Dungeness Site Stakeholder Group Report

This report covers our regulation of Dungeness A and B Sites and related environmental matters over the period May to December 2019.

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 24th, 25th and 26th June, 29th and 30th July, 22nd and 23rd of October and 13th November.

We undertook regulatory visits to Dungeness B on 1st of May; 10th, 30th and 31st July; 2nd, 16th October and 13th November.

Regular contact is also maintained with the sites by telephone and e-mail in addition to formal correspondence.

Site Regulation

Dungeness A

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

Inspections:

In June 2019, we performed an inspection on environmental leadership. The inspection in July was a joint inspection with Dungeness B on the environmental monitoring programme. The October Inspection was on aqueous waste plant both radioactive and non-radioactive. We found no non-compliances during these inspections but we made several recommendations.

Engagement with the Operator regarding non-radiological land quality issues at site with our area groundwater specialist:

We have had various meetings over the last few months with the Operator regarding groundwater and Land Quality Management (LQM). In March 2019, we held a teleconference with LQM experts from Magnox to further discuss groundwater monitoring at the site. Magnox had previously sent our specialist the Dungeness A rationale for routine groundwater monitoring. Our recommendations and observations were fed back to the Operator for their consideration. We have now agreed a programme going forward that the Operator will implement.

Waste quality checking programme:

As a result of non-compliances involving solid waste over the last couple of years, we included Dungeness A in our annual waste quality checking programme. We employ contactors to look at how waste is characterised, segregated, processed and consigned.

We visited Dungeness A with our contractors on 26th June 2019 and 13th November 2019. We were generally satisfied with the arrangements for radioactive waste at site and made a small number of recommendations for improvement. Our contractors are completing a report which we will share with the Operator.

Panel missing in ventilation plant duct:

We have been informed that a panel has been found to be missing from a ventilation duct at site. The duct is on the roof of a building and discharges small amounts of radioactive gaseous waste. The panel was found to be missing after learning from Sellafield stimulated Magnox to check all ductwork in difficult to access areas which may not have been inspected as part of a maintenance regime. The missing panel is after the filter but before the sampling line. We have received reports from the Operator. The Operator has a requirement in the permit to maintain such equipment in good repair.

We are considering our enforcement response.

South East sites Waste teleconference:

On 19th August 2019, we dialled into a joint Magnox, EA and ONR meeting on waste strategy at South East sites. This meeting discusses how waste disposal is optimised and managed at the sites (Dungeness A, Sizewell A and Bradwell) and provides a forum for Operator and Regulator feedback.

Dungeness B

Inspections:

Radioactive Substances Regulation

In July 2019, we inspected the site's Environmental Monitoring Programme. We did not find any permit non-compliances, but made some recommendations for improvement.

In October 2019, we undertook an Asset Management (AM) inspection. The AM inspection focused on the underground condensate discharge pipework. The visit allowed us to review the extent and scope of the ongoing Corrosion Event Recovery Programme. There were no permit breaches, but we made a recommendation for improvement.

In November 2019, we inspected Environmental Leadership and Culture at Dungeness B. We interviewed system engineers, team leaders, contract partners and site operatives. There was no permit breach but we made a recommendation for improvement. We also included in our report suggestions by staff to improve environmental culture at the station.

Combustion Activity

The asset management inspection of October 2019 also covered underground diesel pipework associated with the combustion permit. We did not find any permit non-compliance. The recommendation we made under RSA also applied to the underground diesel pipework.

Control of Major Accident Hazards (COMAH)

In October 2019, we undertook a prioritisation, targeting & strategy inspection jointly with ONR. This allowed us to familiarise ourselves with the station's current COMAH inventories, primary/secondary/tertiary containment infrastructure and emergency arrangements. We did not find any breach of the COMAH regulations concerning secondary containment, tertiary containment and the site's emergency arrangements. However, we identified areas for improvement and made relevant recommendations.

Electro chlorination Plant Event:

In December 2019, the station notified us of a leakage of dilute chlorinated water into ground from the Electro-chlorination plant pipework. The site has launched an investigation and will forward a report to us in due course. This will enable us to conduct our own review and decide an appropriate regulatory response.

