referenced in the IOT's NRA [paragraph 201 in REP2-064] previously "provided to IERRT developers with the Standards of Acceptability to IOT Operators as a COMAH site under UK Health and Safety Executive regulations"?	See consultation log [REP2-063] 4. Letter from the IOT Operators to ABP 25 July 2022 37 and IOT Operators sNRA para 180 and Appendix B.
NS.2.23	Applicant and IOT Operators	**Relocation of the Immingham Oil Terminal (IOT) finger pier berths 8 and 9** In the Applicant's interim response to the DFDS alternative NRA [paragraph in 1.27 in REP3-009], it is stated that "'RC06: Moving finger pier' – This control has been considered and	The IOT Operators consider that this is primarily a question that should be addressed by the Applicant as the IOT Operators' position with regards to the required mitigation measures has been set out in its Written Representation [REP2-062] and sNRA [REP2-064]. In order to provide a joint response, the IOT Operators wrote to the Applicant's solicitors on 21 September 2023 with a request for any draft proposals or response to be shared. However, the IOT Operators have not received a response on this point.

		determined not be in line with the principle of ALARP" and paragraph 1.28 confirms that assumes removal and reconstruction of the whole pier, which IOT is now suggesting would not be necessary. On a 'without prejudice' basis (preferably on a joint basis) comment on how the following risk control measures proposed by the IOT Operators in its NRA [paragraph 352 in REP2-064] might be incorporated and secured as an amendment to the application: a) relocation of IOT berths 8 and 9 to the landward face of the IOT river pier (outside the proposed Order limits) or alternatively the extension of the Finger Pier to enable the relocation of berth 8 to the riverward face of the Finger Pier, as in paragraph 5.4 of IOT's Written Representation [REP2-062]; and b) an impact protection "island" between Proposed Development and the IOT finger pier (within the proposed Order limits), as an alternative to the impact protection measures subject to proposed Work No. 3 in the dDCO [REP1-005]. In responding to this question consideration should be given to how any amendment(s) to the Proposed Development might be: 1) advanced during the remainder of the Examination;	As set out in the Applicant's letter of 28 September 2023 [AS-020], the Applicant has committed to providing various measures to protect the IOT including revising the layout of the finger pier and constructing impact protection to a standard that will retain a vessel drifting towards the IOT trunkway or the IOT finger pier. The engineering design of these measures will be subject to approval by the IOT Operators and protective provisions substantially in the form in REP1-039 will be included in the DCO. The IOT Operators await to see the detail of these proposed measures. Until such measures are secured in an acceptable manner, the IOT Operators reserves its position and maintains its objection to the proposed development.

		2) secured through a provision or provisions (Requirement or any other means) of the dDCO; 3) any compulsory acquisition implications, including implications for the interests of the Crown Estate; 4) any implications under the Environmental Impact Assessment Regulations and the Habitat Regulations; and 5) any other legal considerations.	
NS.2.24	IOT Operators	Cost effectiveness assessment in the IOT Operators' NRA Confirm that the cost effectiveness assessment in the IOT Operators' NRA was based on relocation of IOT berths 8 and 9 to the landward face of the IOT river pier and the impact protection for the Proposed Development's berths, as described in paragraphs 343 to 345 and 352 of REP2-064.	Correct, see IOT Operators' sNRA [REP2-064] at para. 347 which estimated the cost at £25M to relocate IOT Fonger Pier Berths 8 and 9. This was considered a conservative cost and as noted IOT Operators are consulting with the Applicant on an alternative cheaper design, as such any saving in cost would improve the cost benefit determination contained within the IOT Operators NRA (Section 12.4).
NS.2.25	IOT Operators	**Cost effectiveness differential between low and high energy impact protection** Please clarify the cost-effectiveness differential assessed between protection measures against low and high energy impact and how a ratio of 20 has been derived for this risk control measure, as reported in IOT Operators' NRA [REP2-064].	The total cost benefit for the impact protection is determined in Table 25, which sums up the individual cost benefit against each impact scenarios as the cost for the impact protection is only required once across all four scenarios (impact scenarios are detailed at para. 314). The relative difference in cost benefit between a low energy impact and a high energy impact is related to the consequence of outcome. In both instances the impact protection is built at a cost of £9m, but in a high energy impact the outcome consequences would be much higher than a low energy impact, therefore the benefit of having impact protection is better and a greater cost benefit ratio is derived.

