|  |
| --- |
|  |
| ONR site report  EDF – Heysham Power Stations |



ONR site report

EDF - Heysham Power Stations

**Report for period**: 1 January – 31 March 2025

**Authored by**: Nominated Site Inspector

**Approved by**: Joint Head of Safety Regulation – Operating Reactors

**Issue:** 0

**Published**: April 2025

**Record reference**: 2025/14825

Foreword

This report is issued as part of our 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 Heysham Local Community Liaison Committee (LCLC) and are also available on our website: [www.onr.org.uk/publications/regulatory-reports/site-specific-reports/llcssg-reports](http://www.onr.org.uk/publications/regulatory-reports/site-specific-reports/llcssg-reports).

Our site inspectors usually attend Heysham Local Community Liaison Committee (LCLC) 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 us via email at [contact@onr.gov.uk](mailto:contact@onr.gov.uk).

Contents

[1. Inspections 4](#_Toc180135448)

[2. Routine matters 5](#_Toc180135449)

[3. Non-routine matters 7](#_Toc180135450)

[4. Regulatory activity 8](#_Toc180135451)

[5. News from ONR 9](#_Toc180135452)

[6. Contacts 9](#_Toc180135453)

[References 10](#_Toc180135454)

# Inspections

## Date(s) of inspection

Our site inspector made inspections on the following dates during the report period 1 January – 31 March 2025:

**Heysham 1**

9, 21, 22, 23 January

12, 13 February

18, 19 March

**Heysham 2**

30, 31 January

11, 12 February

12, 13 February

18, 19 February

26 February

27, 28 February

3, 4 March

11, 13 March

25, 26 March

# 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 Heysham covered the following:

**Heysham 1**

* Radioactive waste management: the inspection was a joint safety and environmental inspection with the Environment Agency inspecting alongside ourselves. We inspected against licence conditions (LC) 32 (accumulation of radioactive waste) and LC 34 (leakage and escape of radioactive material and radioactive waste). Overall, the site’s arrangements and their implementation were found to be in line with regulatory expectations with respect to safety and environmental compliance. Throughout the inspection, areas of good practice and opportunities for improvement observed were shared with site. As no significant issues were found or raised, a ‘GREEN’ rating (no formal action) was given for this inspection.
* Themed inspection on Management of Contractors – Field supervision: The purpose of this inspection was to examine EDF NGL’s arrangements for control and supervision of work activities to ensure safety, specifically NGL’s application of field supervision arrangements and the role of the field supervisor. The inspection was undertaken against LC 26 (control and supervision of operations) and The Construction (Design and Management) Regulations 2015. We sampled evidence of the adequacy of these arrangements and evidence of the adequacy of their implementation. As no significant issues were found or raised, a ‘GREEN’ rating (no formal action) was given for this inspection.
* Heysham 1 annual Level 1 Demonstration Emergency Exercise “Atlas”:  The inspection consisted of observing EDF Energy NGL staff at Heysham 1 nuclear power station deploying its emergency arrangements to control a simulated emergency incident.  This inspection judged the adequacy of compliance with LC 11 (emergency arrangements) and Radiation (Emergency Preparedness and Public Information) 2019 (REPPIR 19) regulations. The emergency scenario involved a loss of Grid event requiring a reactor to be resealed/repressurised, two missing persons, three casualties, the deployment of back up equipment and the main Access Control Point (ACP) to be unavailable. Areas for improvement were identified and a minor regulatory issue raised to track completion of actions for improvements in the areas of a full site muster performance and contamination controls with respect to casualty management. The exercise was appropriately challenging with suitable objectives, it was appropriately planned and executed. We judged that the licensee’s performance met the legal requirements and we have awarded a ‘GREEN’ rating (no formal action) was given for this inspection.

**Heysham 2**

* Reactor 7 Statutory Outage LC28 examination, inspection, maintenance and testing inspections - The nuclear site licence for Heysham 2 requires the licensee to shutdown any plant or process for the purpose of examination, inspection, maintenance and testing in accordance with the requirements of the plant maintenance schedule. The maintenance schedule preface specifies that reactor periodic shutdowns take place after a maximum period of three calendar years following consent to start-up after the previous periodic shutdown. Reactor 7 at Heysham was shutdown on 13 January 2025 for the statutory outage to commence.

