Office for Nuclear Regulation (ONR)
Site Report for
Dungeness B

Report for period - 1 October to 31 December 2020

Foreword

This report is issued as part of ONR's commitment to make information about inspection and regulatory activities relating to the above site available to the public. Reports are distributed to members of the Dungeness Site Stakeholder Group and are also available on the ONR website (http://www.onr.org.uk/llc/).

Site inspectors from ONR usually attend Dungeness Site Stakeholder Group meetings where these reports are presented and will respond to any questions raised there. Any person wishing to enquire about matters covered by this report should contact ONR.

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1 INSPECTIONS

1.1 Dates of inspection

1. ONR inspectors undertook inspections at Dungeness B Power Station, on the following dates during the quarter:

- 21-23 October 2020
- 26-30 October 2020
- 5 November 2020
- 2-20 November 2020
- 15-20 November 2020

Some of the interventions that were undertaken in this period were conducted remotely due to the Covid-19 pandemic.

2 ROUTINE MATTERS

2.1 Inspections

2. Inspections are undertaken as part of the process for monitoring compliance with:

- The conditions attached by ONR to the nuclear site licence granted under the Nuclear Installations Act 1965 (NIA65) (as amended).
- The Energy Act 2013.
- The Health and Safety at Work Act 1974 (HSWA74); and
- Regulations made under HSWA74, for example the Ionising Radiations Regulations 2017 (IRR17) and the Management of Health and Safety at Work Regulations 1999 (MHSWR99).

3. The station's arrangements facilitated some physical site-based inspections during this reporting period. However, due to the COVID-19 pandemic, other inspections were undertaken remotely using Skype video conferencing and the use of independent site-based personnel where appropriate. The licensee is still required to make and implement adequate arrangements under the licence conditions attached to the licence in order to ensure legal compliance. Inspections seek to judge both the adequacy of these arrangements and their implementation.

Compliance Inspections

4. During this reporting period, despite the COVID -19 restrictions, some onsite inspections were undertaken by ONR specialist inspectors and the ONR nominated site inspector. During this reporting period, the site inspector also continued to engage with the station remotely to monitor the following areas:
   - Continuing open dialogue with site management, the licensee's independent nuclear safety assurance function, and trade union safety representatives to develop a consistent picture of the measures put in place to manage the safety of both the workforce and the plant.
   - Observing station meetings, working groups and the licensee's management of the COVID-19 pandemic impact on the station.

5. Consequently, during this reporting period the site inspector considers that, based on his observations and that of other ONR inspectors who have visited the station, the site has managed its response to the pandemic during the period in a manner that, so far as is reasonably practicable, has protected its own staff and ensured that there was no

degradation in nuclear safety. The site inspector has been made aware of a very small number of reported concerns in this area which he is following up.

6. In this period, routine inspections at Dungeness B covered the following topics:

- Licence condition 10 – Training
- Licence Condition 11 - (6) (Emergency arrangements) Shift Exercise
- Licence Condition 21 - Commissioning
- Licence Condition 24 - Operating Instructions
- Licence Condition 22 - Modifications or experiment on existing plant.
- Licence Condition 26 – Control and Supervision of operations
- Licence condition 28 – Examination, Inspection, Maintenance and Testing (EIMT)
- Regulatory Reform (Fire Safety) Order 2005

15- 20 November 2020

LC 11 (6) – Training

7. The site inspector observed a shift training exercise which allowed the station's emergency responders to practice and develop their emergency response skills. The site inspector's view was that the scenario facilitated all players to practice their role and responsibilities. Given the COVID-19 arrangements, the Emergency Preparedness Engineer made good arrangements to keep teams socially distant with the use of additional facilities to enable the separation of teams. The use of umpires also helped drive the exercise, who provided sufficient guidance without compromising the training benefit with unnecessary prompts or hints. The site inspector considered that this was a good training exercise which warranted a GREEN rating under LC11(6).