Enforcement

We have not taken any enforcement actions at Dungeness A and B in the period since the previous SSG meeting, and they have remained compliant with the reporting requirements of their environmental permits. We are considering our enforcement response following the issues with ventilation pant at Dungeness A and the Electro-chlorination plant at Dungeness B, as described above.

Annual Review of Environment

The Magnox SE sites Annual Review of Safety, Security and Environment took place in April 2019 and we reported our attendance at the last SSG meeting. The review encompassed Sizewell A, Dungeness A and Bradwell and involved ourselves and the ONR. The next review will take place later in 2020.

In July 2019, we attended the annual review meeting at Dungeness B in conjunction with the local EA Area Specialists. The local Area staff took the opportunity to inspect the new conventional waste compound. They did not find any issues with the new facility.

Environmental Permitting

Dungeness A

Radioactive Substances Regulation

In July 2019 we issued an Environment Agency (EA) initiated variation to the Dungeness A permit and compilation of Environment Agency Requirements and Specifications (CEARAS).The permit was changed to include new conditions that will require the Operator to develop and maintain a Waste Management Plan (WMP) and a Site Wide Environmental Safety Case (SWESC) in line with the joint Environment Agencies' guidance document '*Management of radioactive waste from the decommissioning of nuclear sites: guidance on the requirements for release from radioactive substances regulation*' (known as the GRR, see briefing note below).

We introduced changes into the permit because of amendments in 2018 to the Environmental Permitting (England and Wales) Regulations 2016. These implement changes arising from the updated Basic Safety Standards Directive (2013/59/Euratom),

known as BSSD, which sets out standards for radiation protection in the European Member States and is based on international studies on the effects of radiation.

We added 3 new gaseous discharge routes to the permit. The Operator had applied to us for these changes. These routes will be required for further decommissioning activities at site in new facilities. There were no changes to permit limits in this variation.

We also added to the permit an off-site disposal route for aqueous waste that cannot be disposed of at site. The Operator had identified a need to dispose of a small amount of aqueous waste to an authorised person off site, from their advanced vacuum drying system plant. The Operator applied to authorise this disposal in the permit.

As a result of the changes to the permit, we updated the CEARAS to make it consistent with the changes made. In December 2019 along with all nuclear sites, we changed the CEARAS again following a BEIS directive on implementing BSSD requirements on standardised reporting of discharges.

Water discharge permit

Our national permitting centre are at present determining 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 modular active effluent treatment plant is in service. We are awaiting waste acceptance criteria for this plant.

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. We have determined that this water which is discharged to sea may need to be included in the site water discharge permit. The Operator is performing analysis of the water and a risk assessment before an application for a further permit variation is made as required.

Dungeness B

Radioactive Substances Regulation

In June 2019, we issued an EA initiated variation to the Dungeness B Permit. We varied the permit to include new conditions that will require the Operator to develop and maintain a WMP and SWESC in line with GRR. We also introduced changes into the permit because of amendments in 2018 to the Environmental Permitting (England and Wales) Regulations 2016.

In December 2019, we varied the ‘Compilation of Environment Agency Requirements’ (CEAR) document to incorporate the requirements of standardised reporting of radioactive discharges, which implements specific requirements of the Basic Safety Standards.

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. Liquid and gaseous discharges from both Dungeness sites remain within the limits set by the Environmental Permits.

Update on discharges from Dungeness A:

Gaseous discharges from Dungeness A are mainly constant and well below permit limits.

Aqueous discharges do tend to fluctuate more depending on operations at site. Recently as the pond was drained of water we observed that the “any other radionuclide” category of aqueous discharge rose (since October 2018) as the pond drain neared its completion. Strontium-90 was the main radionuclide in this category of aqueous waste. The increase in the aqueous discharges outlined did not threaten any permit limit or notification level. The peak monthly return for this category of aqueous waste in July 2019 was approximately 3.4% of the annual limit.

