



Office for Nuclear Regulation (ONR) Quarterly Site Report for Heysham Power Stations

Report for period 04 October 2016 – 31 December 2016

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 quarterly to members for the Local Community Liaison Committee and are also available on the ONR website (<http://www.onr.org.uk/lc/>).

Site inspectors from ONR usually attend Heysham 1 and 2 Local Community Liaison Committee meetings 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

1. The ONR site inspectors made inspections on the following dates during the quarter:

Heysham 1

- 4-6, 13, 27 October 2016
- 15-17, 23-24 November 2016
- 1, 5-8, 15 December 2016

Heysham 2

- 4-5 October 2016
- 5, 21-22 December 2016

2. In addition technical specialists were involved in inspections on the following dates during the quarter:

Heysham 1

- 4-5 October 2016
- 15-17, 23 November 2016
- 1 December 2016

Heysham 2

- 5, 11-13, 24 - 25 October 2016
- 1, 6 – 8, 22 December 2016

3. The ONR Chief Nuclear Inspector and Deputy Chief Inspector for the operating reactors programme also undertook a routine visit on the following date during the quarter:

Heysham 1

- 13 October 2016

2 ROUTINE MATTERS

2.1 Inspections

4. 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 1999 (IRR99) and the Management of Health and Safety at Work Regulations 1999 (MHSWR99).
5. The inspections entail monitoring 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.

6. In this period, the following routine inspections of (Heysham 1 and 2) covered the following:
 - Licence condition 2: Marking of the site boundary
 - Licence condition 11: Emergency arrangements
 - Licence condition 16: Site plans, designs and specifications
 - Licence condition 26: Control and supervision of operations (Unannounced)
 - Licence condition 28: Examination, Inspection, Maintenance and Testing
7. In addition to the program of site licence compliance inspections, ONR also inspects operating reactors based on safety related systems. Each site has a safety case, which identifies the important aspects of operation and management required for maintaining safety.
8. For both stations at Heysham, the key systems important to nuclear safety will be inspected against the requirements of the safety case. We plan to inspect all the safety significant systems over a five-year period. ONR considers that this will provide additional assurance that operations on the Heysham site are safe. Each of these system inspections considers the relevant licence conditions below:
 - Licence condition 10: Training
 - Licence condition 23: Operating rules
 - Licence condition 24: Operating instructions
 - Licence condition 27: Safety mechanisms
 - Licence condition 28: Examination, inspection, maintenance and testing
 - Licence condition 34: Leakage and escape of radioactive material and radioactive waste
9. During the reporting period, the following safety related systems were inspected:
 - Heysham 1**
 - Civil buildings, site infrastructure and sea defences
 - Heysham 2**
 - Reactor post trip systems
10. In general, ONR judged the arrangements made and implemented by the site in response to safety requirements to be adequate in the areas inspected. In addition the safety related systems inspected were considered to meet the requirements of the safety case.
11. However, where improvements were considered necessary, the licensee made satisfactory commitments to address the issues, and the site inspector will monitor progress during future visits. Where necessary, ONR will take formal regulatory enforcement action to ensure that appropriate remedial measures are implemented to reasonably practicable timescales.

Heysham 1

Fuel Pin Management

12. As stated in the previous quarterly report, small failures of fuel pin cladding occasionally occur in normal operation and therefore EDF-NGL has in place a safety justification and recovery strategy for such failures. However, during the July 2016

refuelling of reactor 2 the number of fuel pin failures was more than would normally be experienced. No radioactivity was released from the reactor and the fuel pins which failed have now been safely removed from the reactor in accordance with the established procedures. EDF-NGL has identified that the fuel pin failures were due to the fuel cladding operating at elevated temperatures, which correlates with increased levels of carbon deposition seen at Heysham 1. As a preventative measure EDF-NGL is operating reactor 2 with a 10% power reduction, thereby decreasing the reactor operating temperatures, to reduce the likelihood of further failures. In recognition of this higher failure rate of the fuel, EDF has reviewed and revised the safety case to ensure that this remains valid.

13. During the December 2016 routine refuelling of reactor 2, an additional 3 fuel failures were observed which were, as before, removed from the reactor in accordance with the established procedures. The number of fuel pin failures is significantly less than the number observed during the July 2016 refuelling and remains within the revised safety case. ONR has considered the safety justification for ongoing operation of reactor 2 and is satisfied that EDF-NGL is taking suitable and sufficient measures to reduce the likelihood of further fuel cladding failures, and to mitigate the failures that have already occurred. ONR will continue to monitor this issue to ensure that continued reactor operation is justified with adequate margins of safety.

