



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

Report for period 1 October 2018 – 31 December 2018

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 of 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 the Heysham 1 and 2 Local Community Liaison Committee meetings 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

1.1 Dates of inspection

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

Heysham 1

- 2 – 3 October 2018
- 23 - 24 October 2018
- 13 – 14 November 2018
- 6 December 2018

Heysham 2

- 16 – 18, 25 October 2018
- 02, 12-15 November 2018
- 14 – 15 August 2018
- 20 December 2018

2. In addition, other ONR specialist inspectors were involved in interventions on the following dates during the quarter:

Heysham 1

- 2 – 3 October 2018
- 6 November 2018
- 13 – 14 November 2018
- 12 December 2018

2 ROUTINE MATTERS

2.1 Inspections

3. 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 2017 (IRR17) and the Management of Health and Safety at Work Regulations 1999 (MHSWR99).
 - the Regulatory Reform (Fire Safety) Order 2005
 - the Nuclear Industries Security Regulations 2003
4. 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.
5. In this period, the following routine inspections were undertaken:

Heysham 1

- Licence condition 32 – Accumulation of radioactive waste

- Licence condition 34 – Leakage and escape of radioactive material and radioactive waste
 - Computer Based Systems Important to Safety (CBSIS)
6. Licence condition 32 – The scope of the inspection included a plant walk-down and examination of sludge management, filter management and inventory tool arrangements. The Licensee’s arrangements and their implementation were found to be consistent with ONR guidance and legal duties. A radioactive waste improvement plan was examined and demonstrated several areas of good practice. An ONR rating of ‘green’ was awarded with no regulatory issues being raised.
7. Licence condition 34 – The scope of the inspection included a plant walk-down of the active effluent treatment plant and progress updates of previous actions. The Licensee’s arrangements and their implementation were found to be consistent with ONR guidance and legal duties. An ONR rating of ‘green’ was awarded with no regulatory issues being raised.
8. Computer Based Systems Important to Safety - The purpose of the intervention was to confirm the application of physical, administrative, procedural and technical security controls specific to the ‘Boiler Closure Unit Control Instrumentation’ system. The intervention was considered adequate and a rating of Green has been awarded

Heysham 2

- Licence condition 12 – Duly authorised and other suitably qualified and experienced persons
 - Licence condition 22 – Modification or experiment on existing plant
9. Licence condition 12: This intervention was focused on the licensee’s arrangements for training, assessment and appointment of Duly Authorised Persons (DAPs). We sampled the training records for a number of DAPs, reviewed the licensee’s self-assessment process held discussions with unit desk engineers, control room supervisors and a shift manager. ONR inspectors judged that all of these areas, where sampled, met the required standards for compliance against LC 12. Staff interviewed during the inspection understood their roles and responsibilities and are competent. A minor inconsistency in relation to the demonstration of recorded evidence of assimilation of the training records for some DAPs who were appointed prior to the implementation of systematic approach to training processes at Heysham 2 was fed back and accepted by the licensee. An inspection rating of green was assigned against LC12.
10. Licence Condition 22: We sampled the licensee’s process for devising, approving and implementing Engineering Changes (EC’s) from within the design engineering group and reviewed the fleet Maintain Design Integrity (MDI) highlight report and the accountability tool as implemented at Heysham 2. Further, we sampled the governance arrangements for urgent and temporary EC’s and Defeat of Interlocks (DOIs) within the fuel route. A minor inconsistency in the criteria for independent approval of category 2 defeat of interlock proposals in the fuel route was fed back and accepted by the licensee. ONR asked the licensee to consider independent approval for all category 2 DOI’s in the fuel route at Heysham 2. An inspection rating of green was assigned against LC12.

System Based Inspections (SBI)

11. 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. For both stations at Heysham, the key systems important to nuclear safety will be inspected against the requirements of the safety case 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

12. During the reporting period, the following safety related systems were inspected:

Heysham 1

Buildings, Structures and Infrastructure

13. This SBI covered the ability of Heysham 1 civil structures to fulfil their safety functional requirements in line with the safety case for hazards, in particular seismic, high wind and internal flooding.

14. The intervention also included a plant walk down of the following areas:

- Reactor Building
- Services Block
- Turbine Hall basement flood wall
- Gas Turbine House
- Nitrogen Store
- West CO₂ storage plant
- Nitrogen Store
- Cooling Water pump house
- High Pressure Back-U[Cooling System tanks
- Stacks for the Auxiliary Boiler House and Clayton Boiler House
- Trenches for essential services

15. A single minor regulatory issue was raised as a result of the intervention which was closed efficiently following the provision of further supporting information from the licensee.

16. After considering the totality of evidence examined during the inspection against the relevant licence conditions (LCs 10, 23, 24, 27 and 28), the ONR inspectors concluded that overall, the licensee's arrangements, and their implementation, associated with Buildings, Structures and Infrastructure adequately met the requirements of the safety case.

