

## Quarterly site report for Dounreay Nuclear Licensed Site

1 January to 31 March 2013

### Foreword

This report is issued as part of the Office for Nuclear Regulation's (ONR) commitment to make information about inspection and regulatory activities relating to Dounreay Nuclear Licensed Site available to the public. Reports are distributed quarterly to members of the Dounreay Site Stakeholder Group (DSSG) and are also available on the ONR website ([www.hse.gov.uk/nuclear/llic](http://www.hse.gov.uk/nuclear/llic)).

Site inspectors from ONR usually attend DSSG and will respond to any questions raised there by the members of the group. Any other person wishing to inquire about matters covered by this report should contact the ONR.

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## Inspections

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

- 14 to 17 January 2013
- 4 to 8 February 2013
- 11 to 14 February 2013
- 25 to 28 February 2013
- 11 to 14 March 2013
- 18 to 19 March 2013

## Routine matters

### Inspections at Dounreay Nuclear Licensed Site

Inspections are undertaken as part of the process for monitoring compliance with:

- (i) The conditions attached by HSE / ONR to the nuclear site licence;
- (ii) The Health and Safety at Work etc Act (HSWA) 1974; and
- (iii) Regulations made under HSWA (for example the Ionising Radiations Regulations 1999 and the Management of Health and Safety at Work Regulations 1999).

This entails monitoring licensee's actions on the site in relation to incidents, operations, maintenance, projects, modifications, safety case changes and any other matters which may affect safety. The licensees/operators are 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 the following routine inspections were undertaken:

### Annual Review of Safety Meeting

ONR inspectors participated in the Annual Review of Safety meeting. This comprised a summary of reports reviewing safety performance in the past reporting period, plus a look ahead to the key challenges that lay ahead. ONR has since written to DSRL conveying our views on the outcome of the meeting, the main points of which were:

- There continues to be positive engagement between ONR and DSRL.
- DSRL is making good progress with hazard reduction and decommissioning.
- DSRL continues to promote high standards of operational experience feedback.
- Although DSRL's Assurance Directorate continues to provide an effective challenge function, ONR believes it would benefit further from benchmarking against good practice elsewhere in the industry.
- ONR noted a contrast in the decommissioning working environment in the reactors and Fuel Cycle Area (FCA) and asked DSRL to review inconsistencies and take appropriate action.

## **Examination, Maintenance, Inspection and Testing**

ONR reviewed the results of camera inspections undertaken inside the reactor core of the Dounreay Fast Reactor (DFR). The inspections have confirmed the need to modify equipment to be deployed for the removal of breeder fuel assemblies due to the unexpected extent of historic damage to the reactor top plate and a number of fuel elements. Despite the additional work that is now necessary the camera inspections have proved invaluable because they have characterised the challenges that lie ahead and hence served to de-risk the overall project.

## **Management of operations including control and supervision**

### Leadership and Management Culture - FCA facilities.

Control and supervision arrangements within selected FCA facilities were reviewed. The review included consideration of the role of the Facility Manager and their interactions with facility staff. The house-keeping in the facility was satisfactory including maintenance and lay down areas. Overall, discussions with personnel and working practices evident gave confidence in the safety culture within the facility.

The inspection also considered techniques being used for reducing ionising radiation dose uptake associated with specific tasks. Due to the known high dose-rates within an area of one facility an intermediate change room and air fed suit area were being modified to allow operations to be undertaken more remotely. The inspection provided confidence in the safety culture within the facility and management commitment to dose reduction.

### Dounreay Safety Working Party

An ONR inspector attended a meeting of the Dounreay Site Safety Working Party (DSSWP) to evaluate its effectiveness. The inspector's considered the DSSWP to be a balanced and well-informed panel of site subject matter experts that provided appropriate challenge to safety submissions.

## **Modifications to plant, equipment and safety cases**

### Materials consolidation

ONR inspectors continued to engage with DSRL on the development of a new facility whose purpose is to characterise unirradiated fuel and repackage it in modern-standard fully-welded cans. The facility is necessary to ensure that the site's inventory of unirradiated fuel is stored in a form and within containment that is suitable for safe, long term storage and for transfer to Sellafield as part of the materials consolidation project.

### CIDAS cross-sites intervention

ONR specialist inspectors carried out an assessment of the criticality incident detection and alarm system (CIDAS) at Dounreay. This formed part of an intervention that ONR is carrying out across a number of UK nuclear chemical plant sites. The inspectors concluded that the CIDAS at Dounreay was in good working order and was well maintained, and no significant issues were raised. This intervention was a good example

of the cross-sites benchmarking activities that ONR undertakes from time to time with the aim of verifying consistency and identifying good practice and areas for improvement.

