



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

Report for period 1 September to 31 December 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 of the Hunterston B 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:
 - 3 – 4 October 2017
 - 10 – 11 October 2017
 - 21 – 23 November 2017
 - 5 – 7 December 2017
2. ONR's civil nuclear security inspectors, supported where appropriate by specialist inspectors, undertake quarterly inspections at Hunterston B. The quarter 4 planned inspections were undertaken on:
 - 22 – 23 November 2017
 - 6 December 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).
 - The Regulatory Reform (Fire Safety) Order 2005
 - The Nuclear Industries Security Regulations (NISR) 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, routine inspections of Hunterston B covered the following:
 - Licence condition 7 – Incidents on the site
 - Licence condition 11 – Emergency arrangements
 - Licence condition 28 – Examination, inspection, maintenance and testing
 - Licence condition 30 – Periodic shutdown
 - Licence condition 32 – Accumulation of radioactive waste
 - Licence condition 34 – Leakage and escape of radioactive material and radioactive waste
 - The Nuclear Industries Security Regulations (NISR) 2003
6. In general, ONR judged the arrangements made and implemented by the site in response to safety requirements to be adequate. 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. Reactor 4 was successfully and safely shutdown on 8 September 2017 for its three-yearly periodic shutdown. A majority of the ONR inspections pertaining to the shutdown were carried out in the previous reporting period. During this reporting period, ONR completed its inspection and assessment of the shutdown. The ONR inspections sought to confirm that inspections and maintenance activities were in accordance with the agreed maintenance schedule; that inspections of the core and other plant supported the claims made in the safety case; that plant safety improvements were made where reasonably practicable and remedial work was carried out to the satisfaction of ONR. Inspections during the period pertaining to the periodic shutdown were:
 - Licence condition 28 – On the 3 and 4 October, specialist Electrical and Control and Instrumentation (C&I) inspectors undertook a sample of the C&I and electrical engineering aspects of Reactor 4 / Turbine Generator 8 shutdown activities. This included discussions, explanations and demonstrations on: progress of the outage work activities, findings of significance, resolution of findings, deferred activities, a sample of documentation related to the outage work activities and a plant walk-down to observe the work. It was judged that the electrical and C&I work activities undertaken during the Reactor 4 shutdown, met the required standard and a ‘Green / Satisfactory’ rating was assigned for the inspection.
 - Licence condition 30 – On the 10 and 11 October, the Superintending, Project and Site Inspectors carried out an inspection of the Reactor 4 and Turbine Generator 8 work areas and attended the reactor re-start meeting. The purpose of the inspection was to review the information and key findings from the start-up meeting report and determine whether any areas of the reactor were unsuitable for return to service. No issues that would affect the re-start of Reactor 4 were identified at the re-start meeting and the inspection was assigned a ‘Green / Satisfactory’ rating for the inspection.
8. Licence condition 11 – On the 22 and 23 November a team of ONR Security Inspectors and the Nominated Site Inspector assessed a level 1 demonstration exercise, of the Hunterston B emergency and security arrangements, for dealing with any incident on the site. The scenario was agreed with ONR before the exercise and provided a sound basis to test the station’s emergency arrangements. The exercise objectives were met and the postulated incident was brought under control in an acceptable timescale. ONR observed a number of areas of good practice and also some opportunities where further improvement could be made. These observations have been communicated in writing to the Station Director and will be monitored for progress by the ONR Nominated Site Safety and Security inspectors during routine inspection. ONR judged the emergency exercise to be an adequate demonstration of the Hunterston B emergency and security arrangements and assigned a ‘Green / Satisfactory’ rating.
9. Joint inspections were carried out by the ONR Nominated Site Inspector and Scottish Environment Protection Agency (SEPA) Site Inspector on the 21 November. We inspected the Low Level Waste (LLW) facility where it was found that for:
 - Licence condition 32 - The requirement that the rate of accumulation and total quantity of radioactive waste accumulated is minimised so far as is reasonably practicable was not being met. We were however satisfied with the action being taken by the station, as the hazard is low and a programme of work is

established to address this issue during 2018. We therefore assigned a rating of 'Green / Satisfactory' (no formal action) for Licence condition 32.

- Licence condition 34 – The requirement that radioactive material and radioactive waste are adequately controlled or contained so that they cannot leak was also not being met as some of the LLW packages were not adequately contained. We were however satisfied that the programme of work mentioned above would adequately address this matter. The station was also non-compliant with aspects of the station's arrangements for categorisation and reporting of radioactive leaks. Whilst a regulatory issue was raised to address this matter we were satisfied that no formal action was required and therefore assigned a rating of 'Green / Satisfactory' rating for Licence condition 34.
10. The Nuclear Industries Security Regulations (NISR) 2003 - On the 6 December an ONR Security inspector supported by a specialist C&I inspector carried out an inspection of Computer Based Systems Important to Safety (CBSIS). Whilst this inspection was rated 'Green / Satisfactory' a number of areas were identified where the Station can make improvements.
 11. During this quarter, ONR also conducted a themed inspection on organisational learning. This examined compliance against licence condition 7 (Incidents on the site) and IAEA relevant good practice.
 - Licence condition 7 – On the 6 and 7 December the Site Inspector supported by specialist Leadership for Management and Human Factors inspectors conducted a themed inspection on organisational learning. The purpose of the inspection was to examine how lessons from internal and external sources are learnt to continuously improve leadership, organisational capability, safety decision making and safety performance. Overall, based on the evidence sampled, inspectors judged that the legal requirements were being met and the station has arrangements in place for trending and utilisation of operational experience. It was also evident that organisational learning is valued and is considered to be routine business with strong management commitment. Some opportunities where the station can improve the effectiveness of its organisational learning process were identified.
 12. In addition to our routine compliance inspections based on the conditions attached to the nuclear site licence and theme based inspections, 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.
 - During this quarter, no system based inspections (SBIs) were carried out due to ONR focussing on the Reactor 4 periodic shutdown.

