Office for Nuclear Regulation (ONR)
Site Report for
Hinkley Point B Power Station

Report for period 1 January - 31 March 2021

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 for the Site Stakeholder Group and are also available on the ONR website (http://www.onr.org.uk/llc/).

Site inspectors from ONR usually attend 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. The ONR site inspector made inspections on the following dates during the report period:

   - 25 January to 5 February 2021 (SBI on Reactor Safety Systems – remote)
   - 23 February to 4 March 2021 (LC3, 7 and 13 – remote)
   - 8 to 9 March 2021 (pre start up inspection)

2. In addition, ONR specialist inspectors undertook inspections on the following dates during the quarter:

   - 25 January to 5 February 2021 (SBI on Reactor Safety Systems – Remote)

2 ROUTINE MATTERS

2.1 Inspections

3. 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).

4. The inspections entail monitoring licensee's actions on the site in relation to incidents, operations, maintenance, projects, modifications, safety case changes and any other matters that may affect safety. The licensee is required to make and implement adequate arrangements under the conditions attached to the licence in order to ensure legal compliance. Inspections seek to judge both the adequacy of these arrangements and their implementation.

5. In this period, routine inspections of Hinkley Point B covered the following:

<u>LC3: Control of Property Transactions</u>

6. The aim of this inspection was to confirm that property transactions are adequately controlled and that any part of the site that is let, or transferred, does not impact on nuclear safety.

7. I sampled EDF's LC3 arrangements and concluded that they were broadly aligned to the current ONR guidance. I carried out a walkdown of the site to identify any areas that may not be under EDF control. I concluded that all such areas were adequately covered by the LC3 arrangements.

8. I concluded that the site was broadly complaint with the requirements of LC3 sampled. I am satisfied that an IIS rating of green against LC3 is merited.

LC7 Incidents on Site

9. This inspection was carried out remotely. The aim of this inspection was to confirm that incidents on site are properly recorded, investigated, reported and that actions identified are completed in a timely manner to prevent a reoccurrence.

10. I concluded that the quality of investigations carried out was good. However, I was concerned that there are indications that the screening meeting may be screening out events that could benefit from further follow up and that pressure to reduce the number of actions from investigations could mean that opportunities to prevent a reoccurrence are missed. I will increase my oversight of the Apparent Cause Investigations (ACINs) and Condition Report (CR) screening for the next three months to determine whether this is an ongoing issue or a product of the small sample size. I will also sample the quality of Minor Apparent Cause Investigations (MACI), which did not form part of this inspection.

11. I concluded that the site was broadly complaint with the requirements of LC7 sampled, but that there are areas for improvement. I am satisfied that an IIS rating of green against LC7 is merited.

LC13 Nuclear Safety Committee

12. This inspection was carried out remotely. The aim of the inspection was to confirm that the nuclear safety committee receives suitable information and is able to provide clear advice on safety submissions made to it.

13. I sampled the last three sets of NSC minutes that were relevant to Hinkley Point B. I concluded that the NSC was provided with information on relevant incidents, safety performance as well as formal submissions for consideration and advice.

14. I concluded that the site was broadly compliant with the requirements of LC13 sampled, but that there are areas for improvement. In particular I would encourage the site to ensure that any advice given to the station by the NSC is clearly recorded in the minutes. I am satisfied that an IIS rating of green against LC13 is merited.

System Based Inspections (SBI)

15. In addition to our compliance inspections based on the conditions attached to the nuclear site licence, ONR inspectors also inspect 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 approximately thirty 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 believes that this will provide more robust assurances of the site's safe operation and how the safety case is being implemented. Each of these system based 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 (if applicable): Leakage and escape of radioactive material and radioactive waste

16. In this period one system based inspection (SBI) was carried out.

SBI27 Reactor Safety Systems

17. The Reactor Safety Systems primarily monitors reactor or plant conditions and initiates a reactor trip should reference levels of measured parameters be exceeded. The majority of the inspection was carried out remotely with one site visit by a specialist inspector and the site inspector to carry out a plant walkdown.

