Office for Nuclear Regulation (ONR)
Site Report for
Hartlepool Power Station

Report for period 1 April to 30 June 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/llc/).

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 enquire about matters covered by this report should contact ONR.

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1 Inspections

Dates of inspection

ONR inspectors undertook interventions relevant to Hartlepool Power Station on the following dates during the report period:

- 27-28th April (Onsite)
- 25-26th May (Onsite)
- 22-23rd June (Onsite)

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

2 Routine Matters

Inspections

Compliance 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 etc. 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 (EDF Energy Nuclear Generation Ltd, NGL) 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:

- April – Audit of fire safety
- May – LC18 – Radiological Protection
- June – Fuel Route Systems Based Inspection

Routine Site visit and Fire Audit: During this site visit no compliance inspection was carried out however the site inspector held a number of review meetings with key site personnel. These meetings covered:

- Reviewing recent site events and progress with site investigations.
- A discussion on fire safety onsite to provide initial information for the full site fire safety audit due in August. A walkdown with the site TSSM identified a number of poor standards with respect to fire safety, these were all dealt with by site.
- Meeting with the Head of Radiation Protection to discuss the recent high activity levels in the storage ponds which resulted in the ponds being quarantined. This topic was discussed further in the following month's site inspection covered under LC18.
- Discussions on progress with the independent internal assurance bi-annual report. INA had previously informed ONR that progress with the INA top issues had been slow and had taken some time to develop plans for these.

LC18 – Radiological Protection: This intervention sought to establish if the licensee's ability to comply with the Ionising Radiations Regulations 2017 (IRR17) and the REPPIR 2019 was affected by the number of Emergency Health Physicists being below the baseline level. The aim of the Radiation Protection (RP) intervention was:

- To provide regulatory confidence in relation to compliance with IRR 17 and REPPIR 2019.
- To inform the ONR decision relating to the closure of Regulatory Issue (RI) 8444 – Emergency Health Physicists below the baseline staffing level.

The intervention focussed on the following areas:

- Emergency response plan arrangements and role requirements for RP staff.
- Health Physics emergency response rota details and sustainability.
- Head of Radiation Protection (HoRP) responsibilities under MCP/014/300 Section 4.
- Inspections, interventions and audits carried out by the RP team.
- Role of Radiation Protection Adviser (RPA) and engagement by site with RPA.
- Impact of defueling on RP resource.
- Maintenance of standards in the RP and Radiation Protection Supervisors (RPSs) including training and competence.
- RP input into work planning including risk assessment
- Radiological event investigation and follow up including response to leakages and spillages.

The inspection and discussions with the HoRP for Hartlepool and other representatives of the duty holder provided suitable assurance that there is effective RP practice in place and an adequate level of compliance with the requirements of IRR'17 and the aspects of REPPIR 19 discharged by the Emergency Health Physicists.

Restoration of staffing numbers to the baseline is still required, which will be captured in a new RI. The existing RI (8444) will be closed with the actions included in a new RI which will also require progress in the following areas:

- Provide clarity on how the current staffing shortfall has been mitigated in the short term
- Confirm that the baseline level has been met when trainees are suitably qualified

- The hotspot removal KPI
- Provision of information to RPSs
- HoRP observations
- AccHPs attending Contract Inaugural Meetings
- Survey completion rate

The inspection did not reveal any significant nuclear safety concerns that require action by the Licensee or further follow-up by ONR with the inspection being rated as Green.

System Based Inspections (SBI)

SBIs consist of a series of inspections which are intended to establish that the basic elements of a site/facility safety case as implemented in Safety Systems and Structures (SSS) are fit for purpose and that they will fulfil their safety functional requirements. In an SBI, the adequacy of implementation of the licensee's arrangements for six Licence Conditions (LC) (10, 23, 24, 27, 28 & 34) is tested for the SSS chosen.

One SBI was carried out during this period covering the Fuel Route.

Fuel Route

The aim of the SBI was to judge that spent fuel is managed, stored, transferred and despatched such that the requirements of the fuel route safety case are met. The purpose of the Fuelling Machine (FM) is to transfer fuel assemblies, control rod assemblies and other non-fuel assemblies between the reactor channels and other facilities including the Irradiated Fuel Disposal Facility (IFDF). The purpose of the IFDF is to safely dismantle irradiated fuel assemblies. It also provides bottling facilities, storage in voids for tie bar nuts, bottom supports and top reflectors as well as a means of exchanging fuelling machine atmosphere from air to CO2 and vice versa. The purpose of the Ponds Area (PA) is to allow safe storage of irradiated fuel elements and eventual packing into flasks for transport to a reprocessing facility.

