ExQ3: 9 September 2021
Responses due by Deadline 8: 24 September 2021

	Question to:	Question:
R.3 Radiological considerations		
R.3.0	**The Applicant, ONR, Environment Agency**	**Permits and Licences** In the event that the latest change request were to be accepted: (i) Please provide an update on the latest position regarding the progress of the respective permits and licences required to construct and operate the proposed development. (ii) Please advise on the likely timeline for concluding the consideration of these licences and permits. (iii) Is there anything at this stage that you consider may prevent the issuing of such licences or permits?
	Response	(i) We consider that the statement of progress on ONR's assessment of the site licence application provided to PINS at the end of August (REP7-150) remains current. (ii) We do not consider that the proposed provision of a temporary desalination plant to provide the Main Development Site potable water supply during construction will have any consequences for ONR's assessment of the nuclear site licence application. (iii) ONR does not anticipate that the change, if accepted, would have any effect on the timing of completion of our assessment.
R.3.1	**ONR**	**Permits and Licences** As of D7 the Applicant does not have a clear pathway to delivering the water supply for construction to meet the current timetable of proposed development. (i) In the event that the latest change request is accepted, this could facilitate the provision of a desalination plant for a temporary period during construction, but not for future operation. Walker Morris on behalf of Northumbrian Water Limited (NWL) have now responded at D7 with a holding objection to the proposed development and while it remains committed to pro-active engagement NWL believe the ideal outcome for water supply to Sizewell C may be for the Applicant to have a self-sufficient water supply. (ii) Could the ONR advise if this has any implications for the licensing or timetable of the proposed development? (iii) Is one of the licence conditions that a reliable water supply to the site at the quantum necessary is available and secured?

		(iv) The Change request seeks only a temporary period for the desalination plant while the preferred option of a piped water supply is facilitated. At what point would the permanent supply need to be in place?
	Response	(i) We are aware of the options being considered for water supply during construction. (ii) We have examined the proposed change and do not consider that there are any implications for licensing or timetable. (iii) There is no specific Licence Condition covering the requirement for a reliable water supply. However, Licence Condition 14 (safety documentation) requires the licensee to make and implement adequate arrangements for the production and assessment of safety cases; Licence Condition 19 (construction or installation of new plant) requires the licensee to make and implement adequate arrangements to control the construction or installation any new plant which may affect safety and Licence Condition 21 (Commissioning) requires the licensee to make and implement adequate arrangements for the commissioning of any plant or process which may affect safety. In fulfilment of these Licence Conditions, ONR would expect the licensee to put in place a reliable source of water before nuclear safety related activities take place on the site that are dependent on such a supply. This may be during the later stages of commissioning, but such a supply will certainly be needed before the station begins to raise power from nuclear reactions in the reactor core. (iv) We do not require full details of the post-licensing construction programme at this stage however we will expect the licensee to have replaced such a temporary water supply with a more reliable source of water before nuclear safety related activities take place on the site.
R.3.2	**Applicant, ONR, EA**	**Radiological Safety** TASC at [REP6-076] identify a series of concerns with regard to radiological safety during operation and post operation. Can the ONR and EA advise in respect of these concerns and confirm if any of the matters raised will not be safeguarded by the licensing/permitting regime
	Response	Regarding TASC comments in para 16 of REP6-076 on ONR's statements in REP2-159 on the availability of a Geological Disposal Facility (GDF), TASC are quite right that ONR's reference to "the GDF" should have been to "the proposed GDF". ONR's assumptions in REP2-159 about the timing of the proposed GDF availability and disposals are, as explained in ONR's answer to R1.2.24, based on publicly available information from the Nuclear Decommissioning Authority.

