Environment Agency Report to the Dungeness Site Stakeholder Group

November 2020

Introduction

This report covers our regulation of Dungeness A and B Sites and related environmental matters over the period January to October 2020.

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 (i) 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).

In brief:

- We are fully operational, with the majority of our staff working from home.
- Our frontline staff have returned to near normal regulatory work including physical inspections.
- We have published a series of temporary regulatory position statements (RPSs). RPSs are national arrangements that allow for limited relaxations of regulatory requirements provided Operators meet certain circumstances and conditions. They clearly set out the standards that Operators must meet. We will continue to review the RPSs issued at the beginning of the pandemic and will extend or withdraw as necessary.

Please see our published statement for further information (i).

Radioactive Substances Regulation

We regulate radioactive waste disposals through environmental permits that contain limits and conditions aimed at minimising wastes and protecting the environment. We check compliance with the permit by undertaking regular inspections. These are recorded on Compliance Assessment Reports which detail our inspections and any non-compliance(s) found; these are placed on our Public Register.

We undertook regulatory visits to Dungeness A on 28th to 29th January 2020, 12th to 13th February 2020 and 12th to 14th October 2020.

We undertook a regulatory visit to Dungeness B on 29th of January; and carried out remote inspections because of coronavirus pandemic on 26th of May and 29th of July 2020. In addition, we attended the site on 27th-28th October for the Annual Review of Safety.

We also maintain regular contact with the sites by telephone and e-mail in addition to formal correspondence and visits to the sites.

Site Regulation

Dungeness A

We are in regular contact with the Head of Radiological Protection and Environment to ensure that we are kept in touch with progress on decommissioning, progress on actions and recommendations and any emerging issues at the site.

Inspections:

In January 2020, we observed some inactive commissioning of the modular active effluent treatment plant (MAETP) including observation of the flow meter MCERTS certification. The site also gave us an update on decommissioning projects. In February 2020 we performed an inspection on high activity waste. The October Inspection was on asset management with the Office of Nuclear Regulation (ONR). We found no non-compliances during these inspections but we made several recommendations.

Response to COVID 19.

During the shutdown at site and subsequent restart we were unable to visit Dungeness A in person. However we maintained regular contact with the Operator and liaised closely with the Operator on the restart quality plans. The Environment Agency created regulatory position statements (RPS see below) to assist Operators with issues with non-compliance to the permit that could not be avoided because of the emergency. There were no serious environmental events reported to us during the close or start-up periods at Dungeness A.

We issued our site environment review (SER) at the end of May. The SER was issued with the following caveat “This Site Environment Review represents our aspirations to deliver regulatory work under normal circumstances. Delivery will be impacted by current Covid-19 restrictions. We will deliver our regulatory programme, as far as possible, via remote means.” We are looking at what our regulatory interventions will be for the rest of 2020/21 and what can be performed remotely or needs site attendance.

Environmental awareness at Dungeness A.

We have had concerns regarding environmental awareness and performance at site following some failures over the last few years. It is our view that environmental awareness needs to improve so that all staff working at site know what the environmental importance is of the work they do. We want staff to be aware of what the environmental gains are and to have appropriate environmental performance indicators to measure success in projects. On 5th May we gave a presentation to staff at Dungeness A (including the Site Director) on the importance of environmental performance. We also pointed out how we would like environmental awareness and leadership to improve. The Operator at site and Magnox corporate have responded well to our initiative and we will be working with them on improvements going forward.

Aqueous waste discharge and the MAETP.

We (including the Hinkley A Inspector) held a meeting with Magnox on 24th June regarding the strategic issues surrounding the modular active effluent treatment plants in Magnox especially those at Dungeness A (undergoing commissioning) and Hinkley A (in planning). We are liaising with the Operator on a holistic view of aqueous waste disposal from Dungeness A e.g. when the present active effluent water treatment plant will close and what waste will need to be processed through it before it is decommissioned. We are liaising with Magnox on the creation of environmental performance criteria and the formulation of waste acceptance criteria for the MAETP.

Magnox have proposed to discharge the radioactive aqueous waste generated from the reactor voids to surface water drains and then out to sea rather than processing through the MAETP as originally proposed (the liquid is currently processed through the active effluent treatment plant). The reactor voids need pumping to prevent water reaching radioactive waste stored there. We are looking closely at the proposals from a radioactive and a water discharge permit perspective (see below).

Waste projects.