Return to Service (RTS) readiness inspections

8. Several specialist inspectors undertook RTS inspections during this reporting period. The inspections are captured below under this heading with their respective intervention dates.

21 to 23 October 2020

9. This intervention was undertaken at station by an ONR control & instrumentation (C&I) specialist nuclear safety inspector. The inspection covered LC 28 – Examination, Inspection, Maintenance and Testing (EIMT) and LC22 - Modifications or experiment on existing plant. The inspection involved undertaking plant walkdowns and holding discussions with relevant stakeholders. Some of the areas inspected were:
   - The new Automatic Boiler Emergency Depressurisation (ABDS) valve system control cubicles and associated cabling installation work
   - A review of work in relation to the remediation of station transformer corrosion and ABDS installation.
   - A sampled inspection of C&I equipment cubicles / panels and equipment associated with several Reactor 21 and Reactor 22 safety circuit systems

10. Based on the inspector's observations and findings the LC22 and LC28 compliance inspections were rated green. The inspector also reported that he did not identify any issues that pose a significant threat to nuclear safety, nor did he identify any C&I equipment related issue that would prevent the RTS of both DNB reactors.

15- 20 November 2020 LC26 – Control and Supervision of operations, LC 28 – Examination, Inspection, Maintenance and Testing (EIMT)

11. This inspection was undertaken to further build upon ONR's previous RTS inspection that was undertaken in early January 2020. The inspection provided further confidence in the licensee's ability to adequately conduct those activities which will ensure safe operation of the reactors at power against LC26 and LC28. The inspection was undertaken by ONR's Mechanical, Structural Integrity and Nominated Site Inspectors.

12. Overall, ONR found that Dungeness B has continued to sustain those areas that were identified as positive findings from the previous January 2020 inspection and made significant progress in other areas where new issues had been identified as a result of the extended period of shutdown.

13. For the LC28 compliance inspection, the inspector judged that the licensee was adequately implementing its arrangements. They therefore had confidence in Dungeness B's ability to return to service following the extended outage, subject to satisfactory completion of all routine EIMT, plant preservation EIMT, specific return to service EIMT and outstanding regulatory milestones. An inspection rating of GREEN for the LC28 compliance inspection was given.

14. For the LC26 compliance inspection, the site inspector found no new issues that undermine confidence in the station's readiness for return to service, although challenges remain within the licensee's oversight arrangements in some areas of its contract partner's work activities. Many of the areas sampled and individuals spoken to provided good evidence that the station had progressed since the January 2020 RTS inspection. The station's initiatives that have been implemented e.g. maintenance standards, "professional to the core" expectations and "leaders in the field" appear to be delivering in the areas sampled however, the station needs to sustain this drive and deliver on its performance improvement plan activities. An inspection rating of GREEN for the LC 26 compliance inspection was considered appropriate.

2 - 20 November 2020 - LC10 – Training, LC24 - Operating Instructions and LC28 EMIT

15. This intervention was carried out remotely by ONR's Human Factors (HF) Inspector and the ONR Dungeness B Recovery Site Inspector. The inspection covered human performance training and simulator training. Some of the areas sampled were the content of the human performance refresher sessions for plant touchers and observing a remote training session for Safety Leadership that included participants made up of leaders from Heysham 2 and Dungeness B. The inspection also examined Procedural Quality Use and Adherence (PQU&A) of a sample of operating and maintenance instructions and observing remotely a Procedures Review Working Group Meeting

16. The inspectors concluded that a rating of Green was appropriate against LCs 10 and 28, with one minor regulatory issue being raised. However, an intervention rating of Amber was assigned against LC 24 regarding procedural adherence. This Amber rating will be pursued via an existing Regulatory Issue and no additional regulatory action is considered necessary.