		With regard to the TASC statements concerning the safety of the EPR design in paras 14-21 and 29-36 of TASC's submission REP6-076, these relate to concerns about nuclear fuel rod failures in the Taishan (China) EPRs, apparent premature deterioration of EPR fuel cladding, and the possible deleterious consequences of vibrations in the EPR reactor primary circuit. ONR is aware of all these matters and we confirm that we will take them duly into account in regulating both the Hinkley Point C and Sizewell C projects. ONR has already responded to public queries on each of these, which can be summarised as: • **Taishan fuel failures**: It is too early to speculate on the cause of the failures until after the post-shutdown analysis of the fuel inspection data has been completed. Once the information is available to NNB GenCo we will discuss the detailed findings from the Taishan fuel inspections with Hinkley Point C (HPC) and Sizewell C (SZC) to consider if there are any implications for the EPR reactors in the UK. We will also continue to engage with the relevant regulatory authorities in China, Finland, and France, for example through the Multinational Design Evaluation Programme (MDEP) or directly, to ensure we all have a consistent understanding and discuss any learning for all the EPRs. • **Primary circuit vibrations**: ONR has followed this issue closely through regular meetings with the EPR regulatory community and is aware of the vendor's root cause analyses and the remedial measures adopted by EPR operators. Analysis indicates that the vibration behaviour results from a complex resonance phenomena and modification of the design of the affected piping is not considered as a viable option as this might generate undesirable consequences. Consequently, the vendor has recommended a damping option to reduce the vibrations to an acceptable level. Preliminary feedback from two EPR plants has confirmed that the damping mechanisms are effective in reducing the vibrations such that the impact on the operation through life is acceptably low. ONR has engaged regularly with the HPC licensee to understand the measures being taken to address the vibration issue and will continue to do so taking due account of any further learning from the sister EPRs. ONR is satisfied that the HPC licensee has given appropriate consideration to a number of options and considers its proposal to install a damping mechanism

		to be reasonable. ONR notes that the final decision will be made when the Flamanville-3 EPR testing is complete. ONR does not envisage any reason why the solution ultimately adopted for HPC cannot be applied to SZC, furthermore SZC will also benefit from the additional experience from early years of operation of the EPR fleet. • **Fuel cladding degradation**: ONR is aware of the operational experience relating to the EPR fuel cladding and in particular the reported corrosion issue. With regard to the UK EPR, the issue of cladding corrosion was assessed by ONR during the UK EPR generic design assessment (GDA). The GDA was an exercise designed to mitigate the regulatory risk to prospective licensees by assessing whether new reactor designs would, in principle, meet UK regulatory standards. The conclusion of the GDA assessment (ONR-GDA-AR-11-021) was that the measures proposed by the requesting party were adequate to protect the fuel against unacceptable levels of degradation as a result of corrosion. When the licensee is able to propose a fuel and core design for SZC, it will be subject to regulatory oversight by ONR. This will include an assessment of whether the licensee is taking appropriate steps to ensure that adequate limits and conditions of operations are identified in the safety case and that the operation of the plant throughout its life cycle (including storage) is carried out in compliance with such limits and conditions of operations (as per Licence Condition 23 attached to the nuclear site licence).
R.3.4	**The Applicant, ONR, EA**	**Radioactive waste** The Deadline 5 submission of Professor Blowers [REP5-189], submits that the potential suitability of the site for the management of radioactive waste during operations and far beyond into the future is a matter for the Examination and its scope should not be limited by relying on the evidence of the ONR and the EA. In addition, his Deadline 7 submission states that the recent report of the IPCC has a direct bearing on the development of a nuclear power station such as Sizewell C on a coastal location and is relevant to the viability of the site, threatening the decommissioning process and the long-term management of radioactive waste. Please respond and set out your view as to the appropriate process for the consideration of the long-term management of radioactive waste and whether you have any concerns in that respect at this stage?

	Response	ONR is currently engaging with NNB GenCo as part of its licence application assessment and, to date, has not identified any issues for the long-term management of radioactive waste. ONR requires dry fuel storage within the UK to be designed to withstand a number of external hazards. This includes flooding and the effects of reasonably foreseeable climate change. During operation of the nuclear licence site, it is a regulatory expectation for a licensee to periodically review the validity of the safety case for all facilities on the licensed site, including the dry fuel store, against external hazards to ensure the site remains protected.