18. The inspection covered LC10, 23, 24, 27 and 28 and no significant issues were identified.

19. From the evidence examined during this intervention, we judged that there were no matters that have a significant adverse impact on nuclear safety. We consider EDF NGL have adequately implemented their arrangements to ensure nuclear safety is maintained. There was no formal regulatory action raised from the outcomes of this intervention. We judge the overall inspection rating is green.

2.2 Other work

20. Because of the ongoing coronavirus pandemic risks during the reporting period visits to site remain reduced, although increased on the previous quarter. The site inspector continued to work remotely to monitor the performance of the site by:

    a. Maintaining the increased dialogue with site management and the licensee's independent nuclear safety assurance function to develop a consistent picture of the measures put in place to manage the safety of both the workforce and the plant.
    b. Observing the meetings and working groups the licensee established to assess the coronavirus pandemic and manage the response. This included the site pandemic working team meeting (which maintained and overview of the site's response) and maintenance requirements review group (which managed the impact of potential or actual staff and supply chain shortfalls on safety-significant maintenance activities).
    c. Monitoring the minimum staffing levels required to deliver an adequate response in the event of an accident or emergency on the site.

21. Consequently, the site inspector considers that the site has managed its response to the pandemic during the period in a manner that, so far as is reasonably practicable, protected its own staff and ensured that there was no degradation in nuclear safety.

22. During visits to site the site inspector observes the compliance with of the site with its Covid arrangements. No significant issues or trends have been identified during the visits.

23. During the period the site inspector carried out follow up visits with other inspectors.
    a. The first of these was to determine how Hinkley Point B had responded to the improvements in management of saturated steam systems following an event at Heysham 1. We concluded that adequate progress had been made on the site in addressing the issue, but we noted that the site had taken a different approach to other sites and had not fitted drain valves. We concluded that the safety requirements were still being met, but suggested the site review why it had taken a different approach from other sites.
    b. The second was to assess progress in addressing the actions in the enforcement letters issued following an excavator event on the licensed site in 2019. We concluded that both EDF and the contractor had made good progress in improving their industrial safety arrangements for the work. Both enforcement letters have now been closed out following the visit.

3 NON-ROUTINE MATTERS

24. Licensees are required to have arrangements to respond to non-routine matters and events. ONR inspectors judge the adequacy of the licensee's response, including actions taken to implement any necessary improvements. No non-routine matters of note occurred during the reporting period.

4 REGULATORY ACTIVITY

25. 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 take a range of enforcement actions, to include issuing an Enforcement Notice.

26. On 12th March 2021, ONR wrote to EDF stating that following review and consideration ONR had no objection to the implementation of the Safety Case for the Core Restraints. The safety case justified the core restraint system is functionally intact up to a core burn up of 19.75 TWd.

4.1 Graphite Cores Safety Case

27. On 17th March 2021, ONR issued licence instrument 564 to EDF giving Agreement for the implementation of the Safety Case 'HPB R3 and R4 Graphite Cores – Post Keyway Root Cracking Safety Case'. The safety case justifies that the key safety requirements of the graphite core continue to be met during normal operation and fault conditions up to core burn up of 17.55 TWd for R3 and 17.3 TWd for R4.

28. It has long been understood that irradiation of the fuel channel graphite bricks would eventually lead to shrinkage and cracking of these bricks late in reactor lifetime. Such cracking is termed keyway root cracking. This cracking has the potential to affect key nuclear safety requirements and consequently it needs to be demonstrated that these requirements continue to be met in normal operation, fault conditions and after a design basis seismic event.

29. The case specifies the controls and compliance requirements that will need to be satisfied to support operation to those core-burn-up limits. These controls are based on core inspections after an appropriate period of operation, assessment of the inspection findings and ongoing core monitoring. This safety case builds upon the evidence from previous safety cases with:

    a. Damage tolerance assessments updated to reflect improved understanding of the effects of core degradation and results used to demonstrate that for further operation brick cracking does not impede control rod entry and
    b. Additional assessments to address the potential risk and consequences of fragments and debris for cooling of fuel in-situ and fuel movement.

