



# Together Against Sizewell C

**TASC observations on questions asked of ONR by the ExA in respect of Deadline 2 ; 2<sup>nd</sup> June 2021, Development Consent Order inquiry process for Sizewell C.**

**TASC's IP no: 20026424.**

**Observation made in response to Office of Nuclear Regulation's (ONR) replies contained in the response document:** <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-004564-DL2%20-%20Office%20for%20Nuclear%20Regulation%20-%20response%20to%20ExQ1.pdf>

## **AQ.1 Air Quality**

### **AQ.1.66 Tritium**

The EPR at Flamanville, often referred to as the 'pilot plant', is still not operating, being way behind schedule and wildly over budget. The lack of data usually generated to establish operating norms have therefore been unavailable. Tritium gas emissions, in particular, have always been controversial in respect of their health impact. They generally occur as a spike in routine emissions during normal operating periods or during outages and manifest as 'steam venting'. Sizewell B has occasionally exceeded quarterly notification limits, but not the annual limit. The tritium gas discharge limit for the Sizewell B in its early days of commissioning was underestimated and the limit had to be raised. This was permitted following expert advice taken at a Suffolk Coastal District Council meeting around 1995. (SCDC meeting historic minutes archive appears to have been removed). Tritium binds to water, replacing the hydrogen atoms to form tritiated water. As a beta emitter, tritium is potentially harmful to humans, particularly in ingested. Health/mortality records of people most exposed at Sizewell B and A could still be a cause for concern and may need investigation.

### **AI.1 Alternatives.**

#### **AI.1.7 Reactor Design.**

The series 1 EPR reactor has been through a Generic Design Assessment (GDA) procedure but many assessment findings remain unresolved. French Nuclear regulator ASN has a catalogue of issues to do with faults on the EPR including the reactor pressure vessel cap and weld faults. <http://www.french-nuclear-safety.fr/Inspections/Supervision-of-the-EPR-reactor>

Many comments have been made about the reactor design. The French Authorities have commissioned a further Series 2 version of the EPR, currently being assessed by their regulators and it is understood they will not build more reactors of the series 1 type.

Taishan 1, in China, has recently experienced excessive emissions linked to fuel pin issues warranting the manufacturer, Framatome, to call for help from the US government. A full

report on the cause has not been received to date. This reactor is the only operational EPR using French components.

TASC does not have any confidence in the EPR.

## **CC.1 Climate Change and Resilience**

### **CC.1.13 Role of the Nuclear Regulators.**

We are dismayed that all regulators have to work to the Regulators' Code obliging them to ensure that their regulatory activities do not restrict the social, environmental or economic performance of the regulated body.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/300126/14-705-regulators-code.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300126/14-705-regulators-code.pdf)

Such demands made of the regulators is not in the interests of protecting the public nor ensuring that regulators are fully independent and free from Government interference.

i) Climate change adaptation. Serious concerns have been raised by many respondents about flood defences. Building in flood zone 3 should not be allowed. The knock-on effect to neighbouring property including NDA-owned Sizewell A and EDF-operated Sizewell B suggests that flood risk could increase with time, causing problems for the neighbouring sites of Sizewell A and B. This has already occurred at Hinkley C where neighbouring villages and HPA and HPB sites have increased flood risk as a result of the flood defence wall of HPC (see EA Flood Zone Map for Hinkley: <https://flood-map-for-planning.service.gov.uk/confirm-location?eastng=320267&northing=145443&placeOrPostcode=Hinkley%20%20Somerset>. See also HPC community forum [Community Forum minutes - 15 November 2018.pdf](#)).

ii) Ability to grant a Licence EN6 2.75 and 2.76.

TASC recognises that the granting of a site licence for Sizewell C is solely the responsibility of the ONR. TASC has raised the concern with the regulator and others pointing out that that the builder of Sizewell C may not be the owner of Sizewell B. This means that the operation of an EdF-owned Sizewell B may be in conflict with a project next door – Sizewell C – which is under the financial control of an independent or subsidiary, private company intent on returning a profit for shareholders, an issue which the ONR has to consider from the perspective of fitness to operate and decommission the plant. TASC is also concerned about the risk posed by adjacent cranes, noise and vibration from the 'C' site impacting the monitoring systems and safety of the 'B' workforce.

## **DCO.1 Draft DCO**

DCO1.1 10 and 11. We have no comment.

## **Radiological Considerations**

R1.1 1.2 1.10. In the 1976 Royal Commission Report on environmental pollution, Sir Brian Flowers stated that,

*“...there should be no commitment to a large scale programme of nuclear fission until it has been demonstrated beyond reasonable doubt that a method exists to ensure the safe containment of long-lived highly radioactive waste for the indefinite future”.*

TASC therefore believes there is no justification for production of any radioactive waste streams as there does not exist a proven method by which the safe containment of long lived and highly radioactive waste can be contained for the indefinite future - see EN6 Para 2.6.

