

**Office for Nuclear Regulation (ONR)
Quarterly Site Report for
Dounreay**

Report for period 01 October 2013 – 31 December 2013

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 Dounreay Site Stakeholder Group (SSG) and are also available on the ONR website (www.hse.gov.uk/nuclear/ilc).

Site inspectors from ONR usually attend Dounreay 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 ONR site and specialist inspectors made inspections on the following dates during the quarter:

21 to 24 October 2013

11 to 14 November 2013

18 to 21 November 2013

10 to 12 December 2013

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

- the conditions attached by HSE / ONR to the nuclear site licence granted under the Nuclear Installations Act 1965 (NIA65) (as amended);
- 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).

3 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 Dounreay covered the following:

- Examination, Maintenance, Inspection and Testing
- Management of operations including control and supervision
- Staff training, qualifications and experience
- Incidents on the site
- Radioactive waste management
- Decommissioning
- Organisational capability

2.2 Examination, Maintenance, Inspection and Testing

- 4 ONR reviewed arrangements for the asset care of civil engineering structures. The arrangements include an inspection regime for all site structures. The documentation appears to indicate a comprehensive approach to managing civil structures.
- 5 Several buildings are due to be decommissioned and demolished prior to their next structural surveys. Dounreay Site Restoration Ltd. (DSRL) may need to revisit the survey programme if decommissioning is slowed down or halted.
- 6 The inspector questioned the way that DSRL manages civil structures which are not directly safety related but could fail and damage safety significant plant and equipment. Examples were quoted of inspections to a building roof and of a bridge on a site access road, both of which had pointed to significant structural faults and had led to refurbishment.
- 7 The inspector concluded that DSRL's arrangements are in place and are generally adequate. An inspection in 2014 will consider these arrangements in more detail and also their implementation.

2.3 Management of operations including control and supervision

Dounreay Nuclear Safety Committee (DNSC)

- 8 ONR completed its consideration of a DSRL proposal to amend the terms and conditions of the Dounreay Nuclear Safety Committee (DNSC). DSRL proposed adding the consideration of environmental matters to the remit of the extant DNSC, and to change the name of the committee to the Dounreay Nuclear Safety and Environment Committee (DNSEC). ONR's consideration of the proposal gave rise to no concerns, and ONR formally approved the revised terms of reference.
- 9 'Approval' in this context means that the revised terms of reference are fixed and cannot be altered without a further approval.

2.4 Staff training, qualifications and experience

- 10 The ONR report for July to September recorded that DSRL could not provide evidence to underpin the view that a member of the maintenance team was suitably qualified and experienced for a given task.
- 11 Since then DSRL has recognised that its arrangements could be strengthened. A matrix will be completed for all maintenance staff indicating the scope of work against which the person needs to be assessed. The matrix supplements existing steps in the arrangements including comprehensive training records, definition of competency for each staff member, and the one-to-one interview process which culminates in sign-off by a senior manager that a candidate is suitably qualified and experienced. There is also an annual performance appraisal which takes into account performance and behaviour as well as competency.
- 12 The inspector concluded that DSRL had responded positively to ONR's concerns and that there were no residual concerns.

2.5 Incidents on the site

- 13 ONR reviewed DSRL's compliance with Licence Condition 7, Incidents on the Site. The inspector considered effectiveness reviews which audit the implementation of actions and determine whether the intent had been met. If actions are not considered closed by the verifier then they can be re-opened as was evident by the sampling of two reviews. The inspector also noted that some actions appeared to be on-going for a significant period. Actionees are issued routine reminders and outstanding actions are discussed at the Site Safety and Environment Meeting.
- 14 The inspector concluded that whilst in general an adequate standard of compliance with Licence Condition 7 was demonstrated and that actions from investigations are tracked, they did not gain confidence that actions are proactively managed to closure. ONR will return to the matter on a later visit.

2.6 Radioactive waste management

- 15 ONR reviewed progress towards reducing the accumulation of low level waste (LLW). The inspector considered the safety case for the replacement supercompactor for LLW which is on site now and is due to be installed early in 2014. The inspector concluded that satisfactory progress is being made towards reducing the accumulation of LLW.
- 16 ONR undertook a plant inspection of a waste processing facility. The inspector observed the cleaning out of a waste process cell remotely in preparation for the receipt of the next load. There was no direct supervision of the waste cell operations but this appeared appropriate to the task in hand and the experience of the operators.
- 17 The inspector also observed preparations for the receipt of a flask and its transfer to the cell roof for unloading. An exclusion zone was set up and respiratory protection worn whilst the flask was unopened and then finally moved to the cell roof for discharge. The preparations were considered satisfactory.
- 18 During the facility visit it was clear that waste was being processed in a timely manner and transferred to the waste stores. Very little waste was present in the cells. There was also evidence that waste is being appropriately sentenced and minimised. Out of scope material had been segregated awaiting collection. The inspection gave confidence in the implementation of arrangements for control and supervision and accumulation of radioactive waste.