26 - 30 /11/2020 - LC 21 – Commissioning – Inactive Commissioning of New Nitrogen Plant

17. The LC21 compliance inspection identified that there has been limited inactive commissioning undertaken. However, it was acknowledged that there will be future inactive commissioning that will be carried out prior to active commissioning. Essentially the contractor has undertaken a functionality test of the new Nitrogen Injection System to ensure the installed equipment is fully functional. However, it was possible to sample several areas where early inactive commissioning activities had taken place. Based on

the areas examined it was considered that the LC21 Compliance inspection warranted a Green rating. ONR will revisit the station to undertake a further LC21 compliance inspection prior to Active Commissioning which will also enable a regulatory hold-point to be released.

26 - 30 /10/2020 Annual Review of Safety (ARoS)

18. The station undertook its ARoS which was attended by the nominated Site Inspector, along with the Delivery Lead (Engineering) for operating reactors, an ONR project inspector and the Head of Operating Reactors. The DNB ARoS meeting covered the period for the 1 April 2019 to the 31 March 2020.

19. The ARoS was conducted over two half days. The first half day consisted of a plant walk down of the following areas, followed by a review meeting:
External plant
    - Additional Feed System (AFS) and Reserve Feedwater Tanks (RFTs)
    - New Nitrogen plant
    - Reactor Roof Boiler Safety Relief Valve discharge pipes

    Internal Plant
    - Simulator
    - Turbine Hall and basement areas
    - Plug Unit Maintenance Facility (PUMF)
    - Electro-chlorination plant (ECP)
    - Corrosion training room
    - Workshop – neutron scatter plug

20. ONR's feedback to the station was positive, the pace of physical changes at the station was significant, with many of the trench covers having been replaced since the completion of some of the event recovery work replacing corroded pipelines and supports. The station has also invested in training of its personnel notably, but not limited to, a new corrosion training room and an additional simulator desk. The station is currently the only one in the fleet to have dual simulators, which further enhances the training of the operators.

21. Overall, it was concluded that it had been a challenging year for the site given the COVID 19 Pandemic restrictions at the station as well as pressing forward with the station's delivery of key investment projects.

Regulatory Reform (Fire Safety) Order 2005 – 05/11/2020

22. The purpose of the intervention was to ensure that the Licensee was demonstrating compliance with the requirements of the Regulatory Reform (Fire Safety) Order 2005 to ensure the safety of people from the danger of fire. The intervention was completed remotely due to COVID-19 restrictions. The specialist inspector could not therefore directly inspect the implementation of fire safety management procedures or directly assess the effectiveness of the activities being undertaken on the site to confirm actual compliance with company processes.

23. The specialist inspector concluded that the sampled areas of fire safety arrangements, within the limitations of remote inspection, were compliant with the legislation and that there were several examples of good practice. i.e.
    - Senior management support of the Fire Safety Action Team has resulted in driving improvements to fire safety metrics.

- Additional resource in-place to support the Fire Coordinator.
- Extra training and engagement with Operations Staff has improved fire safety culture.

24. The inspector rated the outcome of this inspection as GREEN.

System Based Inspections (SBI)

25. In addition to our compliance inspections based on the conditions attached to the nuclear site licence, ONR also inspects operating reactors against safety-related systems. Each site has a safety case that demonstrates how it operates safely. For Advanced Gas-cooled Reactors, each of the key systems will be inspected against the claims made upon them by the safety case. The aim is to systematically inspect all the significant safety related systems within a five-year cycle. ONR considers that this will provide additional assurance that operations on the Dungeness site are safe. Each of these system inspections considers the relevant licence conditions below:

    - Licence condition 10: Training
    - Licence condition 23: Operating rules
    - Licence condition 24: Operating instructions
    - Licence condition 27: Safety mechanisms
    - Licence condition 28: Examination, inspection, maintenance and testing
    - Licence condition 34: Leakage and escape of radioactive material and radioactive waste

26. No SBI was undertaken during this period however, in the last SSG report the nominated site inspector reported on an SBI that was undertaken on the station's Fuelling Machine (FM) & Plug Unit Maintenance Facility (PUMF). LC28, was rated as Amber (seek improvement) as it was considered that the safety case for the PUMF had not been adequately implemented at Dungeness B Power Station. Because of this rating, ONR's enforcement management model (EMM) was applied to determine the appropriate enforcement action that was necessary to bring the station back into compliance.