Auxiliary Cooling System

17. This SBI covered the Auxiliary Cooling System and sampled the adequacy of safety case implementation to deliver the required safety function for the following auxiliary cooling systems:

- Pressure Vessel Cooling Water System
- Low Pressure Back Up Cooling System
- Reactor Ancillaries Cooling Water

■ Turbine House Ancillaries Cooling Water

18. After considering the totality of evidence examined during the inspection against the relevant licence conditions (LCs 10, 23, 24, 27, 28 and 34), the ONR inspectors concluded that overall, the licensee's arrangements and their implementation, associated with the Auxiliary Cooling System adequately met the requirements of the safety case.

Heysham 2

19. No SBI were undertaken during this period, which is usual policy during the periodic shutdown.

2.2 Other work

Heysham 1

Annual Review of Safety (ARoS).

20. ONR inspectors attended the annual review of safety at Heysham 1. As a result of the ongoing ONR formal investigation following the 19 November 2018 steam valve failure, information pertaining to this investigation was not discussed. As part of the ARoS, inspectors undertook a plant walk-down and met with senior managers and team leaders. ONR is content that the licensee presented a balanced overview of its safety and operational performance over the past year. There have been no significant nuclear safety or security events. The plant walk-down was informative and the station staff knowledgeable and enthusiastic. All the areas visited exhibited excellent housekeeping standards. We fed this back to the licensee. No areas of concern in relation to nuclear safety or security were raised by ONR.

Heysham 2

Annual Review of Safety (ARoS).

21. ONR inspectors attended the annual review of safety at Heysham 2. As part of the ARoS, inspectors observed a senior management meeting, undertook a plant walk-down and met with senior managers and team leaders. ONR is content that the licensee presented a balanced overview of its safety and operational performance over the past year. There have been no significant nuclear safety or security events and the recent unit 7 statutory outage met ONR's expectations. The plant walk-down was informative and the station staff knowledgeable and enthusiastic. The investment being delivered and planned to be delivered over the coming years is significant and is helping the station in maintaining plant reliability and dealing with obsolescence issues. All the areas visited exhibited excellent housekeeping standards. We fed this back to the licensee. No areas of concern in relation to nuclear safety or security were raised by ONR.

ONR Chief Nuclear Inspector (CNI) and The Chief Executive Officer (CEO) Visit Heysham 2

22. ONR's Chief Nuclear Inspector and the Chief Executive Officer visited the Heysham 2 nuclear power station along with the nominated site inspector, nuclear safety inspector and an ONR secondee from the French Nuclear Regulator, ASN. During the visit they met with the licensee representatives at various levels in the organisation including representatives from Heysham 1 and external (local to the station) stakeholders and discussed ONR's regulatory approach towards the industry and to get their views about the challenges they face. The licensee provided an overview of operational and safety performance over the previous 5-

year period. CNI and the CEO held open discussions with the station staff in an open and interactive session, undertook a plant walk down and also met with external stakeholders invited by the licensee; this included council leaders and a University Professor. Stakeholders provided positive feedback on their interaction with the power station and noted the key role it plays in the local economy. ONR thanked the Station Director and his team for facilitating the session and noted that the visit was very informative and useful.

Observance of an internal emergency exercise.

23. ONR Nominated site inspector visited Heysham 2 on 21 December 2018. The purpose of the visit was to observe the planned annual peer assessed emergency exercise as part of the overall licence condition 11 compliance arrangements. Although ONR inspectors do not routinely observe peer assessed exercises, when possible, such an approach enhances the sampling approach which is primary based on the assessment of the level 1 demonstration at each power station periodically. INR was provided with the scenario document upfront and was stationed within the simulator and the emergency control centre (ECC) during the course of the exercise and also attended the pre exercise brief and the post exercise review. Overall, ONR's view was that majority of the key exercise objectives were adequately met. The licensee's internal assessment teams self-identified majority of the positives and the areas for improvement. ONR considered that, if it had been a real event, the team would have coped.

3 NON-ROUTINE MATTERS

24. 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

25. On 19 November 2018, a steam valve failed on a non-nuclear related auxiliary steam system used for heating buildings. Three persons were seriously injured as a result of this valve failure and consequential steam release. ONR commenced a formal investigation which remains in progress. Site visits as a result of this investigation have increased.

Heysham 2

26. During this period Reactor 1 automatically tripped and safely shut-down with all post trip cooling systems functioning. The reactor trip was coincident with planned routine electrical protection testing activities ongoing at the time. ONR was promptly informed of this event by the Licensee, who has undertaken an investigation into the cause of the trip. ONR is satisfied with the Licensee's categorisation, initial response and proposed actions to this event.

4 REGULATORY ACTIVITY

27. 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.

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

Date	Type	Ref No	Description
18/12/18	Licence Instrument	LI - 620	AGREEMENT TO MODIFICATIONS DESCRIBED IN NP/SC 7663 PROPOSAL VERSION 003, HEYSHAM 2 POWER STATION; GRAPHITE CORE SAFETY CASE, EC 346969 Revision 000.