30. ONR's review included specialists from Civil Engineering, External Hazards, Graphite and Fault Studies specialisms. ONR concluded that the operation of Hinkley Point B has been adequately justified by EDF NGL. Core inspections will take place after a period of between 5 and 7 months of operation the results of these inspections will be examined by ONR to ensure that they are within modelling presented by EDF NGL.

Table 1

Licence Instruments and Enforcement Notices Issued by ONR during this period

Date	Type	Ref No	Description
17/03/2021	Agreement	564	AGREEMENT TO NP/SC 7800 – HPB R3 AND R4 GRAPHITE CORES – POST KEYWAY ROOT CRACKING SAFETY CASE

Reports detailing regulatory decisions can be found on the ONR website at http://www.onr.org.uk/pars/.

5 NEWS FROM ONR

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

5.1 Covid-19 (Coronavirus) (ONR position)

32. 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. Our latest position can be found on our website.

5.2 Enforcement Action

33. In January, we agreed to extend two Improvement Notices served on the Atomic Weapons Establishment (AWE), recognising the good progress made so far. The Notices, which were served in June 2019, relate to the way the company controls changes to organisational structure and resources which may affect safety.

34. In January, we served an Improvement Notice on Sellafield Ltd following a number of electrical safety incidents across the site. While we are satisfied that Sellafield Ltd is currently meeting the high standards expected with regards to nuclear safety, as a regulator we require sustained improvements in the area of electrical safety.

35. In February, we served an Improvement Notice on Morgan Sindall Construction and Infrastructure Ltd after workers came close to striking a live high voltage electric cable during excavation work at the Sellafield site. Nobody was harmed in the incident on 7 October 2020, and there was no impact on the public or the environment. However, the incident posed a serious risk to workers who were operating within one metre of the 11kV cable.

5.3 Regulatory Updates

36. In March, we published a response on our website to a BBC report relating to Sellafield. We were naturally concerned to hear the claims, particularly any suggestion that staff have been subjected to racist abuse of any kind. As a regulator, if we had any concerns or evidence that bullying and harassment was impacting safety at the site, we would take robust action to ensure this is addressed as a matter of urgency.

37. In March, we published an article about how we responded to the serious nuclear accident at the Fukushima Dai-ichi nuclear power plant in 2011 to mark the 10th anniversary.

38. In March, we gave EDF permission for Reactors 3 and 4 at Hinkley Point B power station to return to service for a limited period of operation. Permission for Reactor 3 will allow it to operate to a core utilisation of 17.55 terawatt days, while permission for Reactor 4 is to

operate to a core utilisation of 17.3 terawatt days, which equates to two periods of approximately six months operation for each reactor.

5.4 Stakeholder Engagement

39. In February, we encouraged interested parties to take part in a Nuclear Energy Agency (NEA) survey about building and maintaining trust between nuclear safety regulators and the stakeholders they engage with.
40. In February, we provided an update about the leadership structural changes we initially announced in December 2020. 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. Mark Foy will step into the new combined role on 1 June 2021, when the new leadership structure will come into full effect.
41. In February, we announced that we had appointed Donald Urquhart to the newly-created role of Executive Director of Operations, which will form part of our new leadership structure. As Executive Director of Operations, Donald will be responsible for leading our regulatory work.
42. In March, we announced that as part of our new leadership arrangements, we had appointed three new deputy chief nuclear inspectors (DCIs) to our regulatory and senior leadership teams: Jane Bowie, Paul Dicks and Steve Vinton, currently all senior superintending inspectors at ONR. All three new DCIs have a strong track record of delivering regulation across the organisation, and will help us maintain a focus on our Strategy 2020-25.

6 CONTACTS

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