### Safety case implementation, DFR

Inspectors considered the adequacy of safety case implementation at DFR concentrating on the means by which DSRL ensures that radioactive material and radioactive waste is properly controlled or contained (Licence Condition (LC) 34). The inspection considered the overall safety envelope for the NaK (sodium-potassium alloy – DFR’s coolant) Destruction Plant and associated Ion Exchange Plant, including maintenance adequacy and the monitoring of key safety case limits and conditions. This was carried out by sampling key safety related components. The inspection provided adequate confidence that measures to control and mitigate leakage and escape of liquors are appropriate.

ONR inspectors identified some housekeeping problems and a potential for challenges to the delineation between work-faces. As the pace of decommissioning increases, this is an aspect that DSRL will need to consider carefully. The matters were discussed with facility management who responded promptly and positively.

## **Emergency preparedness**

### Scenario for Delta 49

ONR nuclear safety and nuclear security inspectors met DSRL to discuss the scenario for the Level 1 (that is, site-focussed) emergency exercise to be carried out on 18 September 2013. This exercise is designed to comply with regulatory requirements for both nuclear safety and security. An outline scenario was agreed, and this will be developed at further planning meetings.

### Dounreay response to Fukushima incident

Discussions continued on DSRL’s response to actions generated from the response to the Fukushima reactor incident in March 2011. This included the receipt of an update on improvements to the resilience of the reactor gas blanket and secondary circuit gas padding system. Although strictly outside the scope of international stress test requirements, which focussed on reactor cooling systems that are not applicable to Dounreay, DSRL took the prudent step to evaluate gas blanket resilience. ONR is satisfied that DSRL has undertaken a pragmatic and proportionate response to Fukushima.

## **Radiological protection**

An ONR specialist inspector carried out an inspection for compliance with the Ionising Radiations Regulations (IRR99) and LC18, Radiological Protection. This included consideration of staff training, risk assessment, identification of management controls and effectiveness of measures to ensure that radiation doses are as low as reasonably practicable. DSRL provided evidence that its doses on site are relatively low and the radiation protection system is working well. The inspector identified considerations for improvements in the areas of local rules, housekeeping and waste management: these were shared with the site’s senior management and will be followed up by ONR during future planned inspections.

From the areas examined in this intervention, ONR concluded that the licensee's arrangements for compliance with IRR99 and LC18 have been made and are being implemented adequately.

## **Decommissioning**

### ONR Senior Management visits

In February 2013 DSRL hosted two visits to site by ONR senior managers. The visits concentrated on Dounreay's progress with decommissioning, hazard reduction and waste management. ONR recognised the evident commitment of staff to deliver progressive decommissioning activities in a safe and timely manner. We noted much commitment, expertise and enthusiasm and several examples of real progress being made. ONR added that we see decommissioning as very important – for its own sake and because of its potential to impact on with wider nuclear industry.

## **Meeting Safety Representatives**

ONR inspectors met with safety representatives during the quarter from organisations employed across Dounreay, including DSRL and their contractors. We took the opportunity to discuss initiatives for safety representatives to have a greater influence and role within internal audit and inspection.

In general the arrangements made and implemented by the site in response to safety requirements were deemed to be adequate in the areas inspected. However, where improvements were considered necessary, satisfactory commitments to address the issues were made by the licensee, and the site inspectors will monitor progress during future visits. Where necessary, formal regulatory enforcement action will be taken to ensure that appropriate remedial measures are implemented to reasonably practicable timescales.

## 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.

## Incidents on the site

ONR inspectors met the head of DSRL Operational Experience Feedback (OEF) to consider a recent event related to the inadequate isolation of electrical supplies, in relation to previous electrical-related events. ONR questioned whether sufficient work had been undertaken to consider the implications of previous events, and DSRL agreed that all recent electrical events should be reviewed for further learning.

ONR inspectors also considered a recent small fire in a waste crate within a waste posting cell. A fire had occurred in the same cell in 2012. ONR was satisfied that the causes of the two events differed and so that there was no immediate read-across between the events. The cause of the most recent fire could not be pinpointed exactly however, DSRL's investigations concluded a range of possible root causes and action plans have been put in place to address each possible cause. The facility safety case considers the potential for this type of event to occur. In conclusion ONR considered that the actions taken in response to the event appeared appropriate.

## Regulatory activity

Under health and safety legislation, ONR site inspectors, and other 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. No LIs were issued during the period.

Further information relating to regulatory decisions can be found on the ONR website ([www.hse.gov.uk/nuclear/pars](http://www.hse.gov.uk/nuclear/pars)).

## News from ONR

Insight into more of ONR's work as an independent regulator of the nuclear industry can be found in ONR's Quarterly News which is produced every three months. [The online publication reports](#)<sup>[1]</sup> on the key themes and developments in each of ONR's regulatory programmes and provides an update about the ongoing changes at ONR, as it progresses toward becoming an independent statutory corporation.