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

News from ONR – July-September 2018

October:

- We welcomed the [publication](#) of the key review of operational safety performance at Torness nuclear power station, published by the International Atomic Energy Agency and the UK government. The report highlights eight areas of good practice at Torness and offers proposals for further improvements, which we fully support.
- Following our decision to prosecute, EDF Energy Nuclear Generation Ltd and Doosan Babcock Ltd pleaded guilty to offences at Hinkley Point B under the Health & Safety at Work etc. Act 1974, section 3(1) and the Work at Height Regulations 2005, Regulation 4(1) respectively. The incident was a conventional health and safety matter, with no radiological risk to workers or the public. [A sentencing date](#) has been set for 1 February 2019 at Taunton Crown Court.

On 1 February 2019 EDF Energy were fined £200,000 and Doosan Babcock £150,000. The companies were also ordered to each pay half of the prosecution costs of £36,353.84.

The sentencing marks the conclusion of a prosecution brought by ONR for offences under the Health & Safety at Work etc. Act 1974, section 3(1), (in relation to EDF Energy), and the Work at Height Regulations 2005, Regulation 4(1), (for Doosan Babcock).

The full [press statement](#) is available on our website.

November:

- Following a rigorous procurement process, we appointed six nuclear supply chain organisations to our new [Technical Support Framework \(TSF\)](#). The new TSF, which came in to effect on 1 November 2018, has been established to provide a renewed and modernised framework for procuring technical support. We use this technical support to obtain, for example, expert technical assessments, access to specialist software or modelling, or access to niche skill sets that we do not retain in-house.

- The revised Nuclear Safety Directive introduced a European system of Topical Peer Review in 2017 and every six years thereafter. We played a leading role in the preparations for the first European ‘Topical Peer Review’ on Ageing Management of Nuclear Power Plants and welcome the publication of the [first peer review report](#) by the European Nuclear Safety Regulator Group. We are pleased that a number of our experts made a valuable contribution to the exercise alongside 16 European countries as well as Norway, Switzerland and Ukraine. The UK report was authored jointly between ourselves, EDF Nuclear Generation Ltd and EDF-NNB GenCo.
- [The Atomic Weapons Establishment \(AWE\) was fined £1 million](#) after admitting offences under Section 2 (1) of the Health and Safety at Work etc. Act (1974). The incident, which occurred on 27 June 2017 was a conventional health and safety matter and there was no radiological risk to workers or the public. The prosecution was the result of our investigation into the incident.
- In conjunction with the Environment Agency, we announced the completion of our [initial high level scrutiny](#) of the UK HPR1000 reactor design.
- We provided NNB Genco (HPC) Ltd (NNB GenCo) with [consent](#) to commence the unit 1 Nuclear Island concrete pour at Hinkley Point C (HPC). We also hosted our third webinar to explain our permissioning role for the Nuclear Island concrete pour at HPC and to provide information on our work to ensure that the new nuclear power station is built to the standards expected in the UK. Amongst others, a number of Site Stakeholder Group members joined the webinar and we received excellent feedback. We are planning further webinars on various topics in 2019. If you would like to find out more, please contact the ONR Communications team at contact@onr.gov.uk
- After 16 years of decommissioning work, Bradwell became the first of the Magnox nuclear power stations to receive our permission to enter into a period of “care and maintenance”.
- The nuclear safeguards regulations which will enable ONR to set up the domestic safeguards regime following Euratom withdrawal, were laid in Parliament. The Government published the details, [alongside its response and the feedback to consultation on the draft regulations on its website](#).

December:

- [Court proceedings continued](#) in our [prosecution of Sellafield Ltd](#) for offences under Section 2 (1) of the Health and Safety at Work etc Act (1974).
- Reactor 3 at Hunterston B remains offline after being shut down following a routine inspection into cracks in its graphite core, in March 2018. [Cracking of the graphite bricks in Advanced Gas-cooled Reactors](#) such as Hunterston B is expected as the reactors age. However, the number of cracks found during the inspection of Reactor 3 has led to the licensee, EDF Nuclear Generation Limited, carrying out further inspections of the core. Reactor 4 at Hunterston B was taken offline in October for an inspection of its graphite core. EDF Energy has submitted a safety case for Reactor 4 and is preparing one for Reactor 3.

We will assess both safety cases to determine whether the reactors are safe to return to service. Neither reactor may restart without our consent, which we will give only if it is safe to do so.

- The Government published a [Written Ministerial Statement](#) on implementing Geological Disposal, announcing the publication of its [Working With Communities](#) policy and the launch of a consent-based process to find a site to host a Geological Disposal Facility (GDF). While we have no formal role in identifying the site for a GDF, any future facility will need to meet the high standards of safety and security required of a licensed nuclear site.

All our latest news is available on our website www.onr.org.uk

5 CONTACTS

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Published 10/18

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