27. The EMM indicated an enforcement letter was a proportionate response to the shortfalls identified. Enforcement letter DNB71340R, ONR-EL-20-014 was issued on the 07/10/2020 in order to ensure the station addressed the identified shortfalls as reported in the previous quarter 3 SSG report.

2.2 Other work

Dungeness B Performance Improvement Plan (PIP)

28. ONR currently regards Dungeness B as being in 'enhanced attention' and has allocated extra resources to the station as it works to get back into safe generation of electricity, and beyond that to improve its performance further. This includes engagement with the station's performance improvement plan, which aims to improve performance further in the following areas:

    - Equipment reliability;
    - Leadership and Behaviours;
    - Systematic approach to training;
    - Management of Work;
    - Organisational learning

29. ONR is interacting frequently with the team organising this improvement plan, giving advice and feedback and monitoring progress. The programme is expected to run for at

least eighteen months more. It is ONR's current view that this is a well-conceived and well-targeted plan that, if it achieves its aims, should help to enable Dungeness B's return to normal attention level.

3 NON-ROUTINE MATTERS

30. As previously reported in the last SSG report, Dungeness B informed ONR on 18 May 2020 that two routine inspections, associated with Reactor 21 Pre-stressed Concrete Pressure Vessel (PCPV) penetrations, had not been completed within the intervals specified in the associated Written Scheme of Examination under the Pressure Systems Safety Regulations 2000 (PSSR).

31. There was no significant nuclear safety impact as Reactor 21 was shut down at the time and had not operated at power beyond the due date. However, given that this is a breach of PSSR regulations, and these penetrations are nuclear safety significant items of plant, an enforcement letter (DNB71334R) was issued to the station on the 7 July 2020 to ensure the contraventions were remedied. The station has since responded to ONR's letter outlining its plan to address the actions identified which affect Reactor 21 and Reactor 22. Station actions are still in progress.

Return to Service Update

32. Both reactors are safely shutdown due to the ongoing repair of widespread steel corrosion across the station, cracking found in the main steam lines of the boilers and potential degradation issues associated with boiler tubes. The reactors will only be permitted to return to service when ONR is satisfied that the issues identified have been resolved.

33. The corrosion event recovery has progressed to the point where inspections required to support return to service are now complete, the necessary minimum defect remediation required for return to service has been completed and is in progress. Risk-informed defect rectification work is also planned for several years after the return to service of the reactors. ONR has received a safety case produced by EDF to demonstrate a suitable return to service position with regards to corrosion. This resulted in a number of positive findings and areas of good practice noted. The station continues to address remaining ONR corrosion actions prior to return to service.

34. Boiler steam main line inspections are complete, and some repairs have been carried out. A number of plant enhancements have been made. The safety case for return to service has been assessed and agreed by ONR.

35. Potential issues related to a previously known in-service degradation mechanism that could affect specific sections of the boilers are being addressed by the station. Any justification for continued operation will be supported by a robust safety justification, which ONR will assess prior to return to service of either reactor.

36. Due to the prolonged shutdown of Reactor 21, the station proposed a deferral of the Reactor 21 2020 Outage, which was due to start in September, to January 2022. ONR has accepted the deferral proposal which it has issued a LI 563, Agreement to the extension of Dungeness B's operating period under LC 30(2).

37. There are a number of other return to service safety issues which NGL are addressing and which ONR need to assess eg issues associated with Gas Baffle, Neutron Scatter Plugs, Gas By-Pass System, Plant Preservation, Station Transformers and Return to Service of Reactor 22 in 2021 following the Autumn 2018 Outage.