2.7 Decommissioning

FCA decommissioning

- 19 ONR inspected decommissioning progress in facilities within the Fuel Cycle Area (FCA). This included discussion on the options available to DSRL in areas where the amount of radioactive contamination precludes personnel access. Waste packaging requirements were considered.
- 20 Facility inspections were undertaken and no issues were recorded. Housekeeping standards were inspected and considered satisfactory. (ONR inspectors routinely monitor the standards of housekeeping on facilities because this is a recognised measure of facility management in general.)
- 21 The inspector was content that FCA decommissioning work was progressing satisfactorily.

Reactor decommissioning

- 22 ONR carried out an inspection of the Prototype Fast Reactor (PFR) and Dounreay Fast Reactor (DFR) to verify compliance with Licence Condition 35 (Decommissioning). This included consideration of the extant Lifetime Plan (LTP) which is currently under review primarily with the objective of adding resources.
- 23 The inspector observed ongoing work to repair one of the PFR main cranes. The crane is fitted with equipment to prevent dropped loads when the reactor was at power and this modification had historically reduced reliability. DSRL had therefore decided to overhaul the crane. The inspector also observed progress with the removal of reactor equipment such as redundant fans and filter galleries and of two diesel generators.
- 24 The inspector concluded that, at PFR and DFR there exist adequate arrangements for the decommissioning of both facilities, and that the ongoing review of each of the Lifetime Plans (LTP) appears to be well managed with the objective of ensuring the facility LTPs are both comprehensive in hazard removal and are properly resourced.

2.8 Organisational capability

Site Funding Limit

- 25 In conjunction with the Scottish Environment Protection Agency, ONR met DSRL and the Nuclear Decommissioning Authority (NDA) to discuss the annual site funding limit. Due to changes in the fuel strategy and the security enhancement programme, more work has been added to the site's plan of work. DSRL's assessment is looking at the overall strategy for delivering the programme, which may require a re-sequencing of work that can be delayed without impacting on the performance of other projects. There is a potential for further organisational change and for DSRL to review and possibly delay or slow down some activities on the site.
- 26 The regulators said that DSRL should consider fully the completeness and interconnectivity of projects when drawing up its proposals. We added that DSRL should also pay special attention to the effects of changes on people, because a workforce that is demotivated is unlikely to deliver adequate progress
- 27 Regulators will continue to engage with DSRL and NDA and expect to see DSRL's prioritisation proposals early in 2014.

Organisational Change

- 28 The ONR report for July to September 2013 recorded that DSRL had undertaken a significant number of organisational changes recently and more are planned in the near future. The number and scale of changes are of potential concern because they increase the risk of confused management chains causing errors and omissions which in turn could lead to an incident.
- 29 ONR inspectors followed up this matter in October. ONR questioned a decision to strengthen one of the site Directorates through internal transfers of staff. ONR took the view that this proposed change did not look to have been thought through properly in accordance with the site's arrangements for organisational change, and so had the potential to have an adverse effect on safety. DSRL has acknowledged ONR's request for confirmation that the proposed change will not be implemented until ONR has confirmed in writing that we are satisfied that the change had been justified adequately.
- 30 ONR inspectors met DSRL to discuss implementation of arrangements made under Licence Condition 36 (Organisational Capability). It had been recognised that the proposed organisational change referred to above had not properly followed due process and a "Lessons Learned" review had been instigated by the Managing Director. This proposal has now been considered by the Safety Working Party and will be forwarded to ONR shortly for consideration.
- 31 ONR also discussed the findings of recent Post Change Reviews. In general most negative comments related to lack of consultation and lack of subsequent "buy-in" to the change. Sickness levels continue to be above average, but the reasons had not yet been determined.
- 32 We discussed the management of Parent Body Organisation secondees turnover. To reduce the impact of coincident multiple staff changes an attempt is being made to stagger the changes. An induction process has been introduced to demonstrate that post-holders are suitably qualified and experienced for their appointment. A succession plan of DSRL personnel was also available in the event that all secondees were withdrawn at once.
- 33 Overall the inspector was content with the arrangements in place for LC 36. Shortfalls in implementation have been recognised by DSRL and action is being taken.
- 34 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.

2.9 Other work

- 35 ONR inspectors met with safety representatives during the quarter from organisations employed across Dounreay, including DSRL and their contractors. ONR very much values the contribution of safety representatives to nuclear safety at Dounreay.

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36 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:

DSRL MD decision to stop operations

37 ONR has previously reported to the Dounreay Stakeholder Group on a decision by DSRL to stop, or not to start, all operation, maintenance and modification work on the most safety significant facilities (ie, Category 1 and 2 facilities) at Dounreay. DSRL's action was as a result of an ONR inspection in July which revealed that safety case limits and conditions in respect of a particular facility appeared not to be implemented either through inclusion in operating instructions.

