

Office for Nuclear Regulation (ONR)

Site Report for Hartlepool Power Station

Report for period 1 October to 31 December 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 of the Hartlepool Local Community Liaison Committee and are also available on the ONR website (<http://www.onr.org.uk/lc/>).

Site inspectors from ONR usually attend Hartlepool Local Community Liaison Committee meetings where these reports are presented and will respond to any questions raised there. Any person wishing to inquire about matters covered by this report should contact ONR.

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1. Inspections

1.1. Dates of Inspection

ONR inspectors made inspections on the following dates during the report period 1 October to 31 December 2021:

- 11-15 October (onsite)
- 19-22 October (onsite)
- 27-28 October (onsite)
- 2-3 November (onsite)
- 9-11 November (onsite)
- 30 November - 1 December (onsite)

Some other site interactions in this period were conducted remotely as a result of the coronavirus pandemic.

2. Routine Matters

2.1. Inspections

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).

The inspections entail monitoring the 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.

In this period, routine inspections of Hartlepool Power Station covered the following:

- examination, maintenance, inspection and testing;
- management of operations including control and supervision;
- incidents on the site;
- organisational changes;
- quality assurance and records;
- conventional (non-nuclear) health and safety.

LC 36 (Organisational Capability) Inspection: This planned inspection aimed to sample the stations nuclear baseline and to confirm that suitable resources are maintained to ensure the safe operation of the site. During this inspection, ONR considered there to be shortfalls in the station's Management of Change (MoC) process and the management of organisational capability. Due to these shortfalls ONR rated this inspection as AMBER ('seek improvement'). These shortfalls will be considered under ONR regulatory issues at both a fleet and station level to ensure the shortfalls are appropriately progressed. A follow up inspection will take place during 2022 to monitor progress in this area.

Reactor 1 and 2: During the period covered by this report both reactors (R1 and R2) at Hartlepool have been shutdown for the majority of the time. R1 was shutdown on 11 September 2021 due to there being insufficient gas turbines available to support continued operation due to emergent defects (this was reported in the Quarter 3 SSG report). Due to the proximity to the statutory outage shutdown date (4 October 2021)

EDF took the decision not to return R1 to service in the interim period and in effect brought the statutory outage forward.

On 1 September 2021 a steam leak on a turbine impulse line in the turbine hall resulted in R2 being manually shutdown (this was reported in the Quarter 3 SSG report). EDF investigated the event which was followed up by the ONR site inspector. ONR were satisfied that measures have been put in place to prevent similar occurrences. R2 was subsequently returning to service on 21 November 2021 when another steam leak was identified, this time on a steam chest associated with a plug weld. These welds were all inspected with repairs effected on the leak site prior to return to service on 14 December 2021. ONR are content that EDF took suitable measures to rectify the leaks and that there was no risk to the public.

Reactor 1 2021 Statutory Outage:

The majority of ONR inspections during the reporting period were in support of ONR's decision to issue a Licence Instrument (LI) to allow R1 to return to service on completion of the three-yearly statutory outage. As discussed above the required shutdown date for R1 was 4 October 2021, however the reactor was shutdown earlier on 11 September.

To support the return to service of R1, ONR conducted inspections at Hartlepool Power station in the following areas:

- Periodic Shutdown (LC 30)
- Structural Integrity
- Mechanical Engineering
- Electrical Engineering
- Graphite Core Inspection
- Conventional Health and Safety
- Chemistry
- Control and Instrumentation
- Gas Turbine Inspection
- R1 Start-up Meeting

All of these inspections ultimately supported ONR issuing a Licence Instrument to consent to R1 returning to service post the 2021 statutory outage. All of the individual inspections were considered holistically under a Project Assessment Report (PAR) which contains the detail of the ONR position for each of these areas. This PAR will be publicly available on the ONR website. ONR issued a Licence Instrument on 30 December 2021. Following issuing of the Licence Instrument, EDF informed ONR that during the preparations to return R1 to service they identified a leak in a tube of one of the boilers. ONR are content that EDF have taken appropriate steps to identify the leak and that R1 will not return to service until this defect is suitably rectified. The issue presents no risk to the public but ONR will continue to monitor the defect rectification during routine site engagements.