The Operator had issues with the final part of the drain with the removal of sludge to the active effluent and water treatment plant facility. The levels of the “any other radionuclide category” of aqueous waste that were discharged stabilised following a change in process. This was after an options assessment carried out by the Operator that we reviewed. This change meant not so much strontium-90 came out of the sludge and into the pond water. The sludge was captured on filters and placed in ductile cast iron containers after processing.

The pond drain has now been completed which will mean the main source of radioactive aqueous discharges has been removed. We will continue to look at the trends in the discharges and will report on any issues to the SSG.

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.

In addition to the Operators’ environmental monitoring programme, the Environment Agency participates in an independent UK-wide monitoring programme. The results of these monitoring programmes are published annually and are used to assess the dose received by members of the public in the vicinity of nuclear licensed sites. Radiation doses to people living around nuclear licensed sites from authorised releases of radioactivity were well below the UK national and European limit of 1000 micro Sieverts (µSv) per year in 2018 (see RIFE report below).

CEFAS (Centre for Environment, Fisheries and Aquaculture Science) has performed a habit survey around Dungeness in 2019. Once the report is finalised we will be looking to the Operators to see if their Environmental Monitoring Programmes require any updates.

<u>Update of measurement of radionuclides in marine sediment - Dungeness A:</u>

The sampling of marine samples for strontium-90 was enhanced during the pond drainage period (since July 2017) to provide assurance that no enhanced discharges were made. No significant findings were made. We have now agreed to reduce the sampling frequency as the pond drain has now finished.

The Operator (at Dungeness A) has reported some positive results for strontium-90 and caesium-137 at several locations over the last few months. The levels are all very small just above or around the limits of detection (all being less than 2Bq/kg) and are not considered radiologically significant.

Due to an error in communication, Dungeness B did not take samples for strontium-90 in marine sediment in May 2019. We addressed this issue with both Operators during our joint inspection on the environmental monitoring programme in July 2019. Communication between the 2 sites has now been improved with regular teleconferences to discuss all aspects of the environmental monitoring programme.

We will continue to inform the SSG of any issues highlighted by the environmental monitoring programmes.

Publication of the RIFE Report

The annual “Radioactivity in Food and the Environment” (RIFE) report presents results of the national monitoring programmes conducted by the Environment Agencies and the Food Standards Agency. These monitoring programmes support our regulatory function and provide reassurance that public radiation exposures are within legal limits. The report was published on 24th October 2019 and can be found here: https://www.gov.uk/government/publications/radioactivity-in-food-and-the-environment-rife-reports

This is the 24th edition of RIFE containing information on radiation exposures (doses) to the public and radioactivity levels in the environment during 2018. It covers locations near to nuclear fuel production and reprocessing sites, research establishments, nuclear power stations, defence establishments, radiochemical production, industrial and landfill sites, and non-nuclear sites. It also reports on regional monitoring away from these sites, which provides data on background radiation levels.

The report for 2018 shows that total doses to the public, from permitted discharges and direct radiation around nuclear sites, remained well below the legal limit of 1000 µSv per year. The unit for measuring radiation dose is the Sievert (Sv); 1 Sv is a very large dose. A more convenient unit to use is micro Sieverts (µSv) and 1 µSv is one-millionth of a Sv (0.000001 Sv).

At Dungeness, results showed that total radiation dose (from all pathways and sources of man-made radiation) to the most exposed person were similar in 2018 to those reported in previous years:

22 µSv in 2018

21 µSv in 2017

21 µSv in 2016

14 µSv in 2015

For comparison, a typical chest x-ray gives the patient a radiation dose of around 100 µSv and a dental x-ray around 5 µSv.

Further information

Reducing our Carbon Footprint:

Our Executive Director's Team and our Board have now agreed ambitious targets for the Environment Agency to aim to become a 'net zero' organisation by 2030. This means that by 2030, we will aim to balance the carbon emissions we produce with those we take out of the atmosphere so that we are no longer contributing to climate change.

This will be a huge challenge. Success will require wholesale change across the organisation in how we do things, and in how we work with others. It will require hard choices: we may need to stop doing some things, or do them very differently. It will require innovation, because some of the technologies we'll need do not yet exist. It will require sustained focus on our goal, and ensuring that all our future decisions support it.