Concern about the radiological impact of nuclear fuel has been exacerbated by the decision to operate the EPR for greater efficiency by increasing the burn up of fuel. ONR have yet to receive a report addressing the safety or otherwise of the long term storage of spent fuel. As the Dry Fuel Store (DFS) will be the last remaining building on any nuclear site for many decades into the future after decommissioning has been completed, it is increasingly evident that protection from climate change events could be problematic. Regardless of the long term safety of buildings, TASC believes it is immoral to leave this radioactive and long-lasting waste to the care and management of future generations who will have received no direct benefits from the electricity the waste generated, as we have pointed out in our Written Representation, Nuclear Waste.

The design of the Hinkley C DFS is not yet approved and the indicative site for HPC could, as demonstrated in a recent TV programme, be affected by overtopping of the flood defence wall.

The site of the SZB DFS is at a higher ground level than that proposed for SZC.

TASC does not believe that a radioactive waste solution has been demonstrated beyond doubt and would point out that adequate energy generation alternatives exist to avoid this problem.

#### R.1.11 Plant lifetime expectation.

Nuclear plant has design limitations exacerbated by pressure and temperature, including corrosion, graphite bricks, internal cracking and weld defects. Material failure has also been identified as a cause of early plant closure e.g. at San Onofre, California, USA. The EPR at Flamanville in France has many technical problems. <http://www.french-nuclear-safety.fr/Inspections/Supervision-of-the-EPR-reactor>. The fact that Sizewell C may, if built, be in the hands of a private company, as referred to above, should give cause for concern. Some expectations for plant lifetime, longevity of encapsulation, buildings and conditioning material are aspirations only as no operational lifetime experience exists, especially for the EPR.

#### R.1.12 Design Acceptance.

French reactor designers are working on a series 2 version of the EPR, stated to be easier to build and construct, but which has not received regulatory approval. This is acknowledgement that the EPR proposed for Sizewell is principally flawed and difficult to construct. TASC has also questioned how the single turbine configuration proposed for Sizewell C gives sufficient flexibility to cater for varying demand. SZB operated at half output because of grid stability issues during the pandemic: this is not possible with the EPR. The Sizewell Site Stakeholder Group (SSG) is waiting for a report on what happened as a

result of the period of time Sizewell B operated at 50% output, such as excessive component wear or the impacts of prolonged use of boron to dampen reactor activity.

#### R.1.14 R.1.15, Sea defence.

According to the Environment Agency, the SZC sea defences are not yet satisfactory. TASC finds it incredible that the sea defence is not within the proposed site licence area. In addition, ONR do not have details on how the whole site will be constructed, including the outer wall. This also includes the water course carrying all Leiston town rainwater/sewage outfall. SZC Operational site layout assumptions for DCO drawing ending 10004 refers.

#### R.1.16 Emergency Plan.

TASC is not aware if the Sizewell B emergency plan declared by the operator of SZB, can safely accommodate the maximum construction workforce for SZC, including those in worker hostels, plus SZB outage/operator workforce, plus the residents within the 1.35 km inner zone. We believe the operator assessment of risk for the SZB reactor does not conform to IAEA standards for a Detailed Emergency Planning Zone (DEPZ), also confirmed by Government department for Business, Energy and Industrial Strategy, which is 3-4kms distance from the plant, as pointed out in TASC's Written Representation, Emergency Planning. The reaction time for a fault on a Pressurised Water Reactor (PWR) such as Sizewell B, is believed to be 4 hours, a consideration which necessitated the construction of the Emergency Response centre for SZB as part of the Japanese earthquake response programme in the wake of the Fukushima disaster. This unique facility was constructed as a recognition of the need to act quickly in the face of a fault requiring a fast emergency response time of four hours, compared to 12 hours for AGR reactors in the current EDF fleet. We are not aware if Suffolk County Council consulted on or planned their extended emergency response area out to 30 kms - to include open air visitor attractions and camping and caravan sites - nor on the acceptability of the mini-DEPZ, in full accord with REPP19 and ACOP guidance.

#### R.1.17 Transboundary Effects.

A number of respondents referred to the competence of ONR to manage the former duties of Euratom. The risk from accidental release of radiation impacting other countries is evident from Chernobyl. Again there is little justification for nuclear as adequate and superior alternatives for electricity generation exist. The construction of HPC was subject to challenge by Austria as an expression of the transboundary effects of a nuclear plant.

#### R.1.18 Spent fuel storage.

See previous comment as well as the TASC Written Representation, Nuclear Waste.

#### R.1.20 Spent fuel store.

The existing DFS is passively vented, cannot be sealed and would not, we understand, withstand air strike. The DFS is entirely reliant on the integrity of a dry cask storage method which has a relatively short operating history and the integrity of which is being challenged worldwide.