For all the LCs (LC34 was not rated during this inspection) we rated the compliance as GREEN with the exception of LC28 which was rated as AMBER (seek improvement). During the inspection it became apparent that the fuel route was not fully aligned with the expected process for planning and conducting maintenance. This is evident with some planned maintenance not being completed within the expected timeframe and not being proactively rescheduled before the maximum tolerance period for that item. As such a Level 3 regulatory issue has been raised seeking evidence that maintenance on the fuel route is following the expected processes and is conducted within expected tolerances.

- **LC 10 (Training)** – The inspection examined the training records of a number of personnel involved in operations and maintenance activities associated with the fuel route. It was judged that the personnel undertaking these operations and maintenance activities were suitably qualified and experienced. We also had discussions on the arrangements in place for the training of personnel. These were considered appropriate for ensuring staff are suitably trained and experienced. A rating of **Green** (no formal action) for LC10 compliance was therefore assigned.

- **LC23/ LC24 - (Operating Rules) and LC 24 (Operating instructions)** - We sampled the fuel route safety case and associated Technical Specifications to determine whether the principal limits and conditions were identified and enacted into station procedures and operator surveillances. We considered the principal limits and conditions of the fuel route safety case were identified in the station's technical specifications. A review of surveillance records and compliance check sheets demonstrated that the technical specifications were adhered to during operations. For LC 24, we sampled safety, operating and maintenance instructions associated with the system. Overall, we considered they were implemented via clear working instructions, but did identify some minor issues with some of the maintenance instructions where the clarity could be improved. A Level 4 Regulatory Issue was raised to track this issue. Overall, it was considered NGL provided an adequate level of assurance and evidence to demonstrate compliance against LC 23/24. As such, an inspection rating of Green (no formal action) was assigned for LC 23/24.

- **LC 27 (Safety Mechanisms, Devices and Circuits)** – Based on the areas sampled in our inspection of LC23, LC24, LC28, and the system health, we were satisfied that suitable and sufficient safety mechanisms, devices and circuits are connected and in working order to meet the requirements of the safety case. As such, an inspection rating of 'Green' (no formal action) was assigned for LC 27.

- **LC 28 (Examination, Inspection, Maintenance and Testing)** – We examined several maintenance schedule items and associated work order cards. It was confirmed that generally maintenance was being undertaken in line with the intervals. However, we did identify a maintenance schedule item that was not tested on its due date (but was still within the 12-week tolerance period). In addition, we noted that Fuel Route did not appear to be fully applying station/company arrangements to ensure that maintenance is completed within maximum tolerance dates as required by LC28, which could potentially impact nuclear safety. We have therefore raised a Level 3 Regulatory Issue to track this issue. We also identified a number of other minor shortfalls against LC28 relating to control and supervision and timely scanning of work order cards, and also a weight sensing system drifting out of tolerance on repeat occasions. Two Level 4 Regulatory Issues have been raised to track these issues. As such, an inspection rating of 'Amber' (seek improvement) was assigned for LC 28.

- **LC34 (Leakage and Escape of Radioactive Material and Radioactive Waste)** - We did not obtain evidence to provide a rating for this LC.

From the evidence sampled during this SBI, it was judged that Hartlepool's Fuel Route System (FM, IFDF & PA) adequately fulfils the requirements of the safety case and fulfils its safety functional requirements. However, it was judged that there were shortfalls in compliance against LC28, as detailed above. Level 3 & 4 Regulatory Issues have been raised to address these shortfalls

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). Generally, progress is being made on the majority of issues; some delays are evident with lower priority issues, but at present, we have no significant concern.
- Meeting with the TSSM during twice-weekly meetings, to discuss the station's response to, and the impact of, the coronavirus pandemic.
- 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.
- Increasing the number of meetings attended, including senior leadership team morning meetings (where the station's priorities are set), maintenance requirements review group meetings (where the impact of potential or actual staff shortfalls on safety-significant maintenance are managed) and operational focus meetings (where the day-to-day threats to safety and operation are discussed).

As a result of the above remote interactions, 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.

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. Should you have any queries regarding our inspection activities, please email contact@onr.gov.uk.

3 Non-Routine Matters

Events

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 note during the period were:

- INF1 2021/275: Emergency boiler feed pump - On the 12th April 2021 during a programme of routine maintenance on the EBFP the isolation commenced. During the isolation EF2/WF/88 was closed in error resulting in Central Control Room (CCR) alarms and entry into a Limited Condition of Operation. EF2/WF/88 was re-opened, and its position independently verified prior to declaring EBFP 2 available. A stand down was held with those involved and the event briefed to all operators.

- INF1 2021/345: Reactor 2 manual shutdown - On the 26th March 2021 at approximately 06.45 an alarm was received associated with a loss of electrical supplies to the control rods. Following monitoring of the control rod positions a decision was made to manually shutdown Reactor 2. The station investigated the event which identified that the cause was due to a coil winding failure. The station was proactive in manually shutting down the plant and commencing the initial fault finding to understand the cause and subsequently rectify the failure. The ONR site inspector will follow up the identified actions from the investigation during routine site inspections.

