



Hinkley Point B Power Station

Hinkley Point B Power Station REPPIR Consequences Report

The Radiation (Emergency Preparedness and Public Information) Regulations 2019

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Revision	Amendment	Date
000	First Issue	November 2022
001	Revision to reflect FFV status and changes to site risks	March 2026
002	Revision to reflect comments made on content as part of off-site plan retermination	May 2026

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Purpose

This consequence report is required in regulation 7 of Radiation (Emergency Preparedness and Public Information) Regulations (REPPiR) 2019 for the Local authority to determine off site emergency planning requirements. It sets out the technical justification for the minimum distances for emergency planning around Hinkley Point B nuclear power station.

The likelihood of an event occurring at Hinkley Point B power station is minimised through safety considerations in the siting, design, construction and operation and the granting and compliance with a nuclear site licence regulated by the Office for Nuclear Regulation (ONR). A Nuclear Site Licence is granted only after the ONR has fully satisfied that the licensee is a capable operator and has made an adequate safety case for the station and developed appropriate safety standards. The implementation of these standards demonstrates that an accidental event which might lead to the release of even small amounts of radioactivity is extremely low.

Despite constant vigilance, the safeguards incorporated into the design and operation of plant and support systems, and a positive accident prevention culture, hazardous situations that challenge control can occur. Having well-rehearsed emergency arrangements in a state of readiness, as required by REPPiR 2019, provides an additional layer of protection to mitigate the effects of unforeseen events.

This consequences report is developed from REPPiR regulations 4 and 5, requiring the operator, EDF Energy, to conduct an evaluation of the work with ionising radiation at Hinkley Point B power station to identify the hazards which could cause a radiation emergency, as defined in REPPiR regulation 2 and to assess the potential consequences of a full range of emergencies.

This revised consequences report has been completed in line with regulation 6 of REPPiR due to the occurrence a material change in the work with ionising radiation at Hinkley Point B Power Station. Regulation 6 (1) requires that when a material change in the work with ionising radiation occurs, a review of the hazard evaluation is completed.

On 12th January 2026 Hinkley Point B was formally declared Fuel Free Verified by the ONR. This means all fissile materials have been removed from the site and only small quantities of lower level radioactive materials remain on the premises. EDF considers that this is a material change and has therefore reviewed the hazard posed by the site and the consequences of that hazard. The results of this reassessment are set out in this report.

The assessments made show that doses that would be received by members of the public for any scenario are not sufficient to justify the use of urgent protective actions. This is by application of the UK Health Security Agency's Emergency Reference Levels in terms of doses averted by the implementation of urgent protective actions. It is on this basis that planning for automatic application of urgent protective actions in the event of a release of radioactive material from the Hinkley Point B site is not recommended.

1 Consequence Report

1.1 Name and Address of the Operator	EDF Energy Nuclear Generation Ltd (EDF Nuclear Operations). Javelin House Gloucester Business Park Gloucester Gloucestershire GL3 4AE	
1.2 Premises details	Address	Hinkley Point B Power Station Nr Bridgwater Somerset TA5 1UD
	Location	All distances mentioned in this report are a radius from the premises centre point Grid Reference ST 21366 46128, which is the centre of the reactor building and the location of the Irradiated Fuel Disposal Facility.
	Date of commencement of work with ionising radiation	Work with ionising radiation has already commenced at Hinkley Point B Power Station. The construction of the station started in 1967 and the station started generating electricity in 1976. Hinkley Point B ceased generating electricity presently on 1 st August 2022 and moved to its defuelling phase. The site was declared fuel free on the 12 th January 2026.
1.3 Recommended Minimum Geographical Extent – Detailed Emergency Planning (DEPZ)	The assessments conducted for the site Fuel Free Verified state (FFV) conclude that no Detailed Emergency Planning Zone is required.	
1.4 Recommended Distances for Urgent Protective Actions (sheltering, stable iodine tablets & evacuation)	The assessments required under REPIR indicate urgent protective actions are not justified for the for protection of the public.	

