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

Report for period 1 April – 30 June 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 Sizewell sites stakeholder group and are available on the ONR website (http://www.onr.org.uk/llc/).

Site inspectors from ONR usually attend Sizewell sites stakeholder group 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

The ONR nominated site inspector made inspections on the following dates during the quarter:

5 – 7 April
19 – 21 April
10 – 12 May
17 – 18 May
8 – 9 June

ONR project and specialist inspectors carried out inspection visits on the following dates during the quarter:

6 – 7 April
18 – 22 April
27 April
3 – 5 May
10 – 12 May
17 – 18 May

ONR Chief Executive and Operational Reactors Superintending Inspector visited on the following dates respectively:

17 May
17 – 18 May

2 ROUTINE MATTERS

2.1 Inspections at Sizewell B

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).
- the Regulatory Reform (Fire Safety) Order 2005
- the Nuclear Industries Security Regulations 2003

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 majority of 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, the following routine licence condition compliance inspections were undertaken:

Licence Condition 4: Restrictions on nuclear matter on the site
Licence Condition 5: Consignment of nuclear matter
Licence Condition 8: Warning notices
Licence Condition 9: Instructions to persons on the site

Licence Condition 26: Control and supervision of operations
Licence Condition 28: Examination, inspection, maintenance and testing
Licence Condition 30: Periodic shutdown

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 nominated 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.

System Based Inspections

In addition to ONR's programme of site licence compliance inspections, we also inspect operating reactors based on safety related systems. Each reactor has a safety case, which identifies the important aspects of operation and management required for maintaining safety.

For Sizewell B, 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 site are safe. Each of these 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

During the reporting period, the following systems were inspected:

- In core neutron flux monitoring system, external core neutron flux and nitrogen (N16) monitoring system, and the reactor vessel level indication system.

The in-core instrumentation system is the method by which the in-core neutron flux is measured. The purpose of this system is to provide a three dimensional neutron flux map within the reactor core. The flux mapping system does not directly perform any safety functions but it does perform functions which are important to safety. The external neutron flux and N-16 monitoring system provides the reactor protection system with the necessary neutron flux and N-16 signals to ensure that a reactor trip or engineered safety feature actuation is initiated when demanded by the plant conditions.

Separately, the RVLIS (Reactor Vessel Level Indication System) was inspected. This system measures the level of coolant within the core and gives an indication to the operator in a post fault situation.

ONR judged that overall the systems met the requirements of the safety case and are being adequately managed and maintained.

Reactor Periodic Shutdown

During this period the main focus of regulatory intervention was the statutory reactor shut down for maintenance and refuelling (Reactor Outage 14). The outage began on 15 April 2016 and represented the fourteenth refuelling outage. In addition to the routine inspection and maintenance activities, a significant package of work was also completed including reactor coolant pump maintenance, generator transformer phase replacement, completion of beyond design basis accident mechanical tie-ins and the 10 yearly American Society of

Mechanical Engineers (ASME) XI in service inspection (ISI) of reactor components including the reactor pressure vessel (RPV).

This outage was the end of the second 10 year operating interval and as such, a large programme of inspection work was required on the RPV to meet the ASME XI code inspection requirements. This required the use of complex equipment; including a large robotic arm capable of positioning inspection probes on the inside surface of the RPV. These inspections provided additional information to support the safety case for the RPV and demonstrated that the core shell region is not affected by hydrogen flake defects which had been identified in other Pressurised Water Reactor RPVs at Doel 3 and Tihange 2 in Belgium.

During the outage, ONR was informed by Areva and the French nuclear safety regulator ASN that a quality audit had revealed historical production anomalies at their Le Creusot plant. ASN initiated a review and a total of 22 components were identified as being supplied by Creusot Forge for the Sizewell B project. Areva subsequently confirmed that none of the anomalies relate to forgings supplied to Sizewell B. ONR reviewed the Sizewell B lifetime records held by NGL in order to provide additional confidence in the quality documentation for the reactor components in advance of the return to service. An ONR structural integrity specialist subsequently visited the fabrication facility in France to inspect the original component records – these were judged to be acceptable.