38 ONR considers that the incident represented a significant degradation of defence in depth relating to the control of safety cases and control of operations on the site. There were however no injuries or releases to the environment following this event.

39 ONR has reviewed the DSRL investigation and has concluded that it was adequate. ONR undertook further inspections in November 2013 to confirm the adequacy of the improvements made within four facilities on the site. We concluded that the site has taken the required action to correct any urgent shortfalls, and we are content with the licensee's progress towards completing all of its improvement actions by the end of February 2014. On this basis ONR has decided not to complete its own investigation.

40 ONR intends to continue to monitor the progress of improvements as part of routine regulatory interventions, supported by a further assessment early in 2014 with the intention of gathering evidence to support full closure of the issue.

Failure of foam fire fighting system, FCA radwaste store

41 ONR has previously reported to the Dounreay Stakeholder Group an incident which arose during routine testing of a foam fire fighting system, during which a valve on the duty foam delivery line would not freely operate. On changeover to the standby line, leakage was noted from the lagged pipework.

42 ONR has reviewed DSRL's investigation report. Refurbishment of the affected foam fire fighting system is near completion and the system remains operational. ONR discussed with DSRL progress with the closure of actions: facility managers has responded to the 'red alert' requiring them to determine whether their facilities had similar vulnerabilities but the adequacy of the responses had not been reviewed at that time.

43 DSRL has reviewed the adequacy of engineering substantiation for the facility in question and concluded that there were weaknesses in the process applied to the facility. DSRL is also checking whether these weaknesses also apply to other periodic reviews in hand. Procedural enhancements will then be determined and implemented.

44 ONR will continue its review of this incident and its implications and will report our findings to the Dounreay Stakeholder Group.

PFR Caustic release

45 ONR were informed that, whilst undertaking decommissioning work within the Prototype Fast Reactor (PFR) on tanks containing sodium, staff were exposed to caustic fume, causing short term breathing difficulty and eye irritation. Radiological consequences were negligible.

46 ONR has undertaken a preliminary investigation. This points to a number of significant failings, eg: risk control measures not incorporated into method statement; method statement not followed properly; lack of clarity as to who was in control of the work; poor

reporting culture; emphasis on completing the task instead of applying the START ('stop, think, act, review, tell') principle.

- 47 The root causes appear to be consistent with other recent incidents and to link with generic concerns raised by ONR on organisational capability and on control and supervision.
- 48 ONR has written to DSRL to express concern and will consider what regulatory action is appropriate. ONR will consider further early in 2014 and will report our findings to the Dounreay Stakeholder Group.

Road traffic collision

- 49 The incident happened when a vehicle reversed into an individual causing personal injury.
- 50 ONR discussed with the DSRL lead investigator the causes of the incident. There are clear lessons to be learnt, from an individual and site perspective. It would appear that inattentive driving is a key factor, but there are other matters that need attention, for example the separation of people and traffic in the particular area was poor and will be rectified, and the vehicle was not fitted with reversing audible alarm. Improvement actions are underway.
- 51 I am satisfied that DSRL has undertaken a thorough investigation and is taking the matter very seriously. The consequences could have been much worse.

Severe weather, December 2013

- 52 ONR is aware that Dounreay experienced severe weather conditions early in December. DSRL mobilised their emergency arrangements to manage the site's response which included a controlled evacuation of non-essential site personnel. ONR maintained close contact with the site to satisfy ourselves as to safety significance, and we concluded that DSRL coped well with on-site consequences of the severe weather.

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- 53 Under health and safety legislation, ONR site inspectors, specialist 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.
- 54 The following LIs have been issued during the period:

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

| Date | Type | Ref No | Description |
|----------|----------|--------|---|
| 08/10/13 | Approval | LI 517 | Approval of revised terms of reference of the Dounreay Nuclear Safety Committee |

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55 Insight into ONR's work as an independent regulator of the nuclear industry can be found in ONR's Quarterly News. The online publication (www.hse.gov.uk/nuclear/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, as it progresses toward becoming an independent statutory corporation. www.hse.gov.uk/nuclear/index.htm. For the latest news and updates from ONR visit the website and sign up for our ebulletin (www.hse.gov.uk/nuclear/ebulletin/index.htm).

Chief Nuclear Inspector's Report

56 ONR has published its first Chief Nuclear Inspector's report summarising ONR's independent judgements on the areas it regulates.

57 With this report, we are saying that all of the sites we regulate are safe and secure and are working to reduce hazards. There is further work to be done at some sites, particularly Sellafield, and we are engaging with licensees to secure improvements in specific areas.

58 To complement this report, which ONR plans to publish annually, ONR has also published 'Nuclear regulation in the UK' which provides an explanation of the nuclear regulatory regime.

59 You can download the report at <http://www.hse.gov.uk/nuclear/documents/cni-annual-report-2013.pdf> and the guide to nuclear regulation at <http://www.hse.gov.uk/nuclear/documents/a-guide-to-nuclear-regulation-in-the-uk.pdf>

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