- INF1 2021/346: RM5 cable race fire detection suppression - On the 18th May 2021 it was discovered a the temporary loop of Linear Heat Detection Cable (LHDC) that had been installed to allow work to progress on replacement of the Zone 10 of LHDC whilst the system remained in service did not meet the original design intent. The system was made unavailable and a 36-hour urgent maintenance state was entered. 24-hour resource was identified to progress with the LHDC installation and return it to its original design. This work is now complete and a Hand over certificate has been issued for return to service. This was completed within the 36-hour UMS. The station is currently investigating this event which will be followed up by the ONR site inspector.

- INF1 2021/477: Safety Case anomalies process, Lower Radial Keys: On 17th June 2021 a structural design anomaly was identified in the reactor support walls at Hartlepool and Heysham 1. This relates to the attachment of the three Lower Radial Keys (which connect the core support plate to the pressure vessel liner). The existing safety case and the future lifetime safety cases (which are currently under preparation) do not take this newly found anomaly into consideration. A short-term interim justification for continued operation was produced to allow the opportunity for additional analysis to investigate the accuracy of the modelling and an Event Recovery organisation established.

Significant work by relevant SQEPs has now demonstrated far less onerous outcomes and a longer-term interim justification for continued operation has now been approved (as of 2nd July). ONR have been involved and informed throughout this period and have full visibility of the technical analysis and outcomes which underpin the IJCO.

- INF1 2021/486: Group 2 Fire alarm - It was identified on 28th June 2021 that a Group 2 fire alarm from a cable race to the Central Control Room (CCR) was inadvertently disabled during a system replacement programme. As a result, there was a failure to comply with the relevant SOI claimed under the Technical Specifications. Alternative fire detection in the area would have raised a Group 1 alarm in the event of a fire. The fire suppression system remained fully available throughout. he the effected alarms were reconnected as soon as the issue had been identified and that the site has initiated an ACIN into the event and will review the extent of condition to ensure no other alarms were impacted. The ONR site inspector will review the ACIN when completed.

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.

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

Date	Type	Ref No	Description
N/A			

5 News from ONR

For the latest news and updates from ONR visit the website and sign up for our ebulletin (http://www.onr.org.uk/ebulletin/index.htm).

Covid-19 (Coronavirus) (ONR position)

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.

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.

Although ONR staff continue to work primarily at home, (carrying out as much of our work as possible via videoconference, phone and email), we are carefully and progressively increasing our site footprint. We continue to assess our on-site presence in line with government guidelines and our business needs, ensuring we have a balanced portfolio of on-site inspections and interventions, that are important to support effective regulation across our purposes.

Our latest position can be found on our website.

Enforcement Action

- In April, we announced that EDF complied with a Direction we served on 14 December 2020, under the Pressure Systems Safety Regulations (2000). This followed an inspection, at which found a number of pressure system components at Heysham 1 Power Station were overdue their scheduled examination.

- In May, we agreed to extend an improvement notice served on EDF in September 2020, recognising the progress made so far. The notice was served after some of the equipment used to measure reactor power at Heysham 2 was incorrectly configured. We judged that Heysham 2 is able to operate safely, and that additional time to demonstrate the required improvements will not pose a risk to safety. EDF must now comply with the improvement notice by 31 July 2021.

- In June, we announced that Rolls-Royce Submarines Ltd (RRSL) had complied with an improvement notice served on 29 May 2020. The notice was served after RRSL operators brought 21 units of fissile material into the facility – which

exceeding the limit defined within the safety case and set out in the Criticality Control Certificate for the facility.

Stakeholder Engagement

- In April, we published an article introducing our newest board member, Jean Llewellyn, who joined us in October 2020, as security lead. Jean brings with her a wealth of experience, including serving as a non-executive director on the board of the World Institute for Nuclear Security since 2018 – which has given her a good understating of the global security challenges facing the nuclear industry.
- In May, we issued our e-bulletin 'ONR News' to subscribers. This issue included farewell reflections from our outgoing chief executive, a leadership update, further information on our COVID -19 response, and the results of our latest stakeholder survey. You can sign up for our e-bulletin here
- On 1 June, we announced the full implementation of our new leadership structure. Mark Foy is now our combined Chief Executive and Chief Nuclear Inspector. He is supported by Sarah High as Deputy Chief Executive, and Donald Urquhart as Executive Director of Operations.
- In June, we published our new Corporate Plan for 2021/22, which sets out our key priorities to protect the public by securing safe nuclear operations.
- In June, our State System of Accounting for and Control of Nuclear Material (SSAC) project - which saw ONR become the UK's national nuclear safeguards regulator from 31 December 2020, was shortlisted for a national award in the Project Management Institute's UK National Project Awards in the 'Project of the Year (Public Sector)' category.
  Nuclear safeguards are measures to verify that countries comply with international obligations not to use nuclear materials from civil nuclear programmes for non-peaceful purposes.

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