



**Office for Nuclear Regulation (ONR)
Quarterly Site Report for
Sellafield, Calder Hall and Windscale West Cumbria
Sites Stakeholder Group (WCSSG)**

Report for period 01 October 2014 – 31 December 2014

Foreword

This report is issued as part of ONR's commitment to make information about inspection and other regulatory activities relating to the above site available to the public. Reports are distributed quarterly to members for the West Cumbria Sites Stakeholder Group and are also available on the ONR website (<http://www.onr.org.uk/lc/>).

Site inspectors from ONR usually attend West Cumbria Site Stakeholder Group Scrutiny Meetings and will respond to any questions raised there. Any person wishing to inquire about matters covered by this report should contact: ONREnquiries@onr.gsi.gov.uk

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1 INSPECTIONS

1.1 DATES OF INSPECTION

ONR site inspectors made inspections on the following dates during this quarter.

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Plutonium Plants	21 - 23 October	2 – 4 December		
Thorp	8 – 11 December			
Decommissioning	6 – 10 October	4 – 5 November	2- 4 December	
Magnox	17 - 21 November	8 – 12 December		
Infrastructure and Waste and Effluent, Disposition Directorate	21 - 22 October	27 November	9 – 10 November	
Corporate	9 October			
Project Delivery	23 October	24 October	29 - 31 October	

ROUTINE MATTERS

2.1 Inspections

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

- the conditions attached by ONR to nuclear site licences 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 the licensee's actions in relation to incidents, operations, maintenance, projects, modifications, safety case changes and any other matters that may affect safety on the site. The licensee Sellafield Limited, (SL) 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 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 our inspectors 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 this period, routine inspections at Sellafield covered the following:

Sellafield Compliance Intelligence and Enforcement (SCIE) sub programme.

The SCIE sub-programme's objective is to seek evidence-based confidence that the Sellafield Limited is complying with its statutory obligations and that workers and the public are protected from the hazards of the site.

Infrastructure Directorate

At the end of the last quarter, ONR completed an inspection of the site's arrangements to deal with accidents and emergencies on site (Licence Condition (LC) 11).

Whilst shortfalls in capability were identified in a number of areas, ONR is pleased that the site has identified and is undertaking appropriate improvement actions. ONR will continue to monitor the implementation of this work as part of planned regulatory activity under the Project Delivery sub-programme.

ONR reviewed progress against a planned programme of improvements associated with the Inactive Tank Farm (ITF), which was generated following a joint ONR/HSE inspection of the facility in May 2013. Although delivery of the necessary improvements has been delayed, ONR's inspection confirmed that significant improvements in the asset condition and maintenance of the ITF have been achieved and that the remainder of the residual work is due to be completed by July 2015.

Waste and Effluent Disposition Directorate

ONR reviewed the activities associated with the Return to Service (RTS) of Waste Vitrification Plant (WVP) Line 3 in early October 2014, which had been shut down since November 2013, following the previously reported power loss event. From inspection, ONR judged that the work in support of the RTS had been carried out in an adequate and suitably conservative manner. WVP Line 3 has remained operational since the restart. ONR will continue to monitor the delivery of the remaining post-RTS commitments through our regular, planned interventions.

During this quarter, ONR completed planned System Based Inspections (SBIs) at two key facilities that store and vitrify Highly Active Liquor (HAL). These inspections involved a thorough examination of the system in place to cool HAL within the Highly Active Evaporation and Storage (HALES) and the WVP facilities. In each case, the inspections confirmed that the claims made within the safety case had been implemented adequately. A number of minor observations and performance improvements were identified and shared with SL during these inspections.

Plutonium plants

Improvement Projects

A number of projects are being progressed within Product Management Facilities-North (PMF-N) to address serious nuclear safety and environmental risks arising from the aged and obsolete equipment. These projects are to provide suitable, more robust, ventilation and electrical distribution systems to support the remaining operational lives of these facilities and their eventual decommissioning. We are working with ONR specialist security inspectors and the Environment Agency to ensure that the regulatory strategy for these projects is consistent and coherent. This approach aims to ensure that the work addresses the main safety, security and environmental requirements in a timely manner and is regulated appropriately, (e.g. to ensure that unnecessary regulatory burden or distractions are avoided).

Inspections/Interventions

Following the successful completion of active commissioning, we carried out a readiness inspection in October as part of our permissioning of SL's application to operate the Engineered Product Store 3 (EPS 3). The inspection demonstrated that the facility was ready to commence normal operations and has been finished to a high standard. EPS 3 is required as EPS 1 and 2 are nearly full. It is anticipated that EPS 3 will provide storage for the completion of fuel reprocessing and the storage of residues from the remediation of high hazard facilities. It will, therefore, play an important part in the Sellafield site's remediation strategy.

