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

Report for period 1 July - 30 September 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 of the Dungeness Site Stakeholder Group (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 made inspections on the following dates during the quarter:

9, 10, 21, 22, 23, 24, 25 July
4, 5, 6, 7 August
15, 16, 17, 18, 19 September

A new ONR nominated site nuclear safety inspector took over responsibility for Dungeness B on 1 October 2014. The incoming nuclear safety site inspector participated in inspections on 16, 17 and 18 September.

A team of four ONR inspectors observed the annual Level 1 emergency exercise (named “Elk”) on 23 July.

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

16, 17 September – System based inspection (mechanical engineering specialist)
17, 18 September – Fire meeting and walkdown (internal hazards specialist)

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:

- incidents on the site;
- emergency arrangements (annual Level 1 emergency exercise);
- operating rules;
- operating instructions;
- organisational capability;
- review ONR issues database;
- attending an emergency planning consultative committee meeting;
- meeting safety representatives.

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.

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, one system was inspected: 'Shutdown Systems – Control Rod System'. Based on the information sampled, we made an overall judgement that the relevant safety systems and structures are able to meet the safety function requirements defined in the safety case and are adequate. An action was raised with the site relating to licence condition 23 (operating rules). Further information is provided in the executive summary of ONR Civil Nuclear Reactor Programme (CNRP) Intervention Record (IR) 14-117 (http://www.onr.org.uk/intervention-records/2014/dungeness-b-14-117.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 10 July.

Annual Level 1 Emergency Exercise (Named "Elk")

A team of four ONR inspectors observed the annual Level 1 emergency exercise (named "Elk") on 23 July. The exercise was considered to be challenging and well planned. Challenges included a release of gas from a reactor, a fire, relocation of the gatehouse and the emergency control centre to alternative locations, casualties and missing persons.

ONR concluded that the exercise provided an adequate demonstration of Dungeness B's emergency arrangements. Further information is provided in the executive summary of CNRP IR 14-111 (http://www.onr.org.uk/intervention-records/2014/dungeness-b-14-111.htm).

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 two events were reported related to enhanced tritium levels. The first, involving measurements from water extracted from bore hole 66[1], occurred on 25 July. This led to EDF Energy Nuclear Generation Ltd (NGL), the licensee, searching for the source. The second, related to discovery of a hole in pipework containing carbon dioxide / nitrogen gas from between the reactor gas circuit and the nitrogen plant, occurred on 29 August. NGL considers that the 2 mm hole discovered on 29 August is the source of the enhanced tritium reported on 25 July[2]. The licensee has assigned a final International Nuclear and radiological Event Scale (INES) rating of 1 (anomaly) to the 29 August event, which updated the provisional INES rating of 0 (no safety significance) assigned to the 25 July event. NGL has provided information relating to these events at https://www.edfenergy.com/news/edf-energy-update-local-stakeholders-dungeness-b-%E2%80%93-september-2014. The Environment Agency (EA) and ONR continue to closely monitor NGL's response to these events. At all times, elevated tritium levels in groundwater were restricted to a localised area well within the site boundary and no route existed to expose members of the public. NGL is undertaking a Significant Adverse Condition Investigation (SACI), continuing to monitor bore hole 66 and reporting results to regulators. ONR will follow up these events once NGL's SACI has been completed and NGL's monitoring supports no ongoing release of tritium. ONR has requested NGL to estimate the total inventory of tritium released as a result of these events. This is still being determined by NGL and will be advised to ONR in due course. Once this is available, it will be assessed against the notification levels specified in Schedule 8, Column 4 of the Ionising Radiation Regulations 1999, which are criteria for ministerial reporting. A further update will be provided in the next SSG report.

- During the quarter, five events involving unplanned shutdowns of the reactors were reported (on 10 July, 1 August, 3 August, 22 August and 25 September). Four involved automatic trips and one involved a manual trip. All these unplanned shutdowns were assigned final INES ratings of 0 by NGL. No failures of automatic post trip equipment occurred in these trips. ONR considered the topic of unplanned shutdowns at Dungeness B in July (http://www.onr.org.uk/intervention-records/2014/dungeness-b-14-104.htm). NGL had identified an adverse trend in unplanned shutdowns as a fleet wide topic. As a result they had introduced a Significant Learning Oversight process and in addition completed an analysis of unplanned shutdowns at four stations

[1] Bore hole 66 is in the general area of bore hole 121, from which elevated tritium measurements were reported to ONR on 13 December 2012. Elevated tritium from bore hole 121 has been discussed in the ONR Dungeness B SSG reports for 1 October – 31 December 2012, 1 January – 31 March 2013, 1 April – 30 June 2013 and 1 July – 30 September 2013. It is possible that the bore hole 121 and bore hole 66 events share a common source.

[2] Further measurements indicating a continuing decrease in tritium levels from bore hole 66 will be needed to confirm this.

over the last five years. I considered these developments as capable of producing improvement. However, unplanned shutdowns at Dungeness B are still occurring at a significant rate and ONR is considering further interventions on this topic. I do not plan to discuss these specific unplanned shutdowns in future SSG reports.

- During the quarter, three events were reported (3 August, 7 September, 24 September) which in terms of ONR's guidance for notifying and reporting incidents and events correspond to NS06 "Any uncontrolled or unplanned reactivity excursion". These were each caused by problems with the ageing and obsolescent Data Processing System (DPS). These events are being investigated by NGL. However, since the DPS will be replaced over the next few months, ONR will not follow up these events but instead will give priority to permissioning the change to the replacement system. This permissioning work will be reported in the "Regulatory Activity" section of the next SSG report for Dungeness B.

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.

- No LIs or Enforcement Notices were issued during the period.

During the period, ONR issued a letter to NGL relating to Dungeness B Plant Life Extension (PLEX). The PLEX decision does not require issue of a LI since it is NGL's decision alone. However, NGL and ONR agreed jointly that it would be beneficial for ONR to review selected Dungeness B PLEX documentation. ONR undertook a project to do this, leading to issue of an ONR letter supported an ONR Project Assessment Report (PAR). Due to public interest in NGL's PLEX decision relating to Dungeness B, the PAR has been published on the ONR website, after redaction where appropriate (see http://www.onr.org.uk/pars/2014/dungeness-b-14-008.pdf).

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).

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