4 REGULATORY ACTIVITY

38. ONR may issue formal documents to ensure compliance with regulatory requirements. Under nuclear site licence conditions, ONR issues regulatory documents which either permit an activity or require some form of action to be taken. These are usually collectively termed 'Licence Instruments' (LIs) but can take other forms. In addition, inspectors may issue Enforcement Notices to secure improvements to safety, see table below.

Table 1
Licence Instruments and Enforcement Notices Issued by ONR during this period

Date	Type	Ref No	Description
07/10/2020	Enforcement Letter	DNB71340R ONR-EL-20-014	Shortfalls Identified during Fuel Route System Based Inspection
12/11/2020	LI 562	2020/308809	Approval of EDF Energy Nuclear Generation Limited Emergency Arrangements
04/12/2020	LI 563	2020/252339	Agreement to the extension of Dungeness B's operating period under LC 30(2)

5 NEWS FROM ONR

Below are summaries of key activities over the last three months. Further detail is available on our website.

COVID-19

We are continuing to obtain assurance that nuclear site licensees and other dutyholders are adequately resourced to continue to safely and securely carry out their activities.
We remain satisfied with industry's response at this time and there has been no significant change to dutyholders' safety and security resilience.

As COVID-19 restrictions change, our focus is on the preparedness for the weeks and months ahead and maintaining safe and secure operations.

All licensed sites are required to determine minimum staffing levels necessary to ensure safe and secure operations and contingency arrangements in the event that these levels are not met. This condition is specifically designed to ensure that industry can adequately manage and control activities that could impact on nuclear safety and security under all foreseeable circumstances, including pandemics.

ONR staff continue to work at home, primarily. We have considered our priorities, deferred non-critical activities, and are carrying out as much of our work as possible via videoconference, phone and email.

We continue to inspect, assess and permission remotely where necessary to protect staff, workers on site, and the public around sites.

Enforcement action

In December, we announced that The Atomic Weapons Establishment (AWE) had been fined £660,000 after pleading guilty to an offence under Section 3 of the Health and Safety at Work etc. Act (1974).

AWE was also ordered to pay costs of £9,945.71 during a virtual hearing at High Wycombe Magistrates Court.

It followed an electrical incident on 20 June 2019 at the AWE Aldermaston site which resulted in a contractor narrowly avoiding injury when a flash over of electricity occurred from a 415V electrical source. The incident was a conventional health and safety matter and took place in a 'non-nuclear' building, so there was no radiological risk to workers or the public.

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In October, we notified Sellafield Ltd that it would be prosecuted under Section 2 (1) of the Health and Safety at Work etc. Act (1974).

The charge related to an incident on Friday, 24 April 2020 at the Sellafield site where an employee sustained injuries while working on high voltage electrical equipment. This incident was also a conventional health and safety matter and there was no radiological risk to workers or the public.

The hearing took place at Carlisle Magistrates Court on 18 December 2020, where Sellafield Ltd was fined £320,000 and ordered to pay costs of £12,079.07 after pleading guilty to the offence.

Regulatory updates

In October, we announced an Information Exchange Arrangement (IEA) with the Canadian Nuclear Safety Commission (CNSC).

The IEA is a bilateral agreement between our two organisations which provides a framework for the sharing of information, experience, and good practice to enable both parties to learn from and train each other on technical regulatory issues. It also allows for more effective communication between the two regulators.
The agreement had already been used to develop a Memorandum of Cooperation (MoC) between ONR and the CNSC which allows the sharing of best practices and experience around reviewing advanced reactor and small modular reactor (SMR) technologies.

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In November, our Chief Nuclear Inspector (CNI), Mark Foy, published his annual report detailing the performance of Great Britain's nuclear industry during 2019/20.

The CNI reports he is satisfied that overall the nuclear industry has continued to meet the high standards of safety and security required to protect workers and the public.

In areas where dutyholders have fallen short of these standards, the CNI is satisfied that these facilities remain safe and that ONR has intervened in a proportionate manner to ensure plans are in place to improve performance.

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In November, we also announced the appointment of a new member to the Chief Nuclear Inspector's Independent Advisory Panel (IAP).