#### R.1.21 R.1.22 Semi-Urban Criterion.

TASC understands there was a debate about remote siting criteria prior to the approval of HPC. We are not convinced that sufficient planning constraints have been enacted up to 30kms nor that a full study of property and accommodation requiring immediate evacuation (i.e. not only capable of providing suitable shelter) has been carried out. In 2018, in response to the (aborted) consultation on the revised EN6, Suffolk Coastal District Council commented about the need to avoid housing projects compromising the development of nuclear.

#### R.1.23 Sustainability Assessment.

TASC believes it is unacceptable to even consider building in a flood risk zone 3, exposing construction projects and workforces to increasingly unpredictable weather and its consequences such as storms, tidal surges and over-topping from the effects of climate change.

See: I Mech E report, plus new Climate Change Committee Advice 2021.

#### R.1.24 R.1.25 Plant lifetimes.

Reliance on a Geological Deep Facility (GDF) as the long-term solution to radioactive waste management, the siting of which is highly controversial and which has been discussed for many years without arriving at a success conclusion, as previously mentioned and as detailed in TASC's Written Representation Nuclear waste, is immoral and unjustifiable. TASC reiterates its position that the mantra used by ministers that 'arrangements are in place' and that therefore new nuclear build should not be delayed and that the creation of new waste streams is justified, cannot in any way be seen as an acceptable or responsible policy as significant technical, scientific, social, environmental and indeed ethical issues remain unaddressed and unresolved. Not the least of those issues is the morality of knowingly generating new waste streams when the original legacy waste volume of 500,000 cubic metres remains without a universally agreed management solution. TASC refers the inspector to its Written Representation on this issue.

#### R.1.28 Funded decommissioning programme (FDP).

Any investor into SZC must understand that a FDP is part of their commitment.

#### R.1.29 Public Health.

We acknowledge this is not an ONR issue but feel obliged to mention that we are not aware if any health impact studies have ever been carried out in the modern era for this Sizewell locality, although there are records in the National Archives relating to a leukaemia cluster around Sizewell A (see [Leukaemia at Sizewell A | The National Archives.](#))

#### R.1.30 Relationship to SZB and A.

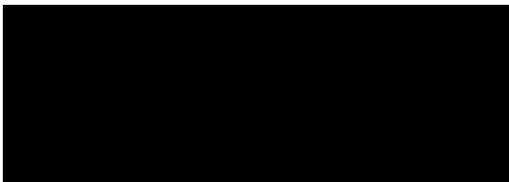
We have noted NDA/Magnox concerns and expressed earlier our major concern about the impact on the immediately adjacent live reactor Sizewell B. We draw to the Inspector's attention the apparent contradiction of the ONR claiming there to be no safety issues resulting from the proximity of the 'C' site to those of 'A' and 'B' while the Nuclear Decommissioning Authority (NDA) stating that , " At this stage, and on the basis of the applicant's current proposals, the NDA and Magnox are not yet satisfied that the Sizewell C Nuclear Generating Station can be constructed and operated in accordance with the

Applicant's application proposals in a manner which adequately ensures the safe, secure and environmentally sound decommissioning of the Sizewell A Nuclear Site. However, the NDA and Magnox have now entered into discussions with the Applicant."

This paragraph can be found at: [https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-004505-DL2%20-%20Nuclear%20Decommissioning%20Authority%20and%20Magnox%20Limited%20-%20Responses%20to%20the%20ExA%E2%80%99s%20Written%20Questions%20\(ExQ1\).pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-004505-DL2%20-%20Nuclear%20Decommissioning%20Authority%20and%20Magnox%20Limited%20-%20Responses%20to%20the%20ExA%E2%80%99s%20Written%20Questions%20(ExQ1).pdf)

As was reported in national media on the 16<sup>th</sup> June, a fire ([EDF says a 'small fire' at Hinkley Point, visible from Burnham, was safely extinguished \(burnham-on-sea.com\)](#)) which occurred on the Hinkley 'C' site underlined the concern that the close proximity of the A, B and proposed C plants at Sizewell means that events on one site have the ability and the likelihood of affecting conditions on another or all three sites. In this case, the fire was thankfully small, but accidents involving, for example, a radioactivity release from the operational plant or a more significant conventional fire on the construction site could have far reaching impacts for the workforce and residents locally and possibly further away from the site.

Finally, TASC points out that in the EN6 Sizewell site assessment, the ONR agreed that an individual reactor required 30 – 50 hectares of land for a safe construction process. Paragraph C.8.89 states: 'Nominators have indicated that in their view, the size of site required for the operation of a permanent site of a single nuclear power unit allowing for operation, maintenance, storage of spent fuel and intermediate level waste would be 30 – 50 hectares. The Office of Nuclear Regulation concur with this estimate.'



Pete Wilkinson

Chairman TASC

22 June 2021

Cc Mark Foy, Chief Nuclear Inspector, ONR

