Magnox

Radiation (Emergency Planning and Public Information) Regulations 2019

Consequences Report for Berkeley Decommissioning Site

Issue 2 October 2022

The following report is provided to the Gloucestershire County Council in accordance with REPPIR 2019, Regulation 7(5), with the particulars of the report in accordance with REPPIR 2019 Schedule 4.

Factual Information

(a) The name and address of the operator:

Mr M Heaton, Regional Closure Director
Magnox Limited
Berkeley Site
Berkeley Gloucestershire
GL13 9PA

(b) The postal address of the premises:

Berkeley Site
Berkeley
Gloucestershire
GL13 9PA

(c) The date on which it is anticipated that work with ionising radiation will commence:

Work with ionising radiation is already underway at the premises.

Recommendations

(a) The proposed minimum geographical extent, if any

It is recommended that no detailed off-site emergency planning is required.

In accordance with Schedule 5 in REPPIR 2019, an outline planning zone of 1km is required.

Rationale

(a) The rationale for the above recommendation on the minimum distance for which urgent protective action may be needed is as follows:

Apart from a large aircraft directly impacting the Active Waste Vaults (discussed below), there are no events, whether caused by error or omission by the operators or caused by external factors, which can credibly result in the release of sufficient radioactive material from the Berkeley site to the atmosphere to cause the public serious harm.

Assessment carried out by Magnox Ltd has established that a large aircraft directly impacting the Active Waste Vaults (estimated to have a likelihood of occurring of 1 in 50 million years) could credibly result in the release of sufficient radioactive material from the Berkeley site to the atmosphere to cause the public harm.

It has been established by assessment that in the most unfavourable weather conditions, the consequences of a large aircraft impact directly on to the Active Waste Vaults could lead to a dose of up to 168mSv. This is for a member of the public who is as close as possible to the event, and who remains there for the whole period that the fires continue. The majority of this dose uptake will arise

whilst the fires in the vaults continue to burn, with the dose uptake caused by inhalation of the radiologically contaminated smoke. The consequences of the scenario reduce with distance:

- Within 200m distance the dose consequence is above the upper ERL and it is likely that it would be appropriate to implement sheltering (effectively limited to South Gloucestershire and Stroud Berkeley Green University Technical College).
- Between 200m-800m distance the dose consequence is between the upper and lower ERL and it would be appropriate to *consider* the need for sheltering, however following PHE guidance it is unlikely to be justifiable to attempt to implement any urgent protective actions, given the extremely low likelihood of such an event occurring (effectively limited to the remainder of the Gloucestershire Science and Technology Park in addition to Hamfield Farm).
- Beyond 800m distance the dose consequence is below the lower ERL and it would be inappropriate to take any urgent measures to mitigate public dose as the dose is below the lower ERL for sheltering.

The consequences of a large aircraft impact on the Active Waste Vaults will steadily reduce as work to empty the vaults continues. When the vaults have been emptied there will be no further scope for an event, of any credible nature, to result in significant release of radioactive material from the Berkeley site.