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

Report for period 01 January - 31 March 2014

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 Dungeness SSG and are also available on the ONR website (http://www.onr.org.uk/llc/).

Site inspectors from ONR usually attend Dungeness SSG 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 site inspector or ONR project inspector made inspections on the following dates during the quarter:

13, 14, 15, 16, 28, 29, 30 January
17, 18, 19, 20 February
3, 4, 5, 6, 11, 12 March

ONR specialist inspectors made inspections on the following dates during the quarter:

14, 15 January - Electrical engineering
18 February - Electrical engineering
18 February - Nuclear licensing
3, 4, 5, 6 March - Radioactive waste

An ONR superintending inspector made inspections on the following dates during the quarter:

18, 19 February

Health and Safety Executive (HSE) Hazardous Installations Directorate (HID) inspectors made inspections on the following dates during the quarter:

19 March - Control of Major Accident Hazards Competent Authority

2 ROUTINE MATTERS

2.1 Inspections

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 etc 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 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.

In this period, routine inspections of Dungeness B covered the following:

- modification or experiment on existing plant;
- operating rules;
- operating instructions;
- operational records;
- accumulation of radioactive waste;

- organisational capability;
- attending an emergency planning consultative committee meeting;
- observing the annual counter terrorism exercise;
- attending the Dungeness Site Stakeholder Group meeting;
- meeting safety representatives.

The operating rules inspection was on the theme of technical specification compliance. I noted in my previous quarterly report that I would report this in the routine matters section of a future SSG report. Both Dungeness B and myself had identified an adverse trend in this area and at the time of my inspection Dungeness B had prepared a draft investigation report and corrective action plan. I reviewed these and made suggestions which were taken into account. I am content with Dungeness B's final corrective action plan and I will raise an ONR compliance issue to monitor its implementation and the expected improvements. Further details will be published in the executive summary of my February 2014 Intervention Report (see http://www.onr.org.uk/intervention-reports/index.htm).

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.

From April 2013, ONR has started to change the way it inspects nuclear power stations. In addition to our compliance inspections, based on the conditions attached to a licence, we are now inspecting operating reactors based on safety related systems. Each site has a safety case which demonstrates how it operates safely. For advanced gas cooled reactors, each of approximately 30 key systems will be inspected against the claims made upon them in the safety case. The aim is to systematically inspect all the significant safety related systems within a five year cycle. 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 two systems were inspected: 'electrical - short break supplies' and 'liquid radwaste'.

For the electrical - short break supplies system based inspection then based on interviews, review of documentary evidence and walking down the system we confirmed that the safety case claims sampled were met. Improvement actions were raised relating to licence condition 23 (operating rules). Further information is at http://www.onr.org.uk/intervention-reports/2013/dungeness-b-13-015.htm.

For the liquid radwaste system based inspection then based on interviews, review of documentary evidence and walking down the system we confirmed that the safety case claims sampled were met. Improvement actions were raised relating to licence condition 23 (operating rules) and licence condition 28 (examination, inspection, maintenance and testing). The improvement actions relating to licence condition 23 were significant enough for the ONR radioactive waste specialist inspector to write to Dungeness B. Further information will be published in the executive summary of my March 2014 Intervention Report (see http://www.onr.org.uk/intervention-reports/index.htm).

2.2 Other work

The site inspector held a periodic meeting with safety representatives, to support their function of representing employees and receiving information on matters affecting their health, safety and welfare at work.

The site inspector attended an emergency planning consultative committee meeting on 16 January.

The site inspector observed the annual counter terrorism on 29 January as part of joint regulation with ONR civil nuclear security.

The site inspector attended the Dungeness SSG meeting on 29 January.

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.

Matters and events of particular note during the period were:

- During the quarter three events were reported that were categorised by EDF Energy Nuclear Generation Ltd (NGL), the licensee, as "Technical Specifications Non-Conformance Events". In terms of ONR's guidance for notifying and reporting incidents and events this corresponds to category NS05 "Any operation or condition of plant that is prohibited by operational limits and conditions or operating rules". These three events were also categorised by NGL as "Discovery that Safety Related Plant is in an Inappropriate Configuration or Duty". The first such event occurred on 23 June 2013. The event was initially categorised by NGL at a level that did not require notification to ONR. Following completion of the NGL investigation the event was recategorised and reported to ONR on 6 January. The licensee has assigned a final International Nuclear and radiological Event Scale (INES) rating of 1 (anomaly) to this event. The event relates to misalignment of a valve in the Additional Feed System. The second event occurred on 17 January. The licensee has assigned a final INES rating of 0 (no safety significance) to this event. The event relates to inappropriate configuration of a battery used to energise gas circulator tripping supplies. The final event occurred on 7 February. The licensee has assigned a final INES rating of 0 to this event. The event relates to inappropriate configuration of a Direct Current charger. The INES 1 event has been followed up individually by an ONR project inspector in line with ONR guidance, whilst Technical Specification compliance was considered as a theme in February, as noted before. NGL's corrective action plan relating to Dungeness B Technical Specification compliance is being tracked via an ONR compliance issue. I do not plan to discuss any of these events in future SSG reports.
- On 12 February Reactor 21 was manually tripped following unexpected closure of a steam system valve. There were no issues during reactor shutdown and establishment of post trip cooling. The licensee has assigned an initial INES rating of 0 to this event. I intend to follow up this event once NGL's investigation has been completed but I do not plan to discuss this event in future SSG reports.
- On 15 March a reduction in Reactor 21 power occurred without manual intervention. This may be due to an issue with the Reactor 21 Data Processing System (DPS). The licensee has assigned an initial INES rating of 0 to this event. An ONR control & instrumentation specialist inspector will follow up this event at site during a visit associated with the now ongoing Reactor 21 periodic shutdown. I will decide whether or not to discuss this event in future SSG reports once I receive his feedback.