NS.2.48	IOT Operators	**'MarNIS' incident reports** Provide a narrative of [APP-089 Figure 19] 'MarNIS(MARNIS)' reported incidents at the Port of Immingham and their relevance to the Proposed Development.	 Figure 54: Extract from MARNIS accident/incident reports (Figure 19 from ABPmer IERRT NRA) Killinghome Ro-Ro Terminal and DFDS Ro-Ro terminal. **Category (2011- Aug 2022)** Collision Collision ship - ship Equipment failure (port) Equipment failure (vessel) Event management Fire/Explosion Grounding Heaving lines Impact with structure Other Other nautical safety Other nautical safety hazard Person in distress Person(s) in the water Pilot boarding arrangements Ranging Sinking and capsizing Striking with floating object Striking with ship (moored) Figure 19 shows an Extract from MARNIS accident/incident reports (Figure 19 from ABPmer IERRT NRA) for Killinghome Ro-Ro Terminal and DFDS Ro-Ro terminal. These are similar types of terminal operations to that proposed by the IERRT, but are not located in the same challenging location.

			The extracts show very high densities of incidents occurring close to these terminals, related to “equipment failure”, “impact with structures” and “other” incident categories. As the full details of these incidents has not been provided by the Applicant for the IOT Operators sNRA (despite it being requested – see IOT Operators sNRA at), no detailed analysis is provided, and allisions (impacts with structures) on the Humber Estuary is the highest in any UK port of RoRo vessels, then the Applicant's assertion that IERRT allision risk can be considered acceptable with minimal controls in place, despite the nationally significant infrastructure of the IOT is not warranted.
NS.2.49	IOT Operators	**Locations for incidents elsewhere in the UK referred to in Table 11 in the IOT Operators NRA** For each entry in Table 11 in the IOT Operators’ NRA [REP2-064] identify where each incident occurred by reference to a port/harbour name or other locational descriptor.	See below.

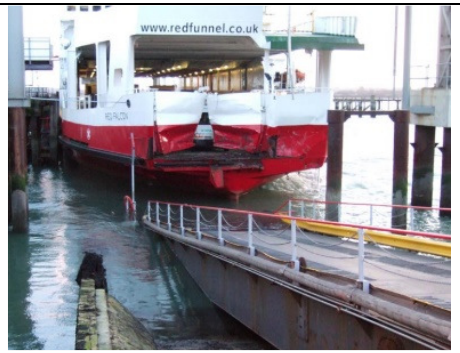
Response to ExQ2 NS.2.49 IOT Operators: Locations for incidents elsewhere in the UK referred to in Table 11 in the IOT Operators NRA?

Date	Type	Description	Location of incident
10/07/2023	Grounding	RoRo ferry Mazarine **lost all power** and grounded, after being adrift for 1.5 hour, adjacent to Wolf Rock lighthouse, causing significant damage to the vessel’s portside keel area and bottom plating. 	Wolf Rock Lighthouse located 18 nautical miles east of St Mary's, Isles of Scilly and 8 nautical miles southwest of Land's End, in Cornwall.
25/06/2020	Grounding	Arrow grounded in thick fog, as a result of the **bridge team being under-prepared for pilotage in restricted visibility and poor Bridge Resource**	Entrance to Aberdeen Harbour, Scotland.