Chris McDonald has joined the panel, which was set up in in 2016 to provide independent advice on technically complex nuclear matters by engaging with industry experts to inform our regulatory strategies and approaches.

Chris has a wealth of experience in industrial strategy and manufacturing research. He has a degree in Chemical Engineering and has been the CEO of the Materials Processing Institute since it was founded in 2014. Chris also has a proven record in the areas of innovation and low-carbon energy which will be of great benefit to ONR.

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In December, we became an Affiliated Organisation member of the Society for Radiological Protection (SRP).

We have actively participated and supported SRP for many decades. This affiliation formally recognises our involvement and contributions towards radiological protection and enhances the links between the two organisations.

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In November, we played a leading role in the first ever virtual IRRS Mission.

The virtual mission to Lithuania was conducted via the IAEA's International Regulatory Review Service and explored the feasibility of using modern communications tools for future missions.

The mission was led by ONR's Technical Director Dr Anthony Hart and supported by Superintending Inspector Colin Tait. Other countries taking part in the mission included Canada, Pakistan, Finland and the Netherlands.

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In December, we became **the** UK's nuclear safeguards regulator, in charge of the domestic safeguards regime and operating the UK State System of Accountancy for, and Control of, Nuclear Materials (SSAC).

Following the end of the transition period as laid out in the Withdrawal Agreement, ONR assumed its responsibilities at 23.00 on Thursday 31 December 2020.
This has been a major project for ONR, setting up a new team, new systems and new processes, led by Dr Mina Golshan.

Since being tasked by Government to establish a domestic safeguards regime after Brexit, we have developed a team of safeguards specialists, including inspectors and nuclear material accountants, and implemented a bespoke IT system, SIMRS (Safeguards Information Reporting and Management System).

Nuclear safeguards are measures to verify that countries comply with their international obligations not to use nuclear materials from their civil nuclear programmes to manufacture nuclear weapons.

The safeguards work remains a key priority for the organisation and sits in our Civil Nuclear Security and Safeguards Division.

Corporate updates

In October, we announced that Chief Executive Adriènne Kelbie had been appointed a Commander of the Order of the British Empire (CBE) in the Queen's Birthday Honours List 2020 for services to the nuclear industry and to diversity and inclusion.

Adriènne said: "This honour is a tribute to the ONR team and all others who work tirelessly to create a more inclusive world and safe nuclear sector, as well as those on the long and sometimes arduous journey of leadership and self-development.
"Inclusion goes hand in hand with safety, because diverse teams are essential to improve decision making – therefore it's a non-negotiable in nuclear. That's why, as Chief Executive of ONR, I've been personally committed to visibly drive the inclusion agenda and encourage others to do so too."

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In December, we announced plans to align our leadership structure to other nuclear regulators around the world with a new combined post of Chief Nuclear Inspector/Chief Executive. Chief Nuclear Inspector Mark Foy will take up the new combined post, subject to detailed government approvals, supported by current Deputy Chief Executive, Sarah High. A new senior regulatory role, Executive Director of Operations/Deputy Chief Inspector, will also be established. The exact timescales have yet to be confirmed, but the changes will come into effect later in 2021.

Under existing contractual arrangements, current Chief Executive Adriènne Kelbie CBE was always expected to step down as her extended term of office comes to an end in January 2022.

The change reflects ONR's successful transition into a mature and high performing organisation since becoming an independent Public Corporation in 2014.

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In December, we were delighted to announce that our Deputy Chief Inspector and Director of ONR's Sellafield, Decommissioning, Fuel and Waste Division, Dr Mina Golshan, had been awarded a Commander of the Order of the British Empire (CBE) in the New Year's Honours 2021, for 'services to nuclear regulation'.

Mina said: "I am very grateful to have been awarded this honour. It reflects the work of many talented and dedicated professionals that I am lucky to work with. It also shows the significance of ONR's role in securing safe nuclear operations for the protection and benefit of the society."

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