



# Office for Nuclear Regulation (ONR) Quarterly Site Report for Hunterston B

Report for period 01 January 2017 to 31 March 2017

## 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 Hunterston Site Stakeholder Group (SSG) and are also available on the ONR website (<http://www.onr.org.uk/lrc/>).

Site inspectors from ONR usually attend Hunterston SSG 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 inspector made inspections, supported where appropriate by specialist inspectors, on the following dates during the quarter:

9 – 12 January 2017

6 – 9 February 2017

2. ONR's civil nuclear security inspectors undertake quarterly inspections at Hunterston B. The quarter 1 planned inspection was undertaken on:

6 - 8 February 2017

## 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 etc. (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).
4. 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.
5. In this period, routine inspections of Hunterston B covered the following:
  - Duly authorised and other suitably qualified and experienced persons.
  - Commissioning
  - Fire Safety
  - Control of Radiation Exposure
6. In general, ONR judged the arrangements made and implemented by the site in response to safety requirements to be adequate in the areas inspected. 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.
7. In addition to our compliance inspections based on the conditions attached to the nuclear site licence, ONR inspectors also inspect operating reactors against safety related systems. Each site has a safety case that demonstrates how it operates safely. For advanced gas cooled reactors, each of approximately thirty key systems will be

inspected against the claims made upon them by the safety case. The aim is to systematically inspect all the significant safety related systems within a five-year cycle (six per year). ONR believes that this will provide more robust assurances of the site's safe operation and how the safety case is being implemented.

8. During this quarter, two system based inspections were undertaken on the station. An inspection of the reactor safety system (trip parameters) was carried out on 7 – 9 February 2017, the ONR inspection team considered that the system was being maintained and operated in accordance with the requirements of the safety case. An inspection of the short break supplies was carried out on 29 – 30 March 2017, the ONR inspection team judged that the system was being maintained and operated in accordance with the requirements of the safety case.
9. **NON-ROUTINE MATTERS**
10. 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.
11. Licence Condition (LC) 7 requires licensees to make and implement adequate arrangements for the notification, recording, investigation and reporting of incidents occurring on the site.
12. During this period, ONR undertook follow-up enquiries into an event that occurred in December 2016, in which a pipe hanger spring support sheared, dropping approximately 30ft into the turbine hall basement. A draft investigation has been completed for this event and the root cause was attributed to poor quality control during the original fabrication of the hanger. The station confirmed that 160 similar pipe-hangers have been subject to a visual inspection since the event. It has not been possible to get sufficiently close to around 108 of these in order to establish whether these were of a similar fabrication to the failed pipe-hanger. A programme of work has been put in place to allow access to these hangers for a closer inspection, which is expected to be completed by June 2017.
13. At the end of March there was another similar event to the pipe hanger failure where a hanger rod fell 10ft in the turbine hall. The station is carrying out an investigation and ONR will carry out further follow-up enquiries in April 2017. In the interim, ONR has written to the station to seek assurance that structural inspections are being undertaken in an appropriately prioritised manner.

### **3 REGULATORY ACTIVITY**

14. 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.
15. On 16 March, ONR attended the stations Annual Review, which are one of the elements supporting continuous improvement at a nuclear licensed site. The review meeting covered;
  - A summary of the operation of the station in the preceding period.
  - A review of performance against the statements made at the previous station Annual Review meeting.
  - A statement about the intentions for improved operation in the next period, covering matters which may affect safety on the site.

- A summary of planned improvements and significant projects necessary in the interests of continued safe and secure operation that will be undertaken in the longer term.
16. The regulatory activity reported below occurred within the period of this quarterly report however, it was also included in the previous report to support discussions on these topics at the site stakeholder group meeting on 2 March 2017.
  17. On 6 January 2017, ONR issued LI agreement number 556, agreeing to the implementation of NP/SC 7716 safety case for the graphite core and core restraint, in accordance with arrangements made by the station under LC 22(1).
  18. Periodic Review of Safety: On 31 January 2017, letter HNB 71273R was issued to the station, detailing the outcome of ONR's assessment of the licensee's Periodic Review of Safety (PSR3) undertaken in accordance with LC 15. The PSR3 submission provides substantiation for a further ten year period of 'operations'; ONR's assessment has taken full cognisance of EDF NGL's publically declared Plant Life Extension (PLEX) aspirations for these stations. ONR's assessment has recognised that future 'operations' are currently defined as a period of electrical generation for Reactors 3 and 4 at Hunterston B, followed by the commencement of reactor de-fuelling activities on the station. In parallel to our assessment of PSR3, ONR has carried out significant assessment of EDF NGL's graphite core safety cases for the Hunterston B reactors, which is directly relevant to our decisions in relation to the PSR.
  19. A key outcome of ONR's assessment of PSR3 and the graphite safety cases is our intention to continue to challenge EDF NGL to ensure that it demonstrates that operations of the two reactors remain safe as the graphite cores age. The early onset of Key-Way Root Cracking, which had been predicted by EDF NGL to occur, and which has been confirmed in the Hunterston B reactors, reinforces ONR's expectation that EDF NGL should ensure that continued generation remains underpinned by a detailed knowledge of the condition of the reactor cores. Fundamental to this is the continuing requirement for EDF NGL to undertake regular inspections and analysis of the graphite core to demonstrate that they remain within the limits and conditions defined within the safety case. ONR fully acknowledges that NGL has implemented significant plant improvements at Hunterston B, as is evident by the increased resilience and capacity of the nitrogen plant and the introduction of super articulated control rods, to ensure that the ability to shut the reactors down safely following a seismic event is maintained.
  20. Based upon the safety claims and arguments presented in EDF NGL's PSR3 report and the supporting documentation, ONR has concluded that sufficient justification has been provided to support the continued 'operations' of the Hunterston B power stations, as stated above, until the next Periodic Safety Review on or before 31 January 2027.
  21. Interim Inspection of Reactor 3 Graphite Core: On 13 January 2017, the licensee shut down Reactor 3 in accordance with a commitment made to ONR in May 2016 to inspect the condition of the graphite core. During the course of this shutdown, the station inspected 26 fuel channels and reported to ONR that it had discovered a further three bricks that exhibit Key-Way Root Cracking. Examination of a crack previously inspected in 2015 revealed two full height axial cracks in the bricks beneath. ONR has examined the full complement of inspection results and has been satisfied that the station may return to service and continue to operate safely for a period of three months under its current safety case. To operate for a further period up to January 2018, the licensee will provide a further safety case justification, which will be assessed by ONR.
  22. No Enforcement Notices were issued during the period.

## 4 NEWS FROM ONR

New reactors update:

- ONR received a request from Government to begin the Generic Design Assessment process for the UK HPR1000 in January. The reactor is now in Step 1 of the GDA process.
- On 30 March, ONR issued Design Acceptance Confirmation for the AP1000® nuclear reactor, designed by Westinghouse. The regulators required 51 GDA issues to be resolved before confirming suitability of the design.
- ONR granted its first consent for the start of construction at Hinkley Point C licensed site. The consent covers the placement of the structural concrete for the first nuclear safety-related structure at the site.
- On 31 March, Horizon Nuclear Power submitted its application for a nuclear site licence to build and operate two UK Advanced Boiling Water Reactors at Wylfa Newydd on Anglesey.

Quarterly statement of civil incidents

ONR published its quarterly statement of civil incidents reporting on the period October-December 2016. There was one incident which met ministerial reportable criteria at Dounreay involving contamination of workers' clothing. There was no detectable intake of radioactive material by any of the people involved in the incident.

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