		Management. The ferry began to list significantly in the falling tide after the grounding and there was significant damage to the port side of the underwater hull, including holing and splitting of several water ballast tanks and damage to the port propeller and rudder, meaning the vessel was out of service for four weeks. However, there were no injuries or pollution, and the vessel was successfully re-floated 45 minutes later after grounding.	
08/05/2019	Grounding	Seatruck Performance **grounded** while turning into a narrow, buoyed channel as a result of its heading being changed later than intended after entering the Greenore Channel, likely due to **nervousness and/or lack of confidence of the master and lack of bridge team support**. The ferry returned to Warrenpoint with no tug assistance and there was no damage to passengers, crew, or environment. However, it was later identified that a tank and a void space on the ferry's port side had been breached. The ferry was out of service for 3 weeks.	Carlingford Lough, Northern Ireland.
16/04/2018	Fire On-board	A fire broke out in the engine room of Finlandia Seaways following a catastrophic **main engine failure** that also resulted in significant structural damage to the engine. Engine failure was due to breaking of the engine's connecting rods, likely due to **poor maintenance management standards**. The fire-fighting system was successfully activated but the third engineer suffered serious smoke-related lung, kidney and eye injuries and was recovered by coastguard helicopter to hospital.	11 miles east of Lowestoft, England.
25/09/2016	Allision / Grounding	As a result of **lost control of the ferry's port controllable pitch propeller following a mechanical failure**, the master was unable to prevent Hebrides from running over several mooring pontoons and briefly grounding. There were no injuries among persons on board, but the ferry was damaged and had to be repaired in dry dock.	Lochmaddy, North Uist, Scotland.
09/11/2014	Allision	The ferry collided with the end of the breakwater while departing Dover. The **collision** was due to loss of directional control (as a result of an **unintentional change in the mode the steering control system** was operating) as the ferry turned towards the harbour's eastern entrance. The attempted corrections failed to prevent contact and the several minor injuries	Port of Dover, England.

		were suffered by passengers and crew as well as damage to the ferry's bow. There was no pollution.	
29/09/2014	Fire On-board	A major fire broke out in the engine room of Pride of Canterbury while berthing. This occurred due to a series of events: unresponsive starboard pitch propeller; **master's decision to proceed with only one propeller shaft and one bow thruster;** a rupture of a pipework joint in the system, and a lack of shielding of the joints which resulted in oil spraying onto exhaust uptakes. There were no injuries and the ferry berthed safely but the engine room was significantly damaged. 	Port of Calais, France.
22/06/2013	Allision	**Heavy contact was made with berth** 3 at Harwich International Port, likely as a result of **inadvertent pressing of the button** which activates the back-up control system **for the starboard propulsion system** (which bypasses normal control). The error went unnoticed by bridge team which meant in remained at 63% ahead throughout accident. Considerable damage occurred to the fore-end of the vessel and the linkspan collapsed into the water. There were no injuries or pollution. 	Harwich International Port, Harwich, England
16/02/2013	Allision	The port fin stabiliser of Finnarrow made contact with the berth during arrival into Holyhead. As a result, the hull was punctured, and the pump room subsequently flooded. The cause was concluded to be **inadequate procedures for pre-arrival checks** and a **lack of familiarity of the crew with the vessel's equipment** and emergency procedures.	Holyhead, Anglesey, Wales.

22/10/2011	Allision	Heavy contact was made with the No 6 berth in Calais by the Pride of Calais as a result of **failure of the vessel's main propulsion** as the vessel approached the berth. The vessel suffered minor damage to the bow but there were no serious injuries and no pollution. 	Port of Calais, France.
24/05/2011	Allision	Clipper Point made heavy contact with the quay, two ro-ro ferries and another vessel while manoeuvring to berth, due to the wind increasing to 34knots during arrival into port meaning the ship was set closer to the port's South Quay than intended. The **master then made the poor decision** to attempt to turn to port as usual, with **one inoperational bow thruster,** meaning the starboard quarter of the ferry made contact with South Quay and sustained damage. The ferry's steering compartment was also holed below the waterline. South Quay sustained damage to the upper edge and lower level and supporting structure. Scotia Seaways' port bow bulwark plating and two internal frames were damaged and Clipper Ranger's port bow sustained minor damage to port bow bulwark plating.	South Quay, Port of Heysham, England.
06/02/2010	Allision	The Isle of Arran passenger ferry hit the linkspan in Kennacraig at over 8 knots. The collision occurred due to a **mechanical failure that led to loss of control of the starboard propeller pitch** so the starboard propeller remained at full ahead during the approach to berth. There were no injuries but the vessel and linkspan were both damaged. 	Kennacraig, West Loch Tarbert, Kintyre, Scotland.
13/11/2007	Collision	Ursine made contact with the passenger ferry Pride of Bruges as a result of **ineffective communication between the master and the PEC holder** and	Berthing at King George Dock, Hull, England.