3 NON-ROUTINE MATTERS

13. 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.
14. 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.

15. During this period, the site inspector reviewed incidents that met the criteria for routine reporting to the ONR under the site's licence condition 7 arrangements. The site inspector sampled the station's follow up reports and corrective actions. From the evidence sampled, the inspector was satisfied that the reported incidents had been adequately investigated and appropriate event recovery actions identified. Matters and events of particular note during the reporting period were:
- During the performance of re-commissioning tests on a safety system, prior to the re-start of reactor 4, a leak was identified on a nitrogen supply line and an associated non-return valve was found to be not operating correctly. The ability to inject nitrogen is an important safety system as it provides a secondary means of shutting down the reactor in the event that insufficient control rods enter the reactor to shut it down. Station took the appropriate action, prior to restart of Reactor 4, to correctly install the non-return valve and to repair the leak by replacing it with a new section of pipework and performing the associated leak tests. The learning from this event continues to be investigated.
 - During the performance of re-commissioning tests on a component of the Reactor Shutdown Sequencing Equipment, prior to the re-start of reactor 4, it was identified that there was a fault with an 11 kV Diesel Generator (DG). This DG failed to automatically supply power to the Gas Circulators which provide cooling to the reactor. Under normal operating conditions the Gas Circulators are supplied from the National Grid. In the event of a loss of grid event the gas Circulators are powered from an independent electrical supply derived from diesel generators. It is only in the event of a loss grid followed by a loss of the first level of DGs that the secondary 11 kV DG automatically switches to provide power to the Gas Circulators. The station has determined that the fault lies within the automatic switching to the 11 kV DG and not with the operation of the diesel generator itself. The 11 kV DG can be manually restarted from the Central Control Room in order to restore the safety function. ONR was satisfied with the argument presented by the station; the loss of the national grid supply followed by a loss of the first level of DGs is a low probability event and that manual action to restore the 11kV DG and restart gas circulators would be acceptable response whilst the event is investigated.

4 REGULATORY ACTIVITY

16. 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.
17. During this quarter, ONR completed its assessment of the periodic shutdown of Reactor 4. On completion of a periodic shutdown the reactor concerned cannot be started up without consent from ONR under Licence condition 30(3). The Project Assessment Report (PAR) which summarises ONR's inspection and assessment activities during the period shutdown did not identify any matters that would prevent the restart of Reactor 4. Consequently LI number 558 was issued to the station on the 6 November 2017 which granted consent to the re-start of Reactor 4.
- The PAR of the Reactor 4 periodic shutdown will be published in due course at: <http://www.onr.org.uk/pars/2017/index.htm>
18. During the C&I inspection on the 3rd October 2017, the specialist inspector identified that personnel working on Turbine Generator 8 had been provided with a laptop that

had not been through the station process for the cyber security of plant computers. While the laptop in question was not connected to the network this was a contravention of the approved security plan for the station which is a requirement the Nuclear Industries Security Regulations (NISR) 2003 Regulation 4. A formal enforcement letter was issued to the station that noted a contravention of NISR Regulation 4 and to secure corrective action to address the causes of the event.

19. No Enforcement Notices (Improvement or Prohibition notices) were issued during the period.

5 NEWS FROM ONR

New build:

New nuclear power station design approved

20. The UK Advanced Boiling Water Reactor (UK ABWR), designed by Hitachi-GE, is suitable for construction in the UK, the regulators confirmed following completion of an in-depth assessment of the nuclear reactor design. The Office for Nuclear Regulation (ONR), the Environment Agency and Natural Resources Wales, the regulators who undertake the Generic Design Assessment of new reactor designs, are satisfied that this reactor meets regulatory expectations on safety, security and environmental protection at this stage of the regulatory process.
21. ONR has issued a Design Acceptance Confirmation (DAC) and the environment agencies have issued a Statement of Design Acceptability (SoDA) to Hitachi-GE.

Step 2 of nuclear reactor assessment

22. We also announced on 16 in November that we are progressing to the next phase of our assessment of General Nuclear System Ltd's UK HPR1000 reactor technology. This means we will now begin the technical assessment phase. Additionally, all members of the public can give their views and find out more information about the design by going to UKHPR 1000 website at www.ukhpr1000.com

Other news:

ONR response to BEIS impact assessment

23. The Department for Business, Energy and Industrial Strategy (BEIS) has recently published its Impact Assessment of the Nuclear Safeguards' Bill and that makes reference to ONR's regulation.
24. We contacted BEIS to clarify two points within the document as part of our ongoing constructive engagement with them to develop a domestic safeguards regime as part of exiting Euratom.
 - The first is that ONR regulates the nuclear industry, it does not provide services to it.
 - Secondly, the Government's policy has developed since the assessment was undertaken and the intention is to put in place a regulatory framework which is robust and as comprehensive as Euratom. This means that we are not in a position to identify potential efficiencies in our regulatory approach at this stage.
25. As we support BEIS in its development of secondary legislation, we will provide advice to the Government to inform the anticipated impact assessment for nuclear safeguards regulation.

26. 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>).

CONTACTS

Office for Nuclear Regulation
Redgrave Court
Merton Road
Bootle
Merseyside
L20 7HS
website: www.onr.org.uk
email: ONREnquiries@onr.gov.uk

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