We have already taken significant action to reduce our own carbon footprint, lower resource consumption and reduce emissions by nearly 50 per cent since 2006.

We will continue to work closely with our suppliers and partners to help them reduce their own carbon footprints and harness new and emerging technology to help us achieve our goal.

Nuclear Regulation Team:

Phil Fahey is the lead regulator for the Dungeness A site. Andrew Stone is the lead regulator for the Dungeness B site, assisted by Eddie Osondu.

Phil, Andrew and Eddie work in the Nuclear Regulation Group (South). 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).

Officers from the Kent Area Environment Agency team also visit the site for general environmental protection matters such as groundwater, contaminated land, waste management and water abstraction.

We work closely with other regulators such as the Office for Nuclear Regulation (ONR) in areas of common interest.

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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

SSG Briefing Note

Management of radioactive waste from decommissioning of nuclear sites: Guidance on Requirements for Release from Radioactive Substances Regulation (GRR).

What is the GRR?

The GRR is new guidance published by the Environment Agencies in July 2018 (Scottish Environmental Protection Agency, Environment Agency, and Natural Resources Wales). The guidance is for operators of all nuclear sites, whether or not they have already begun decommissioning and clean-up.

The guidance describes what operators need to do when they are planning and carrying out their work to decommission and clean-up their sites. It sets out clear criteria that operators need to meet throughout the lifecycle of their site in order to be released from radioactive substances regulation (in other words, to surrender their permit) after the conclusion of all activities on the site.

What does the GRR do?

It sets standards for public and environmental protection that are consistent with international and domestic law, guidelines and policies. These standards limit the:

• level (dose) of radiation people and the environment are exposed to whilst the site is being regulated

• risk of exposures to radioactive substances dispersed through the environment after the site is released from regulation

• level (dose) of radiation people are exposed to from local concentrations of radioactive substances after the site is released from regulation

Operators must keep the risks of radiation exposure to people as low as reasonably achievable, taking account of economic and social factors. This is called optimisation. It is a basic principle of the international system to protect people from radiation and it is central to the GRR.

What does this mean for nuclear sites?

The guidance requires operators to:

• produce a waste management plan

• produce a site-wide environmental safety case that demonstrates the environmental safety of the nuclear site as a whole

• make sure the condition of their site meets standards for protection of people and the environment, now and into the future

We are introducing conditions to each nuclear site permit during 2019, which reflect the requirements of the GRR. Operators will then work on developing their Waste Management Plans and Site Wide Environmental Safety Cases over the following few years. The environment agencies will monitor how operators are progressing to ensure the permit requirements are met by the agreed dates.

Optimising waste management

The operator's waste management plan must strike the best overall (optimal) balance between:

• the safety of the public, workers and the environment

• other factors such as costs, potential future uses of the site, or the impacts of transport of waste and materials

Waste management plans must be optimised to each site's individual circumstances. This means that at different nuclear sites it might be optimal to use either one of the approaches below or a mix of both:

• remove all radioactive waste and contamination from that site and transport it for disposal or treatment at some other suitable site(s)

• dispose of all radioactive waste and leave all radioactive contamination on that site

We will only authorise disposal of radioactive waste on a site when we are satisfied the operator has developed an optimal waste management plan, and has satisfied us that the final condition of the site, and the work to be done to reach that condition, are safe for people and the environment. The operator must do this by meeting all the requirements in the GRR.

Stakeholder engagement

The GRR requires the operator to engage widely when developing their developing Waste Management Plan and Site Wide Environmental Safety Case. Local communities, the planning authority and regulators all have an important role in such discussions.

We have engaged with the Office for Nuclear Regulation during the development of the GRR and will continue to ensure joined-up regulation during the implementation phase.

Where can I get more information?

There is a summary and link to the full guidance at:
https://www.gov.uk/government/publications/decommissioning-of-nuclear-sites-and-release-from-regulation

You can also speak to the Environment Agency site regulator.