2.2 Other work

14. The ONR superintending inspector for the operating reactors' programme, accompanied by the Heysham 1 site safety and security inspectors, attended the annual review of safety and security on the Heysham 1 site. The purpose of this meeting was for the station to present to ONR the safety and security improvements implemented during the previous 12 months of operation, as well as the challenges they have faced during that period. In addition discussions are held on the improvements planned and challenges anticipated in the future.
15. The Heysham 1 and Heysham 2 site inspectors both held a routine, planned meeting with the respective station safety representatives, to support their function of representing employees and receiving information on matters affecting their health, safety and welfare at work.
16. On the 23 November 2016 an ONR radioactive waste specialist inspector carried out a joint inspection of land quality and groundwater protection with the Environment Agency. There were no identified areas of radiological contaminated land; however, there were some relatively minor areas contaminated with non-radiological hazardous substances. ONR's Specialist Inspector was satisfied that there were no safety significant issues; however, some areas for improvement were identified relating to the licensee's management of specialist contractors involved in the maintenance of the boreholes used for sampling. ONR agreed that this matter would be followed up by the Environment Agency site inspector.

3 NON-ROUTINE MATTERS

17. 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.
18. Matters and events of particular note during the period were:
 - On the 6th December 2016 a site incident was declared due to elevated levels of Hydrogen having been detected adjacent to a battery room in the -4.5 m level of the turbine hall. The ONR Heysham 2 site inspector and two ONR specialist inspectors were on site at the time of this event and were content that the site response was appropriate. A subsequent inspection visit was made to

the station to undertake follow-up enquires into the circumstances which led to the incident. The inspector's concluded that the incident did not threaten nuclear safety. The Heysham 2 site inspector has requested the station's internal investigation report on its completion to review its conclusions.

4 REGULATORY ACTIVITY

19. 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 issue Enforcement Notices to secure improvements to safety.
20. During the period covered by this report, a team of ONR specialist inspectors and the ONR site inspector undertook a number of inspections during the periodic shutdown of Reactor 8. These inspections sampled the licensee's arrangements for controlling and completing the examination, inspection, maintenance and testing requirements of the maintenance schedule, and other plant modifications of nuclear safety significance, as identified within the licensee's outage intentions document.
21. Inspectors sampled activities throughout the shutdown, covering topics such as graphite integrity, structural integrity of metallic components, maintenance of the station's electrical, control and instrumentation systems, and conventional health and safety. ONR concluded that the outage activities on Reactor 8 had been satisfactorily completed and on 10 November 2016 issued LI 610 granting Consent for to start-up of Heysham 2 Power Station Reactor 8.
22. The periodic shutdown of nuclear reactors operated by EDF-NGL is a requirement of Licence Condition 30. At Heysham 1, statutory outages are undertaken at three year intervals in accordance with the approved maintenance schedule preface.
23. ONR's consent for Reactor 1 start-up following its last statutory outage was given on 18th December 2013 (LI 581). In order to avoid potential conflict with the availability of essential contract staff and resources over the Christmas period, EDF-NGL submitted a request to ONR to permission an extension of the operating period of Reactor 1 until 28 February 2017. ONR has undertaken an assessment of the licensee's safety justification and has judged that it provides sufficient confidence to grant EDF-NGL agreement for this extension. Consequently agreement was issued under LI 611.

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

Date	Type	Ref No	Description
November 2016	Consent	LI610	Consent for re-start of Heysham 2 Power Station Reactor 8 following the 2016 Periodic Shutdown
December 2016	Agreement	LI611	Agreement to an extension of the operating period for Heysham 1 Reactor 1 from 18 December 2016 to 28 February 2017

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

5 NEWS FROM ONR

On 1 November 2016, ONR held its Industry Conference in London, which brought together senior leaders from across the nuclear sector. We were pleased to welcome Baroness Neville-Rolfe DBE CMG, Minister of State at the Department for Business, Energy and

Industrial Strategy (BEIS) to this year's conference who delivered the [keynote speech](#). A special edition of [Regulation Matters](#) has been published following the conference, which provides a summary of how the day unfolded. As part of our commitment to engage regularly with all our stakeholder groups, we were pleased to welcome 17 representatives from a number of organisations to our ONR / NGO forum on 30 November in London. The event provided an opportunity for NGO representatives to meet with a number of senior ONR leaders, including our Chief Executive and Chief Nuclear Inspector, to discuss a number of priority issues.

Insight into ONR's work as an independent regulator of the nuclear industry can be found in ONR's Regulation Matters. The online publication (<http://www.onr.org.uk/regulation-matters.htm>) reports on the key themes and developments in each of ONR's regulatory programmes and provides an update about the ongoing changes at ONR. <http://www.onr.org.uk/index.htm>. 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>).

6 CONTACTS

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