In the outage period, ONR inspectors carried out assessments and a programme of visits to the station to inspect the work being undertaken by EDF NGL. ONR found the arrangements to be adequate with no safety findings to prevent ONR granting consent to start up the reactor. This work was used to support ONR's decision to grant consent to start up the reactor at Sizewell B, issued on 31 May 16. Further details of ONR's assessment can be found at http://www.onr.org.uk/pars/2016/sizewell-b-16-004.pdf.

Conventional Health and Safety Inspection

The ONR conventional health and safety inspector visited the site during this period to inspect arrangements for managing conventional health and safety. A number of areas of good practice were observed during the visit in addition to some areas for improvement, which were captured by actions with NGL. Progress against these actions will be monitored through correspondence with the site.

Regulatory Reform (Fire Safety) Order 2005

The ONR fire safety inspector conducted an inspection of fire safety at Sizewell B power station to ensure that the licensee was compliant with the requirements of the Regulatory Reform (Fire Safety) Order 2005. The inspection focused on the themes of fire safety management and practical fire safety provision. Overall, in the areas inspected, the inspector considered that Sizewell B demonstrated an adequate level of fire safety provision and management.

Further details of ONR's intervention records can be found at http://www.onr.org.uk/intervention-records.

2.2 Other work

Visit of ONR Chief Executive Adriènne Kelbie

During this period the ONR Chief Executive Adriènne Kelbie visited the station, hosted by the station director and technical safety support manager. She received an overview of the site's key performance areas and current matters of interest to ONR including plant operation. The Chief Executive was given a site tour of the main control room, fuel building, containment and the visitors centre. She found the visit informative and supportive in the context of the ONR strategic plan.

3 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.

From the reporting sampled during this period, the ONR inspector is satisfied that incidents reported on the site are being adequately recorded, investigated and reported by the licensee. No other matters of concern have been raised that require further regulatory action at this time.

4 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 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
04 Mar 2016	Specification	LI 548	Specification under condition 23(4)
26 Apr 2016	Approval	LI 549	Approval under 23(4)
31 May 2016	Consent	LI 550	Consent to start up reactor following shutdown

Reports detailing regulatory decisions can be found on the ONR website at www.onr.org.uk/pars/.

ONR issued Licence Instrument No.549 on 27 April 2016 under Licence Condition 23(4), granting approval to implement a new single operating rule relating to conditions and limits of operation necessary in the interests of safety. All previously approved operating rules were withdrawn as part of this approval. The revised approach will still require the licensee to seek ONR's agreement to any significant changes whilst allowing any minor changes, typically of an administrative nature, to be undertaken by NGL.

5 NEWS FROM ONR

Chief Nuclear Inspector's annual statement

ONR published its Annual Report and Accounts 2015/16 on 7 July. As well as reporting on ONR's performance, the report includes the Chief Nuclear Inspector's annual statement, which provides a judgement on the regulatory attention necessary for each licensed site, dependent on the level of hazard and risk posted by the facility. The Annual Report and Accounts can be viewed on the ONR website.

New regulatory structure

ONR has recently reviewed its organisational arrangements to ensure that our regulatory structure is appropriately focused to deliver front-line regulation over the next few years. To maintain effective and proportionate regulation, and to address potential and actual

imbalances in the current workloads of the programmes, we have created three nuclear safety programmes, each led by a Deputy Chief Inspector. These programmes are:

- A new reactors programme dealing with design assessment, licensing and construction of civil reactors.
- An operating facilities programme dealing with operating reactors, defence sites and other operating facilities.
- A Sellafield, decommissioning, fuel and waste programme dealing predominantly in decommissioning and waste.

You can view ONR's organisational structure and full regulatory structure on our website.

Chief Nuclear Inspector Summary Plan for 2016/17

The CNI Summary Plan outlines high level regulatory milestones to deliver ONR's Strategic Plan to 2020 and ONR's approach to the delivery of safety and security regulation across the UK's nuclear reactors and facilities. It was published on 11 July and is available on the ONR website.

Regulation Matters magazine

Insight into ONR's work as an independent regulator of the nuclear industry can be found in Regulation Matters. This 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.

For the latest news and updates from ONR, you can also visit the website and sign up for our e-bulletin: http://www.onr.org.uk/index.htm.

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