		failure to clarify who would be in control of the vessel. Formal berth allocation was also absent which led to Ursine being directed toward a berth already allocated by Pride of Bruges until contact was made. Damage was caused to both vessels, including to the stern door, stern light and bracket. There were no injuries.	
10/03/2006	Allision	Heavy contact was made with the linkspan at Town Quay, Southampton as a result of **miscommunication between the master, the AB and the Chief Officer**, which caused the chief officer to reduce speed on only the aft unit and not both Voith units. Hence, the vessel's speed was not sufficiently reduced and collision with the linkspan was made. 11 people were minorly injured and some vehicles on-board were damaged, as well as the vessel and linkspan. 	Port of Southampton, England.
23/01/2005	Collision	As a result of an **incorrect assumption being made by the master** of Amenity (that Tor Dania had turned onto a collision course), Amenity turned to port and hit Tor Dania close to midships on the port side at a speed of ~7 knots. Both vessels suffered significant damage but there were no injuries or pollution and both vessels were able to continue to berth un-aided before being withdrawn from service for repairs.	Near Grimsby Middle on the River Humber, England.
29/12/2004	Allision	Isle of Mull glanced off Lord of the Isles (moored alongside) and subsequently made contact with Oban Railway Pier bow on at around 4 knots. This was due to **human error, where the master forgot to start the bow thrusters at the centre control before moving to starboard wing control console**. The realisation and attempt at correction was too late so the ferry did not slow or turn sufficiently. There were no passengers onboard and no injuries were sustained as a result of the impact. The bow visor and port side of the fo'c'sle were substantially damaged and the vessel was withdrawn from service for repairs.	Oban Railway Pier, Oban Bay, Scotland.

30/07/2004	Allision	Daggri made **contact** with the Ulsta breakwater at around 3knots. This was due primarily to the **visibility becoming significantly reduced** near to Yell shore. As a result of the breakwater collision, the forward azimuth thruster blades of the propellers were distorted, and the hull was indented but not breached and there were no injuries or pollution.	Ulsta, Shetland Islands, Scotland.
18/04/2003	Allision	Pride of Provence, a ro-ro passenger ferry with 641 persons on board, made heavy contact with the end of the southern breakwater at the eastern entrance to Dover Harbour on 18 April 2003 at 1724. It was daylight, the weather was good and the visibility clear. There was a strong north-easterly wind and a southerly flowing tidal stream across the entrance. Twenty-eight passengers and crew suffered minor injuries, and two suffered major injuries in the accident, and the vessel was extensively damaged above the waterline.	Southern breakwater of Dover Harbour, England.
14/03/2001	Grounding	Finnreel grounded after sheering to starboard out of the channel. This was as a result of the **main engine automatically shutting down following the main engine oil mist detector alarm activating**. As a result of the grounding, the vessel's fore peak, No 1 centre and No 2 port and starboard ballast tanks and the bow thruster space were all holed but there were no injuries or pollution.	Off Rauma, Finland.
27/04/2000	Allision	The master of Aquitaine put the two combinators to select astern pitch on both propellors after passing through the Calais port entrance faster than normal. However, the **port propellor failed to respond** and this was not noted by the bridge team. As a result, the master could not prevent the vessel from colliding with the berth at a speed of ~7 knots. 180 passengers and 29 crew were injured and the vessel was taken out of service and dry docked for 2 months.	Port of Calais, France.
22/10/1998	Grounding	The course selection that was made on-board Octogon 3 made **no allowance for the strong south-westerly winds or the tides** and, as a result, the **ship was set to starboard** until she grounded. There was no damage to the hull and no pollution or injuries.	South-east of Spurn Head at entrance to River Humber, England.

19/09/1995	Grounding	Stena Challenger ran aground in the approach channel to Calais after the north-north-easterly gale force wind caused the vessel to drift southward and, despite more power being applied and the bow thrusters activated, fail to turn head to wind and ground on a sandy beach. A substantial amount of bottom plating was damaged in the accident but the hull was not pierced and no pollution occurred. There were no injuries. The primary cause was found to be **insufficient monitoring of the vessel's position during the approach** to Calais.		South-east of Spurn Head at entrance to River Humber, England.