We wrote a letter to the Operator asking for further information on the proposals for the waste stored in the reactor voids. We also wrote a letter outlining our response to an initial best available techniques (BAT) statement we received on the borderline wet waste project (waste that is to be retrieved that although classed as intermediate level waste, may meet the waste acceptance criteria for disposal at the low level waste repository). We received a reply to the void waste letter and we will be liaising further with the Operator on this issue. We are awaiting a reply on our other letter but we have been informed that the BAT statement has been revised following our comments.

We issued our report on the waste quality checking project carried out at site in 2019. There are some recommendations but overall we found the processing of the low level waste that was part of the project to be satisfactory

Radioactivity in turbine hall void water.

We received a report on low levels of radioactivity found in the turbine hall void water. The Operator could not identify the source of the radioactivity as it is so low. There are a number of sources e.g. run off from aerial discharges, groundwater or from the reactor buildings via the steam tunnels. The Operator stated in their report that as the levels are so low it is difficult to get a representative sample for measurements. The ONR was passed the report under licence condition 34 (leakage and escape of radioactive material and waste). The amount discharged is a small fraction of the limit for minor routes of aqueous waste which is 1% of the permit limit. We are satisfied that no further work needs to be done on this. The discharge is covered in the radioactive permit (although not on the water discharge permit as yet (see below).

Engagement with the Operator regarding non-radiological land quality issues at site with our area groundwater waste specialists.

We have had various engagements over the last few months with the Operator regarding the future of the turbine hall void which is now required to position a crane for boiler removal. The turbine hall was part in-filled with demolition rubble in 2014. Since then the void has been pumped daily to ensure that groundwater does not mix with the rubble. This could cause high pH leachate to enter the groundwater. This water is discharged to sea. The Operator has applied for a permit variation to the water discharge permit to cover this discharge. We will continue to liaise with the Operator on their solutions to the issues of the turbine hall void.

Joint EA/ONR meetings with the Operator.

We held remote regulatory meetings with the Operator and the Office of Nuclear Regulation on 1st July and 22nd September 2020. We discussed future strategies and lifetime plans for the site, waste projects and various other decommissioning topics. These meetings ensure the regulators can discuss issues at site together with the Operator.

Fire in electrical substation next to the Dungeness A site.

On 26th June we were informed of a fire in the 275kv substation. This supplies Dungeness A with electricity and is managed by the National Grid. The fire burnt itself out without water although there was a large fire brigade response at the time. We will be looking into any environmental issues surrounding this fire and are awaiting a report from National grid. It seems there was a release of Sulphur Hexafluoride, a greenhouse gas. We have contacted the Environment Agency F-gas team who lead on these matters. No radioactivity was involved.

F-gas issues.

The Operator is looking at their own F-gas arrangements following some minor issues at site with plant containing such material e.g. some air conditioners and the advanced vacuum drying system (drying system for placing ILW in ductile cast iron containers).

Dungeness B

Radioactive Substances Regulation

Site Inspections

In January 2020, we inspected the station's Active Effluent Treatment Plant (AETP), focusing on equipment reliability and waste minimisation. We did not find any permit non-compliances, but made a recommendation for the station to resolve plant defects in a timely manner. We will track progress as part of our routine regulation.

Response to COVID-19

Dungeness B did not shut down during the peak of the pandemic, but we were unable to undertake regulatory visits to the station due to coronavirus restrictions. However, we maintained weekly contact with the station and conducted at least two remote inspections to ensure Dungeness B continued to comply with its environmental permit during the pandemic.

Remote Inspections

In May 2020, we undertook a remote inspection for assurance that the station is adequately managing environmental risks and environmental permit compliance during the Covid-19 pandemic. We did not identify any permit breaches, but we expressed concern about delays in making improvements to the gaseous waste monitoring system. The station's management team agreed to provide resources to upgrade the system.

In July 2020, we carried out a remote inspection, focusing on the gaseous waste discharge monitoring system. We also remotely inspected the ventilation system supplying air to the station's radwaste management facility. There were no permit breaches but we made some recommendations for improvement. These include (but not limited to) i) upgrade the gaseous waste monitoring system to minimise failures and ii) upgrade the ventilation supply system for effective conditioning of air supplied to the waste management facility. The station accepted the recommendations and will be working to implement necessary corrective actions.

Events and Enforcement

Dungeness A.