Boiler Closure Unit studs:

During the R1 2018 statutory outage, indications of cracking were found on two Boiler Closure Unit (BCU) stud bolts. ONR was satisfied with the licensee's justification at the time to leave the stud bolts with the indications in place until the next outage (2021). During the current R1 2021 statutory outage, removal and subsequent metallurgical examination of these bolts confirmed the presence of stress corrosion cracking (SCC). Extent of condition examination of the remaining stud bolts associated with R1 revealed further studs with indications suggesting the presence of SCC. In total all 384 BCU stud bolts on R1 were inspected with 24 containing detectable SCC. This position challenged the extant safety case assumption and EDF therefore entered their safety case anomalies process (SCAP). EDF subsequently produced a revised safety case that justified the return to service of R1 after the 2021 statutory outage. EDF replaced all defective studs on R1 during the statutory outage and will produce a further safety case in February 2022 that will justify continued operation to the end of generation in 2024. ONR have considered the safety case for return to service and consider that R1 is safe to restart.

Members of the public, who would like further information on ONR's inspection activities during the reporting period, can view site Intervention Reports at www.onr.org.uk/intervention-records on our website www.onr.org.uk. Should you have any queries regarding our inspection activities, please email contact@onr.gov.uk.

2.2. Other Work

During the period the site inspector worked remotely to monitor the performance of the site by:

- Reviewing the open regulatory issues associated with Hartlepool with the Technical and Safety Support Manager (TSSM);
- Meeting with the TSSM twice-weekly to discuss the station's response to, and the impact of, the coronavirus pandemic; and
- Meeting on a weekly basis with the site-based Independent Nuclear Assurance team to ensure the internal regulator function remains effective and verifying information provided by the station.

3. Non-Routine Matters

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.

Matters and events of particular note during the period were:

- **INF1 1133:** On the 11 September Reactor 1 was manually shutdown due to there being insufficient gas turbines available to support continued operation. EDF have initiated an investigation into the reduced redundancy in gas turbine availability and have since rectified the issues identified during this event. Due to previous gas turbine issues, ONR conducted an additional inspection focused on gas turbine availability during the R1 statutory outage. ONR inspectors were satisfied that the maintenance arrangements are adequate, and that site understood the various reliability issues that have arisen and are adequately addressing them. This event posed no risk to the public, the reactor was shutdown in a controlled manner with post trip cooling operating as expected.
- **INF1 1224:** Site Incident. On 5 October 2021 Hartlepool declared a site incident which was promptly reported to ONR. Fire alarm systems had initiated that were associated with a lift in the Reactor Controlled Area. At the time 6 people were inside the lift. Site response teams attended the lift and were able to evacuate the 6 personnel. All other personnel were accounted for during the site muster. Site initiated an investigation into this event as well as conducting repairs to the lift. ONR have liaised with site regarding this incident and are monitoring proposed improvements regarding oversight of lift maintenance. There was no risk to the public associated with this event.
- **INF1 1231:** Carbon dioxide (CO₂) vaporiser Unavailability. On 4 October, the station entered an immediate action limited condition of operation, as three CO₂ vaporisers were unavailable. At the time of the event both reactors were shutdown. Due to the loss of the vaporisers there was reduced redundancy in the ability to provide CO₂ (primary coolant) to the reactors. The event has provisionally been rated on the INES scale as a **LEVEL 1 event**. An investigation has been initiated by site that will be followed up by the ONR site inspector.
- **INF1 1403:** High Pressure Steam Chest Leak: on 21 November as Reactor 2 was due to return to service a steam leak was identified on the Turbine Generator 2 high pressure governor valve steam chest. EDF took the decision to shut the reactor down to conduct further inspections when the unit was cooled down and to complete repairs. The leak was identified on a welded dowel cap on the steam chest. An investigation has been initiated by site that will be followed up by ONR inspectors.

4. Regulatory Activity

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.

- The following LIs, Enforcement Notices and Enforcement letters have been issued during the period:

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

Date	Type	Ref. No.	Description
30/12/2021	Consent	574	Consent to restart reactor 1 after the 2021 statutory outage.

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

5. News from ONR

For the latest news and information from the Office for Nuclear Regulation, please read and subscribe to our regular email newsletter 'ONR News' at www.onr.org.uk/onrnews

6. Contacts

Office for Nuclear Regulation
Redgrave Court
Merton Road
Bootle
Merseyside
L20 7HS

website: www.onr.org.uk
email: Contact@onr.gov.uk

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