

Environment Agency Report

Bradwell Site Stakeholder Group

September 2022

This report covers our regulation of Bradwell Site, operated by Magnox Ltd., over the period March 2022 to August 2022.

Radioactive substances regulation

We regulate radioactive waste disposals and discharges to the environment. We do this by placing limits and conditions in environmental permits, which helps us to ensure that radioactive waste discharges are minimised and that the environment is protected. We carry out regular checks of Magnox's compliance with our regulatory requirements.

We also regulate and control other activities through our environmental permits, including surface water discharges to surrounding water bodies and emissions to air.

Radioactive substances compliance assessment reports (RASCARs) summarising our inspections, and any non-compliances found, are made available to the public on request.

Permitting

Magnox holds a radioactive substances activity permit (number EPR/ZP3493SQ) under the Environmental Permitting Regulations at Bradwell site. No changes have been made to the permit since the previous LCLC meeting.

Compliance activities

Bradwell site is managed by Magnox staff based at Sizewell A. We hold monthly remote meetings with the Sizewell A's environmental management team, and participate in the routine tripartite (Magnox, EA and ONR) updates on Sizewell A and Bradwell to ensure we are aware of progress on actions, projects, and any emerging issues at Bradwell site.

We did not carry out inspections at Bradwell site during the reporting period. We will inspect the site in September, during the site's annual Examination, Maintenance, Inspection and Testing (EMIT) campaign. Topics to be covered during the inspection are storage, monitoring and segregation of waste, asset management, remote site surveillance and reviewing the Bradwell aspects and impacts register.

We review Magnox reports of operational events and incidents that have occurred on site. We follow-up on these where appropriate. Magnox reported in September 2021 that they had detected groundwater ingress into the waste vaults complex. (The vaults were emptied of waste when the site was readied for entry into Care & Maintenance.) Magnox have disposed of the aqueous effluent, inspected the vaults to identify the source of the effluent and produced a report outlining the results of their investigations. This report informed a review of best available techniques (BAT) for managing the vaults in future. Options assessed ranged from: allowing the vaults to fill with water, periodically emptying groundwater for disposal to estuary or via off-site disposal, to partial or complete infill of the vaults or removal of the vault structure. Various means of repairing selected areas of the vault were evaluated. The preferred option selected from this BAT review is to periodically empty the vaults of effluent.

A further BAT review is underway to determine what the optimum disposal route would be for aqueous effluent retrieved from the vaults. We will respond in writing to Magnox, giving our opinion of the best management option for the vaults, once we receive Magnox's report on this BAT review.

Enforcement

We have not taken any new enforcement actions at Bradwell since our last report to the LCLC.

We set follow-up actions in a RASCAR (Compliance Assessment Report) on groundwater ingress into the Bradwell vaults, which we sent to Magnox in October 2021. We set an action to retrieve and dispose of effluent from the vaults by 31 March 2022. Magnox have completed this action.

We set an action on Magnox to inspect the structures and systems comprising the vaults complex in order to identify current or potential pathways for water ingress, and report on options for remediation work to minimise groundwater ingress into the vaults complex. Magnox provided us with a copy of their report on this investigation in April 2022.

Environmental impact

The Bradwell site environmental permit requires Magnox to monitor and assess the impact of discharges on the environment. The results of Magnox's environmental monitoring programme continue to be consistent with our independent programme, and do not indicate any results of concern or significant change from previous years.

The Environment Agency and the Food Standards Agency carry out independent environmental monitoring around nuclear sites. These monitoring programmes support our regulatory function and provide reassurance that public radiation exposures within legal limits. The results of this work are published annually and the latest report, "Radioactivity in Food and the Environment 2020" (RIFE 26), has been published on the GOV.UK website: [Radioactivity in food and the environment \(RIFE\) reports - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/101111/rife26-report-2020.pdf)

The RIFE report for 2020 shows that total doses to the public, from permitted discharges and direct radiation around nuclear sites, remained below the legal limit. Radioactivity from natural background, rather than nuclear sites, continues to be the more significant source of exposure to communities in all areas of the UK. Annual radiological dose to individuals (termed 'the representative person') in the local population who are most exposed to radiation from all pathways and sources of radiation from Bradwell site is assessed to be less than 5 microsieverts. This is unchanged from 2019 and is less than 0.5% of the UK dose limit of 1000 microsieverts.

Discharges from site

The site's environmental permit requires Magnox to use best available techniques (BAT) to manage its operations and ensure their impacts on the public and wider environment are minimised. Disposal of wastes – as solids, liquid or gases can only be made via permitted routes or by transfer to permitted sites. Magnox must also carry out a programme of environmental monitoring. A report on the liquid and gaseous discharges to the environment, and the results of the environmental monitoring programme must be submitted to us on a periodic basis. We examine these reports and document our assessment through a RASCAR.

The discharges from Bradwell site are reported annually, within three months of the end of the calendar year. We received the annual discharge returns for Bradwell site for the 2021 calendar year on time, in February 2022 and reported on these to the Bradwell LCLC in March 2022. In summary:

- Liquid radioactive effluent discharges and most gaseous emissions are based on standard reporting values because the dose impact of these emissions is expected to be very low. Discharges are measured periodically (most recently in 2021) to confirm that the standard values remain valid.
- Discharges from mobile extraction units (MEU's), when used during inspection and maintenance work, are monitored when required.
- Discharges of active liquid effluent from the site to the Blackwater Estuary have ceased.
- Rainwater drains to a single point on site (the Main Drains Pit) and is periodically discharged to the Blackwater Estuary. Magnox analyses a spot sample from the Main Drains Pit for information purposes at quarterly intervals. All activity concentrations measured in 2021 were within their expected range.

Further information

The Environment Agency's Lead Regulator for Bradwell Site is Peter Reynolds, based in the Environment Agency's Nuclear Regulation Group (South) (NRG(S)).

NRG(S) is responsible for the environmental regulation of radioactive waste disposals on or from nuclear licensed sites in southern England (and in south Wales, on behalf of Natural Resources Wales). We also work with the local Environment Agency teams in relation to other Environment Agency roles and responsibilities.

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A public register service is available on the GOV.UK website at:

<https://environment.data.gov.uk/public-register/view/index>

Alternatively, you can request access to public documents directly by contacting the Customers and Engagement Team in the Wallingford office. Please email

WTenquiries@environment-agency.gov.uk

Further information on our role in regulating the use of radioactive substances and related activities on nuclear licensed sites can be found on the Environment Agency pages of the Gov.UK website at:

<https://www.gov.uk/government/publications/nuclear-regulation-in-the-environment-agency>

Our enforcement and sanctions policy is publicly available on the GOV.UK website at

<https://www.gov.uk/government/publications/environment-agency-enforcement-and-sanctions-policy/environment-agency-enforcement-and-sanctions-policy>

Public Health England has placed guidance on ionising radiation dose comparisons on the GOV.UK at:

<https://www.gov.uk/government/publications/ionising-radiation-dose-comparisons>