Magnox reprocessing

During the period, in this area ONR carried out one SBI on the ventilation system in the Magnox reprocessing plant. ONR judged that the system meets the requirements of the safety case and that implementation of SL's compliance arrangements is adequate. No significant areas for improvement were identified.

Within the Magnox facilities, ONR also carried out four Licence Condition (LC) compliance inspections. Within the Fuel Handling Plant, ONR judged that compliance with LC32 'Accumulation of radioactive waste' is of a good standard and compliance with LC11 'Emergency arrangements' is adequate. Within the Magnox reprocessing plant, ONR judged that compliance with LC35 'Decommissioning' was adequate. However, it was ONR's opinion that the compliance with LC25 'Operational records' was below standard. SL has committed to address the discrepancies identified during the LC 25 inspection in a timely manner and ONR will monitor progress during future visits.

Permissioning

In October, ONR carried out an inspection of the adequacy of SL's arrangements for controlling modifications on existing facilities (LC 22). ONR's opinion is that the arrangements are adequate, although some opportunities for further improvement were identified and passed onto SL. In particular, we identified some confusion at the working level regarding the control and implementation of paper-based modifications (i.e. with no physical changes to the plant). ONR will explore the causes of this confusion with SL in early 2015.

Thorp

During the reporting period, ONR concluded its assessment of an incident in May 2013 in which the wrong chemical (formalin) was transported to the minor reagents area of THORP. We have written to SL stating that, in our opinion, the incident represents a breach of Licence Conditions 23 – Operating Rules, 24 – Operating Instructions and 26 – Control and Supervision of Operations. ONR recognises SL's positive response to the incident and considers that no further formal regulatory action is appropriate. However, ONR required SL to write detailing how the identified issues have/will be addressed; a satisfactory response from SL was subsequently received. The relevant ONR inspector will follow this up to confirm that the identified improvements are effectively implemented.

In addition, ONR continued to deliver its planned compliance inspections in line with our Sellafeld Strategy and the THORP inspection plan. A systems inspection of the THORP Plutonium Purification Cycle Reagent and Chemical Safety system judged that the requirements of the safety case had been adequately implemented, with no significant areas of improvement identified.

Periodic Safety Reviews

ONR is continuing to provide regulatory oversight of SL's implementation of their new arrangements for Long Term Periodic Reviews (LTPR). ONR is particularly keen to ensure that those safety shortfalls identified by the process are being effectively managed to an appropriate conclusion. ONR's inspection-based assessment of the Magnox reprocessing LTPR produced adequate findings; ONR was particularly pleased to see that human performance aspects had been appropriately considered. However, ONR was disappointed that the implementation of improvements to the Active Handling Plant's safety case had been delayed but decided that this was the result of an appropriate risk-based prioritisation of limited resources by the licensee.

Decommissioning

As part of ONR's planned inspection programme, ONR examined compliance of the design arrangements in Decommissioning Directorate with LC 17 – Management systems. It is ONR's opinion that although the arrangements and their implementation were adequate, there were opportunities to improve their alignment with the relevant ONR guidance.

ONR also conducted a compliance inspection on the training and appointment of duly appointed persons and suitably qualified and experienced persons. It is ONR's opinion that the Decommissioning team was adequately implementing SL's arrangements to meet the requirements of LCs 10 - Training and 12 – Duly authorised and other suitably qualified and experienced persons. Furthermore, ONR determined that SL's implementation of a systematic approach to training was of a good standard.

ONR judged that the implementation of SL's LC22 – Modification or experiment on existing plant arrangements in Decommissioning is below standard due to a shortfall related to training. SL has accepted our findings and agreed appropriate actions to address this issue.

ONR carried out an inspection in Decommissioning of the implementation of SL's arrangements for LC26 - the control and supervision of operations. ONR judged that arrangements are below standard due to concerns around the training and appointment of supervisors. We are however satisfied that these did not directly impact safety and that suitable remedial action is being progressed by the licensee.

Corporate Inspection Programme

In December ONR announced an increase in the size of the Detailed Emergency Planning Zone (DEPZ) around the Sellafield site. The DEPZ is used by the Local Authorities to help prepare emergency plans, which they are required to do under the Radiation (Emergency Preparedness and Public Information) Regulations 2001. The change is not because of an increase in risks, but follows a new 'Hazard Identification and Risk Evaluation' by the site. This took greater consideration of the calculated potential impact of an earthquake on the site than in the past. This takes into account updated worldwide experiences such as the Fukushima Daiichi emergency.

The previous DEPZ, based originally on a potential accident in the highly Active liquor evaporating storage area (HALES), was 2Km from the centre of the site, this being the calculated distance away that a member of the public might receive a 5 milli-Sievert dose of radiation in the 12 months after an accident. This is now extended to a 6Km radius from a number of points, making a larger, irregularly-shaped zone.

At the end of this period the NDA announced changes to the contract for the management of the Sellafield site. ONR will include this item in next quarter's report.