In April 2019 we were informed by the Operator that as part of ongoing improvements to arrangements at site following learning from Sellafield, it had been identified that routine inspections of ventilation system ductwork at Dungeness A were not specified in the Environmental Maintenance Schedule (EMS). Therefore routine inspections were not being carried out. This was particularly the case where ductwork was in inaccessible areas. A series of such inspections was begun on site. It transpired that a 1m3 panel had corroded away from a piece of duct work which discharges gaseous waste from a building called the Dungeness A medium active laboratory (DAMAL). The laboratory deals with small volumes of low activity samples.

The Operator has a requirement in the permit to maintain such environmental equipment and we found that they were in breach of 2 conditions of their permit. As we were satisfied there was no environmental impact our enforcement response was to give advice and guidance on this occasion (the lowest of our enforcement response options). We issued this advice and guidance to the Operator in January 2020.

On checking the other ventilation plant on site the Operator discovered that the sampling tube for the lug vault ventilation extracts has been realigned away from their usual alignments. The Operator is investigating the implications for measuring gaseous discharges from this area. We are awaiting a report.

Dungeness B

In August 2020, Dungeness B reported that sewage effluent had leaked from underground pipework into a concrete chamber. There was no evidence that sewage leaked into ground. The station drained the chamber, and repaired the pipework. Investigation is ongoing to determine the root cause(s) of the leak and to ascertain if the sewage escaped into the ground. We will await the final report of the investigation before deciding the enforcement action to take. The Local Environment Management (EM) Team will lead our formal enforcement response.

In August and September 2020, Dungeness B reported 2 separate exceedences of the Total Residual Oxidant (TRO) limit specified in the station's Water Discharge Activity (WDA) Permit. The WDA permit allows the station to discharge cooling sea water into the English Channel. TRO is a measure of sea water dosing with sodium hypochlorite – a process used to minimise bio-fouling in the cooling system. The permitted discharge limit is 300µg/l but concentrations peaked at 380µg/l and 600µg/l on 28 August and 29 September 2020 respectively. Following both events, the station stopped sea water dosing to restore permit compliance. Investigations are ongoing to determine the root cause(s) of these events and we will await the final report before deciding our enforcement response. The Area EM team will lead our enforcement response to these events.

Annual Review of Safety and Environment

The Magnox South East sites Annual Review of Safety, Security and Environment was cancelled this year due to the COVID 19 emergency.

We attended the annual review meeting at Dungeness B Power Station on 27th and 28th October 2020. We noted significant investments on the plant and the progress made towards improving the station's environmental performance. We recommended that the station reinforce the environmental message to the workers on site and sustain the drive to

improve environmental standards across the station. Overall, the Annual Review meeting was positive and concluded with no cause for concern.

Environmental Permitting

Dungeness A

Radioactive Substances Regulation

Water discharge permit

Our national permitting service (NPS) granted a variation following an Operator application for a change to the sampling point for aqueous discharge. This is so the samples can be taken when the MAETP is in service.

NPS are determining a further variation to place the discharge of the turbine hall void water onto the permit. We have determined that this water which is discharged to sea needs to be included in the site water discharge permit. NPS are also assessing the Operator proposal to discharge radioactive waste from the reactor voids to the surface water drains (See above).

Dungeness B

Radioactive Substances Regulation

In September 2020, we issued version EPR4 of Dungeness B's *'Compilation of Environment Agency Requirements'* (CEAR). The CEAR provides information on how to comply with permit conditions which state that we will provide in writing specific details of our requirements for compliance. The updated version improves the clarity and consistency of our requirements to enable the station to fully comply with the CEAR and related permit conditions.

Discharge Reports

Both sites are required to report to us liquid and gaseous discharges to the environment and transfers of radioactive waste to other sites on a regular basis. These reports are placed on the public register (ii). Liquid and gaseous discharges from both Dungeness sites remain within the limits set by the Environmental Permits.

Dungeness A

During the COVID 19 close down all active gaseous discharges were stopped apart from the lug vaults where some radioactive waste that could generate hydrogen that needs to be vented is stored. Aqueous discharges did continue but measurements of samples taken during the discharge process could not take place. Also various other analyses required by the permit were delayed. Reporting of the discharges could not take place in the normal timescales due to the lack of analysis and the unavailability of staff at site and in some off site facilities. The Environment Agency produced regulatory position statements (RPS) that covered any potential non-compliances to the permit around these areas. The Operator used RPS C7 (Monitoring emissions from installations, radioactive substances and waste activities) and C10 (Reporting for installations, radioactive substances and waste permits) during the close down period and for a time during the

restart. These RPS expired on 30th September 2020 but by then the Operator had caught up with all their analyses and reporting so no longer needed to use the RPS.