In accordance with the regulatory permissioning strategy, our regulation of the outage involved detailed inspections and assessments by several specialist inspectors along with more general inspections undertaken by the project inspector.

Our final decision to consent the restart of reactor 7 will be made in April 2025 following completion of required maintenance activities and approval of the assessment work carried out by us.

* Fire Safety systems based inspection - The aim of this inspection was to undertake a planned fire safety inspection at Heysham 2 and determine the adequacy of implementation of the licensee’s claims associated with fire prevention and protection to ensure fire (conventional and nuclear) risks are reduced as low as reasonably practicable. This was achieved by determining how the Heysham 2 fire safety cases and risk assessments are implemented to ensure safety functional requirements are delivered.

The inspection was rated ‘GREEN’ (no formal action) against LC’s 10,12,23,24 and 27. For LC28 an ‘AMBER’ rating was assigned due to shortfalls identified in the management of maintenance of fire dampers within the administration facility, the improvements require to address this shortfall will be tracked through an ONR regulatory issue. Overall, we judged that the system met the requirements of the safety case.

Members of the public who would like further information on our inspection activities during the reporting period can view site inspection records on our website: [www.onr.org.uk/publications/regulatory-reports/site-specific-reports/inspection-records](http://www.onr.org.uk/publications/regulatory-reports/site-specific-reports/inspection-records).

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

In this period, other routine matters at Heysham stations covered the following:

* regulatory issue progress (both sites)
* routine event follow-ups including any conventional health and safety events (both sites)
* meeting with safety reps (both sites)
* daily plant status, refuelling preparations and progress (both sites)
* oversight of graphite inspection data (both sites)
* plant walkdowns (both sites)
* planning for annual level 1 emergency demonstration exercise (both sites)
* observation of RMT exercises from a security and transport point of view

## Other work

* We held periodic meetings with safety representatives, to support their function of representing employees and receiving information on matters affecting their health, safety and welfare at work.

# Non-routine matters

Licensees are required to have arrangements to respond to non-routine matters and events. Our 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:

**Heysham 1**

March 2025

* Reactor 1 trip record for forced outage - Manual trip of reactor 1. Planned following conservative decision making by the organisation due to a suspected leak at the pressure seal of a main steam stop valve. Seal replaced and reactor re-started.
* RIDDOR - An individual was operating a concertina door and in the process has injured their back, a muscular injury. The door is being replaced in July 2025 and learning has been shared with staff and other sites.

During this quarter, a number of safety case anomalies were identified, the site entered the safety case anomalies process (SCAP) and these were being dealt with in accordance with the licensee's arrangements, which are deemed to be adequate, however we are maintaining oversight.

**Heysham 2**

January 2025

* Reactor 8 turbine tripped due to multiple “acceleration detect” operations over a few seconds which led to an automatic reactor trip of reactor 8. There were no significant post trip cooling plant failures and the reactor shut down safely. Heysham 2 are investigating the trip to try and establish a cause. Investigation findings will be shared with us through the incident notification process.
* During planned loss of grid post trip testing for reactor 7 Statutory Outage, a significant steam leak developed downstream of a valve at the decay heat flash vessel which required a shutdown of the decay heat system. No personnel were injured.

The “loss of grid test” resulted in a loss of 415V essential uninterruptible power supply, leading to suspected water hammer in the decay heat boiler system owing to the mix cold water and steam when entering the decay heat flash vessel. This caused the failure of a flange joint and subsequent steam leak in the vicinity.

EDF safety case anomaly process was entered and concluded that the fault that had occurred was covered by the existing safety case, the risk to nuclear safety was small, and therefore the decay heat system could be returned to service.

* During loss of grid testing for reactor 7 a failure mode was identified for 415V essential uninterruptible power supply systems installed in a number of essential electrical systems on reactors 7 and 8. The systems do not raise an alarm locally or in the central control room. This unrevealed failure is not considered within the safety case and could lead to a potential for unrevealed failure.

Following an investigation, a programme of work has been commissioned to install the required alarm modifications. Reactor 7 alarm modifications have been completed and reactor 8 modifications are due to be completed in May 2025. We are satisfied with the sites investigation to date and will be maintaining oversight through routine engagements.

February 2025

* Reactor 7 was offline due to a statutory outage, the bulk moisture indications for reactor 7 appeared abnormally high. Operators entered an immediate technical specification action condition requiring chemistry advice, which was promptly provided.

