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| ONR Site Report  EDF – Hartlepool Power Station |



ONR Site Report

EDF - Hartlepool Power Station

Report for period: 1 July – 30 September 2023

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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 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 inquire about matters covered by this report should contact ONR.

Contents

[1. Inspections 4](#_Toc149307691)

[2. Routine Matters 4](#_Toc149307692)

[3. Non-Routine Matters 7](#_Toc149307693)

[4. Regulatory Activity 9](#_Toc149307694)

[5. News from ONR 10](#_Toc149307695)

[6. Contacts 10](#_Toc149307696)

# Inspections

## Date(s) of Inspection

ONR inspectors made inspections on the following dates during the report period 1 July to 30 September 2023:

* 20 July
* 1 – 4 August
* 8 – 9 August
* 15 – 16 August
* 22 – 23 August
* 30 – 31 August

# Routine Matters

## 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 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;
* staff training, qualifications and experience;
* incidents on the site;
* radiological protection;
* quality assurance and records; and
* conventional (non-nuclear) health and safety.

**Reactor 2 Statutory Outage**

During the reporting period the majority of ONR inspections at Hartlepool power station have been in support of the Reactor 2 statutory outage.

The nuclear site license requires the licensee to periodically shutdown any plant or process under LC 30. This is to enable examination, inspection, maintenance and testing to take place. ONR has specified under LC 30(3) that the licensee is required to seek ONR’s consent before the start-up of a reactor after it is shutdown in compliance with LC 30(1). At Hartlepool, reactor periodic shutdowns are every three years.The Reactor 2 periodic shutdown commenced on the 8 July 2023.

ONR inspection and assessment activities were undertaken during the periodic shutdown by the following specialisms:

* Graphite
* Structural Integrity
* Electrical Engineering
* Control & Instrumentation (C&I)
* Mechanical Engineering
* Civil Engineering
* Chemistry

During the early stages of the statutory outage an electrical defect (see section 3 below) resulted in Reactor 1 also being shutdown to effect a repair. This resulted in a double reactor outage that impacted the delivery of some planned statutory outage work due to the competing resource demands this placed on the station.

On completion of the required statutory outage work ONR issued a Consent to restart Reactor 2.

**Conventional Health and Safety**

ONR conducted a conventional health and safety inspection to provide regulatory confidence in EDF’s management of industrial safety risks present during outages. This included lifting operations and other outage activities that presented industrial safety hazards. Based on the evidence sampled ONR rated the inspection ‘Green’.

**Systems Based Inspection - Buildings, Structures and Infrastructure**

No Systems Based Inspections took place during this reporting period.

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](http://www.onr.org.uk./intervention-records).

Should you have any queries regarding our inspection activities, please email [contact@onr.gov.uk](mailto:contact@onr.gov.uk).

## Other Work

During the period, the site inspector held routine meetings with station staff to monitor the performance of the site by:

* Reviewing the current plant status and all open regulatory issues associated with Hartlepool power station with the Technical and Safety Support Manager.
* 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.
* Engaging with site safety representatives to support their function of representing employees and receiving information on matters affecting their health, safety and welfare at work.
* Attendance at the Emergency Arrangements Review Meeting.

# 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:

**INF-3160:** On 15 July 2023, it was observed that an electrical cable box associated with an 11kV transformer had experienced a fault and consequently ruptured. The cable box had distorted and split down one of the welds and as a result, expelled some of the internal electrical insulating material from the box. The station took the decision to shutdown Reactor 1 to allow a repair to the cable box to be carried out. As Reactor 2 was already shutdown for a statutory outage this placed the station in a double reactor outage. EDF have also conducted an investigation into this defect and identified suitable actions to prevent future occurrences. The ONR site inspector will review the close out of these actions during routine site visits.

**INF-3172:** On 27 July 2023 Hartlepool power station entered Operational Alert after identifying that stores of bulk Nitrogen had been depleted. Operational Alert includes setting up the station Emergency Control Centre which ensures station resource is prioritised to manage the event and to remove the additional burden from the routine operation of the reactors. At the time of the event both Reactors 1 and 2 were shutdown (referred to as a double reactor outage).

Reactor 1 was shutdown after identification of an unrelated, electrical fault on a 11kV transformer. It was shutdown in a CO2 environment and at atmospheric pressure. In a CO2 environment it is not necessary for a Nitrogen purge to be applied to the gas circulator main motors and as such Reactor 1 was not impacted by this event.

Reactor 2 was shutdown for a planned statutory outage which commenced on 8 July 2023. At the time of the event Reactor 2 was in an air atmosphere with a number of top and bottom cap penetrations open for in-core inspections.

One of the uses of bulk Nitrogen is to provide a purge on the gas circulator main motors when the reactor is in air. The reactors are normally in a CO2 environment, except when doing intrusive maintenance, and as such the Nitrogen purge is not routinely required. There are two issues with a loss of the Nitrogen purge to the gas circulator motor compartment which are as follows:

* loss of protection against a boiler tube leak; and
* a potential risk of an oil fire in the motor compartments due to elevated Oxygen content.

Both of the above could result in a failure of the gas circulators.

Due to failures in the re-ordering process, and management, of bulk Nitrogen stocks by the station, bulk Nitrogen stores were depleted and required the Nitrogen purge on the gas circulator main motor compartment to be removed.

Following internal EDF advice, the running gas circulator main motors were shutdown to remove the risk of a fire, and alternative motors were put into service, retaining forced gas circulation to the shutdown unit.

The station entered Operational Alert to ensure adequate resource and support was prioritised to safely address the event. The station supplier of Nitrogen was contacted, and a priority delivery was made to the site. The Nitrogen purge was reinstated, and the gas circulator main motors were safely restarted. In total the loss of Nitrogen purge was around four hours.

Several other safety layers remained available to the station on the affected plant and as such the basic INES rating was considered to be 0, ‘below scale’. There was no risk to members of the public or workers from this event.

This event has been upgraded to an INES 1 (anomaly) event due to the consideration of ‘additional factors’ as per the INES manual. EDF’s investigation found that the station commodities check to ensure sufficient bulk Nitrogen stocks are available in all plant states was not considered effective and procedural inadequacies resulted in stocks being depleted without the station being aware. The ONR site inspector will review the close out of the actions from the internal station investigation during routine site visits.

**INF-3250:** During the Reactor 2 statutory outage there were three events where personnel were noted to have contravened radiological safety rules by inadequately utilising respiratory protective equipment. In one of these events two individuals received very small amounts of contamination to their heads. The individuals suffered no adverse effects and were able to return to work.

EDF have since conducted a significant adverse condition investigation to review the trend of these events and to identify further actions to eliminate future occurrences of these types of events. ONR plan to follow up on the outcome of the investigation at Hartlepool to ensure that appropriate actions have been implemented at site.

# 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 |
| 8/09/23 | Enforcement Letter | ONR-EL-23-020 | Portable Air Conditioning Units Deployment and Associated Safety Assessment Arrangements Shortfalls |
| 29/09/23 | Consent | Licence Instrument No: 57 | Consent to the start-up of Hartlepool Reactor 2 |

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

# News from ONR

For the latest news and information from ONR, please read and subscribe to our regular email newsletter ‘ONR News’ at [www.onr.org.uk/onrnews](http://www.onr.org.uk/onrnews).

# Contacts

Office for Nuclear Regulation

Redgrave Court

Merton Road

Bootle

Merseyside

L20 7HS

website: [www.onr.org.uk](http://www.onr.org.uk)

email: [Contact@onr.gov.uk](mailto:Contact@onr.gov.uk)

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