

# Report to Bradwell Site LCLC

September 2021

This report covers our regulation of Bradwell site from March 2021 to August 2021.

## Our Regulation

We regulate radioactive waste disposals to the environment. We do this through environmental permits that contain limits and conditions aimed at minimising wastes and protecting the environment.

Bradwell site is managed from Sizewell A. We check compliance with Bradwell permits by making periodic inspections at Bradwell or Sizewell A.

Radioactive Substances Compliance Assessment Reports (RASCARs) detailing our inspections and any non-compliances found are placed on the Public Register.

## 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 on 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)).

While the majority of Environment Agency staff working from home, our frontline staff have returned to near normal regulatory work including physical inspections.

## Routine Communications with Magnox

We hold monthly teleconferences with Sizewell A environmental staff to review the status of Bradwell site and discuss the measures the environmental team are taking to manage environmental hazards at the site.

## Current Regulatory Activities

### Inspections.

We undertook an inspection (at Sizewell A, on 18 August 2021) of the Bradwell management system with regard to records management and knowledge retention.

We found the arrangements generally satisfactory and did not find non-compliance.

### Enforcement

#### NON-CONFORMING WASTE DISPOSAL

As noted in our report to the LCLC in March, free liquid was discovered in September 2019 in a container of low level waste (LLW) consigned in May 2019 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 recorded CCS Category 3 (minor environmental impact) breaches of two permit conditions relating to the need for management systems to be sufficient to achieve compliance with the permit, and to the requirement to use best available techniques to minimise the volume of radioactive waste generated on Bradwell site, and a CCS Category 4 (negligible environmental impact) breach of the permit requirement to meet the conditions for acceptance of the site receiving the waste.

By the time the free liquid was discovered all accessible low level radioactive waste (LLW) had been disposed of from Bradwell site and all intermediate level waste (ILW) was securely stored. However, the event provides opportunity for institutional learning to avoid similar problems at other decommissioning sites in future.

Magnox are progressing a wide-ranging waste compliance improvement programme (WCIP), in response. Objectives of the WCIP include: upgrading operator skills; improving radioactive waste management processes; reviewing waste management facility design requirements; conducting waste audits and reviewing assurance standards. Magnox have also produced a company standard collating lessons learned when transforming Bradwell site into its interim end-state configuration.

There are many aspects involved in safely managing radioactive waste as a site enters its end-state. We expect ongoing work will be required to safely manage waste under these conditions. We will continue to engage with Magnox on this topic with aim of optimising radioactive waste management arrangements.

### WATER LEAK INTO VAULTS COMPLEX

A water leak into the vaults complex at Bradwell site was detected in September 2020. Magnox identified the source of the leak - groundwater entering the vaults via an inadequately sealed trench - early on and developed an engineering solution to stop water ingress. Repair work was completed by the end of March 2021.

Magnox have pumped some of the effluent from the vaults into storage containers, ahead of disposal, and intend to complete the work within the next two months. Magnox took samples of the water for analysis, which showed that low levels of radioactivity were present.

The ingress of groundwater into the vaults generated additional radioactive liquid effluent, although the levels of radioactivity in the effluent are low. This breached the condition of the Bradwell site permit that requires Magnox to use best available techniques (BAT) to minimise the volume and activity of radioactive waste produced on site that requires disposal on or from the site. We recorded a CCS Category 4 (insignificant impact) breach of this condition because we assessed the environmental impact of the incident as low.

We consider the root cause of the event to be inadequate engineering to prevent avoidable radioactive waste generation. We noted that the engineering systems designed to detect ingress worked as intended, and provided early warning of the presence of liquid in the vaults. We accepted that the fault would have been repaired sooner if it were not for the restrictions in place due to the Covid-19 pandemic.

We recorded a CCS Category 3 (minor environmental impact) of the site's permit condition requiring Magnox to maintain in good repair the systems and equipment used to prevent avoidable generation of radioactive waste that requires disposal.

We are monitoring the work to complete recovery of the effluent from the vaults and keep the asset inspection and maintenance work at the site (primarily carried out during an annual campaign in September/October each year) under review.

## **Permit Information Conditions**

Magnox have not yet demonstrated that they meet all of the Environment Agency's expectations for a site placed in an interim state to allow for deferred dismantling. We have therefore set improvement and information requirements in the Bradwell permit.

### INFORMATION REQUIREMENT IC2

In January 2021, to satisfy the terms of information requirement IC2, Magnox submitted a written report to the Environment Agency:

- reviewing of the effectiveness of management arrangements at Bradwell and proposing criteria against which to measure the environmental performance of the site
- using data collected since Bradwell site entered its interim state to carry out an initial evaluation of environmental performance against the environmental performance criteria

The report provides a framework for measuring environmental performance at Bradwell site. In our opinion more detail could be added to the framework, which we expect to evolve as Magnox learns more about the long term management of a site in Care & Maintenance. We will work with Magnox to develop an optimal system to monitor and improve environmental performance at Bradwell site.

## **Discharge Reports Summary**

Nuclear sites are required to routinely report to us their liquid and gaseous discharges to the environment. We review these reports for compliance, which is detailed in a RASCAR and subsequently placed on the public register.

The discharges from Bradwell site are reported annually, within three months of the end of the calendar year. 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. Discharges from mobile extraction units, used during inspection and maintenance work, are monitored 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 from the Main Drains Pit for analysis at quarterly intervals for information purposes. Magnox assess this data and would adjust the standard reporting value should the measured activity concentration value exceed two times the standard value.

We received the annual discharge returns for Bradwell site in March 2021. None of the reported activities were unexpectedly high or low.

## Environmental Monitoring Summary

Magnox carry out an environmental monitoring programme consisting of quarterly measurements of terrestrial dose rate at ten locations, and annual analysis of three oyster samples, two samples of surface water from the costal ditch near the north end of the site, and one sample each of seaweed, silt, and herbage.

Magnox report annually on the results of their environmental monitoring. No unusual results – more than three standard deviations higher than the mean of the previous twelve measurements - were reported in 2020.

## On-going regulation of Bradwell under Care & Maintenance

Although the most significant hazards have been removed from Bradwell site or made passively safe, there remain some areas of site that are radioactively contaminated and which are not due to be decommissioned until final site clearance. Magnox continue to monitor and report annually on radioactive discharges from the site and on the results of the environmental monitoring programme around the site to measure levels of radioactivity in the local environment and detect any trends in these levels.

The Bradwell site continues to be regulated under the Environmental Permitting Regulations (EPR) 2016 and will have environmental permits for both radioactive substances activities and water discharges. We will tailor our regulatory activities, proportionately to the risks from site, whilst ensuring the standards of protection of the public and environment are maintained. We will continue to independently scrutinise Magnox's arrangements for compliance, taking on board the views of local stakeholders and interested parties.

### Contacts

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