- Reactor 21 was manually shut down on 21 March as planned to start its periodic shutdown.
- In my previous quarterly report attention was drawn to an event on 20 October 2013 involving isolation of cooling to two Buffer Store (BS) tubes containing irradiated fuel. I noted in that report that the actual safety consequences were negligible: there had been a negligible rise in fuel temperature during the period in which cooling had been isolated in error. I completed the follow up of this event in January. I have now considered the potential safety consequences of this event. I have established that if the BS tubes had contained irradiated fuel with the maximum heating allowed by the safety case, there would have been multiple alarms both locally and in the central control room for a period of approximately 40 hours before fuel damage might occur. Cooling could have been restored promptly at any time in this period, which would have prevented fuel damage. I therefore judged that application of ONR's Enforcement Management Model (EMM) process would not lead to an initial enforcement expectation of an Improvement Notice, a Direction or a Specification. On this basis my future follow up of this event will consider implementation of NGL's corrective action plan. I do not plan to discuss this event in future SSG reports.
- In my previous quarterly report attention was drawn to the Loss Of Offsite Power (LOOP) on 28 October 2013. I noted in that report that people performed well and key safety related plant for reactor post trip cooling performed adequately, with adequate margins available in terms of both redundant plant and available stocks of fuel and water. I also noted that reasonably practicable improvements should be made to other safety related plant to improve resilience and reduce the demands on personnel and that ONR would review NGL's investigation once it was complete. An ONR electrical engineering specialist inspector and myself followed up this event further in February. We concluded that NGL had conducted a rigorous investigation. However, one of the established root causes of the LOOP was NGL's failure to implement and embed learning opportunities from a partial LOOP event at DNB in 2003. Because of this I requested and have now received an Integrated Corrective Action Plan dealing with the recent LOOP and those recommendations from the 2003 event which had not been satisfactorily closed. I have raised an ONR compliance issue to monitor progress with the Integrated Corrective Action Programme until its completion. I do not plan to discuss this event in future SSG reports.
- In my quarterly report for 1 April to 30 June 2013 I noted an event on 15 May 2013 associated with new research into potential sea flooding of the site. I noted that in response NGL has committed to fully restore the sea flooding design basis for Dungeness B by building a protective wall around the site by the end of 2013 and that I will discuss sea flooding again in a future SSG report once this flood wall has been built. This flood wall was completed at the end of March 2014. Since my 1 April to 30 June 2013 SSG report, ONR has continued to monitor NGL's physical protection and underpinning safety case work and ONR considers that NGL is making satisfactory progress in improving the Dungeness B flood defences, taking into account the technical challenges associated with the work and the need to ensure high confidence in the completed work. The flood wall provides effective protection for the whole site against predicted 1 in 1,000 year sea states. Local flood protection work around key equipment has also been completed so that equipment to support post-trip cooling has been qualified against predicted 1 in 10,000 year sea states. The reason the flood barrier is not claimed to provide protection against predicted 1 in 10,000 year sea states relates to limitations of recent scale model physical testing of wave action on the shingle bank, which forms a

barrier to sea flooding between the sea and the now completed flood wall around the whole site. For predicted 1 in 10,000 year sea states roll back of the shingle bank towards the site, allowing water to overtop the flood wall, cannot be discounted. A final stage of whole site flood protection work will therefore involve construction of a rock armour wall to the rear of the shingle bank. This will provide protection for the whole site against predicted 1 in 10,000 year sea states. This rock armour wall will be in place by the end of October 2014. As noted above, prior to completion of this rock armour wall, equipment to support post-trip cooling has been locally protected against predicted 1 in 10,000 year sea states. I will provide a final statement on sea flooding in a future SSG report once the rock armour wall is in place.

4 REGULATORY ACTIVITY

ONR inspectors, specialist inspectors and HSE inspectors 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.

LI 544 was issued to permission the replacement of existing reactor safety circuit equipment. This equipment includes a unit to trip (i.e. automatically shut down) a reactor if the rate of change of reactor pressure exceeds set limits. The equipment to be replaced was around 30 years old and obsolete, making it difficult to maintain, and the trip units contain neoprene which can degrade and become conductive, potentially impairing performance. The replacement equipment is a modern design, and is intended to achieve the same functionality as the existing equipment.

- The following LIs and Enforcement Notices have been issued during the period:

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

Date	Type	Ref No	Description
28/01/14	Agreement	544	Agreement to NP/SC 7523 Reactor Safety Circuits - Reactor Coolant Pressure Rate (DP/DT) Trip Unit and Pressure Transmitter Replacement

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

5 NEWS FROM ONR

Insight into ONR's work as an independent regulator of the nuclear industry can be found in ONR's Quarterly News. The online publication (http://www.onr.org.uk/onr-quarterly-report.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).

ONR is changing
On 1 April 2014, the ONR was established as a Public Corporation under the Energy Act 2013. The Energy Act 2013 sets out the legal framework for regulation of GB nuclear sites by

the ONR. In addition, the ONR has the powers to regulate conventional health and safety on GB nuclear sites. ONR now has its own logo, which will be used on all documents and other external communication media. Other notable changes include a new website and publication of an Annual Plan for 2014/15.

6 CONTACTS

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