

Environment Agency Report

Bradwell Site Stakeholder Group

March 2022

This report covers our regulation of Magnox Ltd. at Bradwell Site, over the period September 2021 to February 2022.

Coronavirus: nuclear site regulation operational update

The Environment Agency's priority remains to protect people and the environment. We have set out how we are doing this across the many areas we regulate, advise or interact with the public, for example, flood defence, flood warning, environmental sampling, permitting, angling and fisheries, waterways management and billing (see [GOV.UK](https://www.gov.uk)).

Our existing HR policies and positions will not change initially as a result of Covid-19 restrictions being lifted, however they will remain under review. In brief, currently:

- we are fully operational, with the majority of our staff working from home in accordance with government guidelines
- our frontline staff have returned to near normal regulatory work including physical inspections.

We have maintained regulatory activities at Bradwell, including in-person site visits. We make use of remote working arrangements where practicable and effective to do so.

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 under the Environmental Permitting Regulations (EPR) at the Bradwell site (EPR/ZP3493SQ). No changes have been made to the permit since the last 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 and recommendations and any emerging issues at Bradwell site.

These discussions include updates on Covid related issues, such as number of Sizewell A staff available to carry out tasks at Bradwell site. We remain satisfied that environmental performance is not being adversely affected by current Covid-related impacts.

We also 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 groundwater ingress into the waste vaults complex had been detected. (The vaults were emptied of waste when the site was readied for entry into Care & Maintenance.) This follows an event in 2020, when liquid was found to be entering the vaults. Magnox have retrieved the effluent from the vaults and are making arrangements for its disposal. They are investigating solutions. They will review options and propose long term measures to manage the condition of the vaults, in a best available techniques (BAT) assessment report, once investigations are complete. We will engage with Magnox on possible solutions to arrive at one with minimal impact on the environment.

We carried out an inspection in November 2021 of general management and surveillance of Bradwell site and of waste management arrangements during the Examination, Maintenance, Inspection and Testing (EMIT) campaign carried out from September to November 2021.

We discussed management of the EMIT campaign with relevant Magnox staff. Topics covered included familiarisation training, working practises, communicating scheduled daily tasks to staff and contractors, implementing safe systems of work and monitoring progress against the project schedule. We reviewed provision of training and suggested additions, on managing waste, to the induction training course.

We confirmed that routines for the maintenance of the environmentally critical equipment at Bradwell site are programmed into the Sizewell A preventative maintenance system and reviewed a sample of these routines.

We discussed waste assay arrangements with Magnox staff. An ISO container has been set aside for this purpose to facilitate management of waste and provide better working conditions in poor weather. This is an example of good practise.

Our inspection confirmed that external areas of the Bradwell site were neat and tidy. The top surface (the cap) of the North End area, where low levels of radioactive contamination are present, appeared to be in generally good condition. We found the radioactive or non-radioactive waste generated during the EMIT campaign to be suitably segregated and stored.

We were satisfied with the waste management arrangements we observed at Bradwell site during our inspection, and did not find any non-compliance.

Enforcement

We issued a warning letter in October 2021, concluding our enforcement action on an event, dating from May 2019, when waste containing free liquid was consigned from Bradwell to an off-site waste treatment facility. Rainwater had entered the waste package while it was stored outdoors at Bradwell in a container that was not fully weatherproof. The presence of free liquid contravened the waste acceptance criteria of the receiving site.

We set corrective actions, in addition to the measures already taken by Magnox after the error was discovered. These are that Magnox should review their existing processes or policies to identify improvements that would allow them to respond to changing circumstances during decommissioning, while at the same time maintaining environmental compliance. We also set a requirement that Magnox should review their arrangements for training and communicating with staff in order to embed a questioning culture and empower staff to confidently challenge poor working practices.

Because all accessible low level radioactive waste (LLW) has already been disposed of from Bradwell site and all intermediate level waste (ILW) is securely stored, we will follow up on progress with these actions as part of our routine engagement with Magnox at corporate level.

Environmental impact

The site environmental permit requires the operator 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 Agencies and 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 are low and 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/462212/rife26-report-2020.pdf)

The 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.

The RIFE report presents an assessment of annual radiological dose to individuals (termed 'the representative person') in the local population who are most exposed to radiation from each nuclear licensed site. In 2020, the total dose to the representative person from all pathways and sources of radiation from Bradwell site was less than 5 microsieverts, unchanged from 2019. This is less than 0.5% of the UK National dose limit of 1000 microsieverts and less than 0.2% of the average annual radiation dose of 2700 microsieverts/year received in the UK from all sources of radiation.

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 of 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 report on their performance 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.

Liquid radioactive effluent discharges and most gaseous emissions are based on standard reporting values because the dose impact of these emissions are expected to be very low. These values were derived from the average of discharge values measured, in the case of the reactor buildings from 2006 when defueling was completed until 2010. Activity concentrations measured in the main drains pit from February 2015 until January 2017 were averaged to derive initial standard reporting values for liquid discharges from Bradwell site. 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 and reported in total.

Discharges of active liquid effluent from the site have ceased.

Rainwater drains to a single point on site (the Main Drains Pit) and is periodically discharged to the Blackwater Estuary. Magnox takes a spot sample for information purposes from the Main Drains Pit for analysis at quarterly intervals. Magnox assess this data and adjust the standard reporting value should the measured activity concentration value exceed two times the standard value. Reporting values were re-assessed in early 2020 using data collected in 2019. This assessment resulted in a small increase to the standard reporting values but did not indicate any significant impact on the environment. None of the activity concentrations measured in 2021 were unexpectedly high or low.

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 closely with the local Environment Agency teams in Wessex Area 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 publically 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>