Dungeness B

Dungeness B has submitted the gaseous and liquid waste discharge returns required to date in 2020. We have reviewed discharge returns covering the period January – June 2020 and did not identify any unusual trends. We reached an agreement with EDF Corporate to allow Dungeness B to use RPSs C7 (Monitoring emissions from installations, radioactive substances and waste activities) and C10 (Reporting for installations, radioactive substances and waste permits) during the pandemic. This allowed a delay in analysing and reporting the results from analysis of the annual bulk Final Delay Tank (FDT) liquid effluent sample, due to closure of the analytical lab used by the EDF fleet. Dungeness B completed the delayed analysis/reporting and no longer required both RPSs before they expired at the end of September 2020. We did not identify any unusual trends in the annual bulk FDT sample analysis report.

In October 2020, we agreed another request by EDF Corporate to allow Dungeness B to use RPS C20 (Monitoring emissions from some environmental permitting activities) (published on 01/10/2020) to cover the taking, preparation and analyses of witnessed samples of the type specified in the CEAR. This is because the witnessed sampling element of the Environment Agency's independent check monitoring programme has not resumed since its suspension in March 2020. EDF sites should be able to report within 3 months of the end of the calendar quarter in which they take witnessed samples so there is no requirement to use RPS C21 (Reporting for installations, radioactive substances and waste permits).

Environmental Monitoring

The Operators carry out monitoring of various environmental samples at periodic intervals and report the information to us. Dungeness B staff carry out the work on behalf of both sites. The programmes for the two sites are slightly different to reflect the radionuclides that are being discharged, the historical discharges and the operational activities taking place at each site. Dungeness B continued with the taking of samples for the programmes during the COVID-19 emergency.

Dungeness A

Due to the COVID-19 emergency some reports of the environmental monitoring programme were delayed and the RPS were used to cover this non-reporting in much the same way as the aqueous and gaseous discharges (see above). The Operator has now caught up with their reporting requirements. There were no returns from the programme that require any further investigation since the last SSG report.

Dungeness B

Radioactive Substances Regulation

Dungeness B has submitted Environmental Monitoring returns required to date in 2020. We reviewed the environmental monitoring returns for the period January to March 2020 and did not identify any unusual trends.

Combustion Permit

In June 2020, we agreed a request by the station to use RPSs C7 and C10 under the Combustion Permit's Site Protection and Monitoring Programme (SPMP). This was due to the inability of the contractor to attend site to conduct ground water sampling. The station

finally submitted the ground water monitoring results (April – June 2020) at the end of July 2020 and confirmed it no longer required the use of both RPSs to cover activities under the SPMP. We did not find any unusual trends during our review of the ground water monitoring results.

Nuclear sites are required to carry out a rigorous environmental monitoring programme that requires the operator to monitor and assess the impact of their discharges on the environment.

Additionally, the Environment Agencies and Food Standards Agency carry out independent environmental monitoring around nuclear sites. The results of this work are published in our annual Radioactivity in Food and the Environment (RIFE) report (iii).

In the RIFE report the Dungeness sites are considered together for the purposes of environmental monitoring because the effects of both are on the same area. The report presents a yearly assessment of radiological dose to the group of people in the local population who are most exposed to radiation from the sites. In the latest report for 2018 (RIFE-24), the total radiation dose to this group of people as a result of discharges and radiation shine from the sites was very low at 0.022 mSv/year. This is about 2% of the Government dose limit of 1 mSv/year and an even smaller percentage of the average amount of radiation we all receive from natural sources, which is approximately 2.2 mSv/year.

Further information

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 section (iv) of the GOV.UK website.

The Environment Agency's Lead Regulator for the Dungeness A site is Phil Fahey. The Environment Agency's Lead Regulator for the Dungeness B site is Eddie Osondu.

Eddie and Phil are Nuclear Regulators and part of the Nuclear Regulation Group (South) based at the Environment Agency's Wallingford office in Oxfordshire.

The EA's Nuclear Regulators undertake environmental regulation of radioactive substances on nuclear licensed sites in southern England. They work closely with the local Environment Agency teams in those areas as well as external bodies such as the Office for Nuclear Regulation.

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i. https://www.gov.uk/government/news/coronavirus-environment-agency-update
ii. https://www.gov.uk/access-the-public-register-for-environmental-information
iii. https://www.gov.uk/government/publications/radioactivity-in-food-and-the-environment-rife-reports
iv. https://www.gov.uk/government/publications/nuclear-regulation-in-the-environment-agency