After an initial period of inconsistent readings, some of which were attributed to faulty indicators, moisture levels on fully operable indicators within the primary circuit were displaying above relative humidity. This is beyond the limits set in technical specification requiring at the fuel cladding surface.

An event recovery team was established to investigate the origin of the moisture and restore bulk moisture indicators in the reactor. Heysham 2 are also carrying out an internal investigation in this incident. We will await the investigation output and track via the incident notification process.

* During reactor 7 statutory outage, inspections were taking place on the secondary shutdown boron bead injection system. The 7C boron bead hopper contents were weighed as part of the inspection, with 6 out of 8 hoppers tested recording a minor shortfall in expected weight. The hoppers were then topped up without affecting safety to the system as the reactor was offline. Procedures to measure the hoppers have recently been updated to ensure more accurate analysis. Reactor 8 will be checked and the same approach taken if required.

March 2025

* EDF safety case anomalies meeting was held between Heysham 2 and Torness. It was judged that the extant graphite safety case requires updating with the current understanding in terms of potential forecasting uncertainty. The nuclear safety risk is very low and continued operation is not effected. The next safety case update, in the form of an engineering change that is already underway will address this anomaly.
* During reactor 7 statutory outage inspection of the sub boiler annulus thermal shield, yellow staining was observed on the thermal shield, quadrant division plate and other reactor internals. Further inspection identified the staining appears to have originated from a reactor safety relief valve line. This line is used to supply forced air cooling to the reactor, therefore, there is an apparent uncontrolled introduction of an unknown substance into the reactor.

Following analysis of the substance it was concluded that the material is chemically compatible and poses a very low risk to the components.

* A SCAP meeting was held in March 2025 to discuss handling failed fuel, specifically under off-load depressurised refuelling conditions where there would be additional restrictions on decay heat and decay store conditions. In this circumstance the probabilistic safety assessment does not account for the presence of radioactive deposit in the decay tube which may result in an increased radiological consequences should there be any unexpected faults.

A safety case change will be actioned to make any required updates for this fault condition. Irradiated fuel handling operation can continue without the need of an embargo due to the minor effect on the assessed risk.

* As part of reactor 7 statutory outage return to service tensioning works on turbine governor intermediate pressure inlet flanges, one steam inlet stud failed when it reached 50% of the required tension.

The stud was removed to allow materials testing to take place and it was identified that the hardness of the shank falls outside of the required tolerance.

An EDF safety case anomalies meeting was held in March 2025 and it was agreed that a safety case anomaly exists in the failure mechanism for the bolts on the inlet flanges.

It was agreed that the risk to nuclear safety for both reactors 7 and 8 is low, and continued operation was agreed as current safety cases allow for small, frequent intermediate pressure steam leaks.

All these incidents are being dealt with in accordance with the licensee's arrangements, which are deemed to be adequate. However, we continue to monitor progress through the incident notification process.

# Regulatory activity

We may issue formal documents to ensure compliance with regulatory requirements. Under nuclear site licence conditions, we issue regulatory documents, which either permit an activity or require some form of action to be taken. These are usually collectively termed licence instruments but can take other forms. In addition, inspectors may take a range of enforcement actions, to include issuing an enforcement notice.

* No licence instruments, enforcement notices or enforcement letters were issued during this period.

Reports detailing the above regulatory decisions can be found on our website: [www.onr.org.uk/publications/regulatory-reports/site-specific-reports/project-assessment-reports](http://www.onr.org.uk/publications/regulatory-reports/site-specific-reports/project-assessment-reports).

# News from ONR

For the latest updates and information on our work, please subscribe to our regular email newsletter, ONR News, at [www.onr.org.uk/news/newsletter](https://www.onr.org.uk/news/newsletter/).

# 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)

This document is issued by ONR. For further information about us, or to report inconsistencies or inaccuracies in this publication, please email [contact@onr.gov.uk](mailto:contact@onr.gov.uk).

If you wish to reuse this information, please visit [www.onr.org.uk/access-to-information/copyright](http://www.onr.org.uk/access-to-information/copyright) <blocked::blocked::BLOCKED::http://www.hse.gov.uk/copyright>for details.

For published documents, the electronic copy on our website remains the most current publicly available version and copying or printing renders this document uncontrolled.

# References

**There are no sources in the current document.**