



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

Report for period 1 October 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 to members of the Dungeness Site Stakeholder Group and are also available on the ONR website (<http://www.onr.org.uk/lrc/>).

Site inspectors from ONR usually attend Dungeness Site Stakeholder Group meetings where these reports are presented and will respond to any questions raised there. Any person wishing to enquire about matters covered by this report should contact ONR.

TABLE OF CONTENTS

1	INSPECTIONS	3
2	ROUTINE MATTERS.....	3
3	NON-ROUTINE MATTERS.....	5
4	REGULATORY ACTIVITY	6
5	NEWS FROM ONR.....	6
6	CONTACTS.....	8

1 INSPECTIONS

1.1 Dates of inspection

ONR inspectors undertook inspections at Dungeness B Power Station, on the following dates during the quarter:

- 9-12 October
- 6-10 November
- 4-7 December
- 18-20 December

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 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 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.

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

- examination, maintenance, inspection and testing;
- management of operations including control and supervision;
- quality management;
- emergency preparedness;
- incidents on the site;
- staff training, qualifications and experience; and,
- conventional health and safety.

In general, ONR judged the arrangements made and implemented by the site in response to safety requirements to be adequate in the areas inspected. 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 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. ONR believes that this will provide more robust assurances of the site's safe operation and how the safety case is being implemented.

Within this period ONR conducted two systems based inspections: Main Electrical systems and Irradiated Fuel Disposal Facility systems. In both cases the ONR inspection team confirmed that the systems were being maintained and operated in accordance with the requirements of the safety case.

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. 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 legal requirements were 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.

2.2 Other work

2.2.1 Engagement with safety representatives

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.

2.2.2 Corrosion management

In November, ONR conducted an inspection to review the licensee's progress regarding corrosion under insulation and concealed systems. This visit was a follow-up inspection, to assess the adequacy of revised management arrangements related to the corrosion management programme. It was carried out in response to a number of actions raised from a previous ONR inspection which identified shortfalls with respect to the management and prioritisation of corrosion-related plant inspections and subsequent defect remediation activities.

ONR inspectors were satisfied that the station had demonstrated, for the nuclear safety significant systems sampled, they had a process to effectively manage significant corrosion-related defects. They were also able to show that known significant corroded plant that could challenge nuclear safety had been remediated. ONR judge that the station's corrosion management team is established and embedded, with reasonable levels of oversight and governance.

2.2.3 Flask operations

In November, ONR inspectors conducted an unplanned compliance inspection focussed on the flask receipt and dispatch operations, and the improvements made since an event in May 2017. Based upon the observations made during November's inspection, ONR inspectors judged that the station's management arrangements as required by Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (CDG) 2009 were not suitable and sufficient.

Post-inspection, the station director embargoed flask movements and a fully resourced improvement plan was implemented to address the shortfalls in the management arrangements. ONR conducted a further inspection in December to review progress against this improvement plan.

Based on the evidence sampled, the ONR inspectors judged that suitable progress was being made and witnessed improvements to the work environment, the operational controls and the training. ONR judged that the actions being taken by the station are addressing shortfalls in the management arrangements supporting compliance with CDG 2009. ONR will carry out a further inspection of the improvements in the new year.

2.2.4 Lifting operations and lifting equipment regulations (LOLER)

The station's arrangements for managing lifting activities were examined. These followed EDF's corporate arrangements which are designed to provide a means of ensuring consistent implementation of the LOLER regulations. The ONR inspector judged that the legal requirements are being met, noting that the station is improving its maintenance procedure to remove any inconsistencies.

2.2.5 Safety improvement permissioning activities

Nitrogen Plant

Dungeness B are in the process of replacing a proportion of their Nitrogen Injection System (NIS) (the secondary safety hold-down system required for specific fault scenarios in the event of the control rods not inserting for reactor shutdown). The existing plant for the supply of the nitrogen is aging and is a challenge to maintain. A new nitrogen storage and vaporisation plant and nitrogen supply pipelines are being installed to modern standards. The new plant is similar to that fitted at Hinkley Point B and Hunterston B and should improve the reliability and safety performance of the NIS.

Boiler Lifetime Modifications

A number of modifications were identified during the Dungeness B plant life extension (PLEX) work to mitigate against the effects of graphite weight loss and the increased likelihood of boiler tube failure as the Dungeness B plant ages. These modifications should reduce the likelihood of boiler tube failure and reduce the consequences should a failure occur. Both ONR and EDF recognise that these are important modifications to support the Dungeness B plant through the 2020's to end of generation. Therefore ONR are looking for timely completion of the modifications to ensure that the maximum safety benefit is gained. The work should be completed by 2021.

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.

During this period, the site inspector reviewed a number of 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 these incidents had been adequately investigated and appropriate event recovery actions identified. Matters and events of particular note during the period were:

In October, following issues on unit 21 feed system, an operational decision making (ODM) meeting was held. The ODM identified that the microwire filters located in the condensate system required repairing and, rather than carry out this work on load with an isolation rarely performed, the conservative decision to shut-down unit 21 to carry out the repairs was taken. The microwire filters are required to reduce debris movement and build up into the feed system, therefore managing plant condition. The affected microwire filters have been replaced and the station has reviewed the extent of condition across all the microwire filters. An investigation concluded that gaps in the operational and maintenance understanding of the plant have caused problems with the preventative maintenance programme. This indicates

that operation of the equipment may not have been as per the original full design intent. Actions are being taken to prevent reoccurrence. No further regulatory action is to be taken.

On 8 December 2017, alarms initiated for Condensate Polishing Plant (CPP) and Condensate Extraction Pump Discharge high conductivity. Initial investigations by the control room identified that all three condensate beds had increasing conductivity. As no adjustment had been made to dosing, the increases may potentially be the result of a condenser tube leak. A manual shutdown of Unit 22 was carried out in accordance with safety case requirements and all Post Trip Interlocks operated without any failures. On further investigation the condenser tube leak prediction was confirmed to be due to degraded tube plugs. The condenser tubes have been plugged over time using a number of different types of plug, and the station anticipated that this type of plug would require replacement due to degradation. The associated plugs on Unit 21 were replaced during the R21 statutory outage this year, with those on Unit 22 planned to be changed during the next statutory outage. During this manual shutdown the majority of the plugs were replaced with a small number of low risk plugs remaining, these will be changed during the next statutory outage on Unit 22. Following the replacement of the plugs the Unit was restarted without incident. No further regulatory action is to be taken.

ONR has been recently informed of an automatic trip on Unit 21. The Unit tripped whilst changing over Unit Supplies (electrical), as part of the unit load raise. Initial indications identify a fault with a relay switch in the unit electrical switchboard. All post trip interlocks operated without any failures. A forced outage organisation has been established and an appropriate investigation will be undertaken. ONR is monitoring the position and will consider what level of regulatory follow-up is required.

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.

5 NEWS FROM ONR

New build:

New nuclear power station design approved

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. 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

We also announced 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

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. 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 as 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. 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.

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>).

6 CONTACTS

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