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| ONR Site Report  Heysham Power Stations |



ONR Site Report

Heysham Power Stations

Report for period: January – 31 March 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 Heysham Local Community Liaison Committee (LCLC) and are also available on the ONR website (<http://www.onr.org.uk/llc/>).

Site inspectors from ONR usually attend Heysham 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 ONR.

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1. Inspections
   1. Dates of Inspection

The ONR site inspector made inspections on the following dates during the report period:

**Heysham 1**

10, 24 – 25, 31 January

1 – 3, 28 February

1 – 2, 21 - 23 March

**Heysham 2**

5, 11-12, 18-19 January

23-24, 28 February

1-2, 8, 14-15 March

In addition, our specialist inspectors were involved in interventions on the following date during the report period:

**Heysham 1**

24 – 25 January

2 – 3, 28 February

1 – 2, 22 March

**Heysham 2**

18-19 January

8, 23-24, 28 February

1-2, 8 March

1. Routine Matters
   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 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:

Level 1 Emergency Exercise ‘Astra’ (Heysham 1) - The exercise scenario was conventional safety themed and focussed mainly on an initiating event that required the recovery of multiple casualties at various locations within the turbine hall basement. Multi teams wearing breathing apparatus were required and the full site emergency arrangements were demonstrated.

CO2 systems; (Heysham 1) – The aim of this system based inspection was to examine the implementation of safety case requirements associate with CO2 storage, distribution and reactor systems. The CO2 facilities considered for this inspection included: the East and West CO2 storage and distribution systems which store and deliver CO2 to the reactor primary circuit; the Standby Boilers (known as Clayton Boilers) and associated fuel and water storage tanks which are used to provide steam to vaporise stored CO2; the Reactor Auxiliary Gas system which is used to maintain primary circuit CO2 chemistry; and the CO2 Blowdown system which is used to manage reactor gas pressure during normal operation and fault conditions.

Defuelling preparation modifications (Heysham 1) – This Licence Condition 22 compliance inspection predominantly inspected the implementation of arrangements for the recently completed flask handling facility which had been modified to improve the capability of the site to process an increased number of fuel flasks.

* Sea defence, flood protection and drainage (Heysham 1 and 2) - This system based inspection sought to establish how flooding safety cases are implemented and safety function requirements are delivered. EDF arrangements made under relevant Licence Conditions were sampled to determine the adequacy of their implementation in relation to systems, structures and components relevant to flooding hazards. A full walkdown of the external sea wall defences was conducted as well as inspection of: the lifetime asset management plans; the time limited flooding safety cases; and updates to the stations arrangements for extreme weather including flooding.

Level 1 Emergency Exercise ‘Perseus’ (Heysham 2) - The exercise scenario had a nuclear safety theme and focused on loss of cooling and multiple casualties following a lightning strike. We were satisfied that the exercise objectives and performance indications in the licensee’s scenario were largely met and judged that the exercise was an adequate demonstration of the Heysham 2 emergency arrangements

Chemistry (Heysham 2) – This theme based Inspection examined the station’s chemistry control. It found that chemistry-relevant limits and conditions (operating rules) at Heysham 2 were reflected in the safety case and effected across a number of relevant station operating instructions (SOI).

Emergency Equipment (Heysham 2) – This theme-based Inspection focused on the adequacy of the emergency equipment and facilities at Heysham 2. Based on the discussions and evidence sampled, we judged that there are underlying deficiencies and shortfalls with the licensee's arrangements with regard to emergency equipment under Licence Condition (LC) 11 (Emergency Arrangements). Notably much of the maintenance testing did not fully test the safety function of the equipment and some third-party recommendations relating to the emergency gamma plume monitoring system (EPGMS) reliability had not been actioned.

We therefore judged that an inspection rating of AMBER (seek improvement) was merited for compliance against LC 11 (emergency arrangements). We wrote to the station detailing our findings (see section 4 - Regulatory Activity) and the station are responding positively. The actions in relation to the EPGMS have been completed and site have undertaken their own investigation into the inspection findings to establish the root causes and have placed actions to address. We are tracking these actions.

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).

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

oversight of flask corridor and extended loss of grid modifications (Heysham 1)

regulatory issue progress (both sites)

routine event follow-ups including any conventional health and safety events (both sites)

organisational capability (both sites) and end of generation planning (Heysham 1)

peer assessed exercise (Heysham 2)

daily plant status, refuelling preparations and progress (both sites)

oversight of graphite inspection data (both sites)

plant walkdowns (both sites)

* 1. Other Work

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.

**Annual Review of Safety (ARoS) – Heysham 2**

During the reporting period ONR held its ARoS with the licensee for Heysham 2. This consisted of a plant walkdown and a meeting. Overall the safety performance of the station improved during 2022 (vs 2021). There have been three graphite inspection outages and three offload depressurised refuelling campaigns successfully completed in the last year. Station discussed how they are managing resilience and EDF has made considerable progress in reducing the maintenance backlog as highlighted by ONR during last year’s meeting.

1. 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.

**Heysham 1**

On the 28 February EDF reported that the mast hoist lifting mechanism of the Skip Element Handling Machine had failed during fault finding activities. This resulted in the uncontrolled lowering of the mast and grapple assembly within the irradiated fuel storage pond. No fuel skips were being lifted at the time and no irradiated fuel was damaged. An increased frequency of environmental monitoring within the facility confirmed that there was no increase in pond water or airborne radioactivity levels. This incident will be followed up by ONR.

1. 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, including issuing an enforcement notice or letter.

During the Quarter, we issued two enforcement letters to Heysham 2

* ONR-EL-22-030 - LC24 Deficiencies in the processes and culture surrounding reactor start-up.

This was issued as a result of follow-up to the incident reported last quarter when Air Ingress Protection valves (AIP) supplies CO2 to the reactor were found to be in manual mode – they should have been in remote mode allowing them to open and close as demanded by the reactor control system.

* ONR-EL-22-041 - Examination, Inspection, Maintenance and Testing Deficiencies of Emergency Equipment.

This was issued following the Emergency Equipment inspection detailed in this report.

1. 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).

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