<p>1.5 Recommended Minimum Geographical Extent – Outline Emergency Planning (OPZ)</p>	<p>It is recommended that the Outline Planning Zone for the site be set as per REPPiR regulation 9 (1) a) and schedule 5 – (category 4) at 1km.</p> <p>Hinkley Point B is now considered to be a decommissioned site without a significant presence of irradiated fuels.</p> <p>Urgent protective actions are not recommended within the OPZ.</p> <p>Outline planning should consider the implementation of the following protective actions in the OPZ for a radiation emergency which is considered extremely unlikely.</p> <ul style="list-style-type: none"> • Shelter • Evacuation • Food restrictions <p>Planning in outline will enable implementation of protective actions based on the assessments made during an event and determined as appropriate based on the justification of the potential for averting exposure.</p>
<p>1.6 Environmental pathways at risk</p>	
	<p>The following environmental pathways could be at risk in the event of a radiation emergency at Hinkley Point B</p> <ul style="list-style-type: none"> • Grown foods – direct surface contamination and soil to plant • Animal products via ingestion • Water supplies through direct contamination and contaminated runoff
<p>1.7 Rationale</p>	
	<p>SELECTION OF SOURCE TERM</p> <p>EDF Energy has considered a range of accident scenarios in the hazard evaluation process and selected representative faults covering the main plant and premises areas on the station from. This range of faults is considerably reduced given the sites Fuel Free status.</p> <p>Whilst the assessments conducted demonstrate that a release of radiation from the site, which would lead to doses to the public that would exceed the REPPiR threshold of 1mSv, is extremely unlikely, it cannot be explicitly ruled out.</p>

POPULATION VARIABLES

As recommended by the UK Health Security Agency the exposure to the following population groups has been considered

- infants (0-1 year)
- children (1-10 years)
- Adults

Adults have been identified as the most vulnerable group.

Dose to the foetus and to breast-fed infants has been considered and it has been determined that the protective measures required for these do not exceed those required by the most vulnerable group identified above.

IMPACT OF WEATHER VARIABLES

Off site release with an airborne component will be highly affected by the weather at the point of the release. Extremes of weather, in this context, relates to the amount of dilution of the radioactive material that occurs during transportation. While higher wind speeds transport radioactivity over greater distances, the plume tends to move faster and affects a narrower area. Slow moving wind, with little or no turbulence, reduces the dilution of the radioactivity and presents the worst-case conditions for a release of radioactive material, as the release of radioactivity remains more concentrated as it moves off the site.

This becomes relevant in terms of the potential exposure through inhalation (amount of radiation per breath) and direct exposure as the release cloud or plume passes overhead. A full range of the atmospheric conditions occurring in the UK have been considered, along with the impact of rain, as this can 'wash' radioactivity out of the cloud or plume leading to a build-up of deposited activity where the rain falls raising levels of radiation in the environment and the potential of increased exposure through ingestion and direct exposure. The weather conditions used to develop the distances recommended in this report account for over 95% of the expected conditions at Hinkley Point B from an assessment of historic weather data. This aligns with the UK Health Security Agency recommended methodology to take account of pessimistic consequences due to unfavourable weather conditions as set out in report PHE-CRCE-50.

PUBLIC PROTECTION GUIDANCE

The UK Health Security Agency provide the UK guidance for emergency planning thresholds on dose for guiding decisions on actions. Emergency Reference Levels (ERL's) are dose criteria that apply to the justification and optimisation of sheltering-in-place, evacuation and administration of stable iodine. These are most appropriately expressed in terms of averted dose and are given in the table below.

Recommended ERLs for the planning of sheltering-in-place, evacuation and administration of stable iodine protective actions

	Effective dose or organ dose	Averted dose (mSv) ^a	
		Lower	Upper
Sheltering	Effective	3	30
Evacuation	Effective	30	300
Stable iodine	Thyroid ^b	30	100

a In recognition of their higher cancer risk, the doses are those potentially averted in young children
 b mSv equivalent dose to the thyroid

The key objective with planning and deploying urgent protective actions is to achieve more good than harm in context of the risks from radiation exposure and the risks associated with the protective measure. Hence the arrangements in place should be proportionate to the risk and offer a trade-off between protection against radiation dose and the detriments that protective actions can have when implemented.

APPLICATION OF THE EMERGENCY REFERENCE LEVELS

The assessments made show that the Emergency Reference Levels for urgent protective actions are not breached for any scenario and therefore it is on this basis that urgent protective actions are **not** recommended.

OTHER EMERGENCY PLANNING CONSIDERATIONS

Hinkley Point B is no longer an operating Nuclear Power Station and poses a much lower risk to the public than it did during its operating and defueling activities. However, as a long established site, there may be a lack of understanding within the local population as to this change in risk. Therefore in the event of a conventional incident at the site that results in observable impacts (smoke, fire, attendance of emergency services) the public may react in a more negative way than they would for a site without a similar history. This should be considered in the development of emergency plans.

SUMMARY OF RECOMMENDATIONS

The assessments indicate detailed planning is **not** justified at Hinkley Point B power station.

The status of the station and application of schedule 5 of REPIR 19 leads to the recommendation of a **1km** Outline Planning Zone

These recommendations demonstrate a significant reduction from the recommendations made in the revised Consequences Report submitted in 2022 when the station ceased generation and entered defueling activities.

2 Distribution

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TSSM (Equivalent)	<i>External</i>	TSSM (Equivalent)	Hinkley Point A Site

Figure 1 – Recommended Minimum Distance for Outline Emergency Planning