In November, ONR took part in a joint workshop with SL's Internal Regulatory Function and the Environment Agency. The workshop explored better ways of interacting and the potential for undertaking joint inspections. The outputs from this workshop will be developed in the coming year. SL held a Board Workshop in November which included consideration of the findings from the joint ONR/Environment Agency intervention on governance earlier in the year. Following this meeting SL now has a set of activities aimed at improving governance, the implementation of which ONR will monitor.

ONR will be working with Sellafield management and the NDA following the recent announcement concerning the transfer of ownership of the site. This falls outside the period of this report and will be discussed in the next quarter.

2.2 Other work

Project Delivery sub-programme

The ONR Project Delivery sub programme regulates the programmes, projects and activities, which deliver risk and hazard reduction on the site.

This includes projects in the legacy ponds, legacy silos, decommissioning, high level waste and infrastructure areas of the site. In addition to regulating these areas, the sub programme also has a number of improvement themes, aimed at encouraging SL to accelerate risk and hazard reduction:

- Prioritisation of our work to effectively use our resources
- Removal of blockers
- Removal of diversions and distractions
- Incentivisation
- Fit for purpose solutions.

Key points from our engagements with the licensee during Quarter 4 were:

Legacy Ponds: SL continues to make good progress in its preparations to export sludge from the First Generation Magnox Storage Pond (FGMSP) and to actively commission Sludge Packaging Plant 1 (SPP1); ONR specialist inspectors have completed a targeted inspection to support our decision on the release of a hold point for SPP1 in early 2015.

SL continues to export canned legacy fuel from the Pile Fuel Storage Pond (PFSP) for re-canning and characterisation, prior to moving to alternative safer storage. Despite localised issues that needed to be managed to enable completion of this Key Decommissioning Milestone, ONR is encouraged by how SL and the National Nuclear Laboratory (NNL) are proactively managing this work to ensure that delivery timescales are met.

Legacy Silos: SL and the Nuclear Decommissioning Authority (NDA), with support from the other organisations (including ONR), have carried out the first phase of a strategic review of the Magnox Swarf Storage Silo (MSSS) retrieval projects. Given the availability of improved information on the waste, a number of options are being considered to establish whether retrievals can be accelerated. This work is on-going, with a final decision on the preferred option due later in 2015.

In October ONR carried out an inspection on the Pile Fuel Cladding Silo (PFCS) integrated programme for retrievals from this facility. The purpose of this intervention was to gain regulatory confidence that SL has a credible, underpinned plan to retrieve waste and decommission the facility. SL was able to demonstrate a coherent, credible, integrated programme with a significantly improved governance process and as a result ONR has increased confidence in SL's ability to manage the PFCS programme effectively.

Decommissioning: ONR is pleased that SL has completed, ahead of schedule, the re-packaging and transfer of residues from Finishing Line 3 into a more robust store. Completion of this project had a positive impact on ONR's REPPiR (Radiation Emergency Preparedness and Public Information Regulations 2001) determination of Sellafield off-site planning area.

ONR, through its regular engagements with SL, has raised concerns regarding the delivery of the Head End Stack demolition project. SL is currently looking at the programme to identify a suitable recovery plan, and ONR is supporting this with advice where applicable.

High Level Waste Plants: During this period we have remained engaged with SL and have been assessing SL's response to the inevitable breach of the HAL stock specification forecast mid 2015, post

the outage of WVP line 3. We remain satisfied that SL is doing all that is reasonably practicable to minimise its holding of HAL, and ONR intend to have concluded our regulatory decision making regarding the forward regulatory approach in early 2015.

ONR specialist inspectors remain engaged on the inactive commissioning of Evaporator D in preparation for a permissioning decision in early 2015. ONR is encouraging SL to look at ways in which the active commissioning of Evaporator D can be brought forward, given its importance to SL's evaporative capacity. ONR will be carrying out an inspection of the underpinning of this programme in early 2015.

ONR remains engaged with SL relating to the continued use of Evaporator C, and our specialist inspectors are completing assessments relating to this.

Infrastructure: ONR wrote to SL in April 2014 requiring improvements to the site's electrical infrastructure. In November, SL completed the four areas of improvement detailed in our letter ahead of schedule, which ONR believes has resulted in a safer and more reliable electrical distribution system.

There has been significant engagement relating to the completion of the first phase of SL's resilience improvements following the Chief Nuclear Inspector's report relating to the Fukushima accident. SL is currently finalising its close-out report identifying how it has addressed ONR's recommendations; this will feed into a national report being compiled by ONR in Q1 2015.

General: During this quarter, ONR has further embedded our regulatory strategy for Sellafield. SL is working to ensure its arrangements reflect and support this new more efficient way of working which, amongst other things, seeks to remove unnecessary bureaucracy (for example in introducing improved flexible permissioning arrangements). As previously reported, ONR now holds a monthly Regulatory Interface Meeting (RIM) with SL where we can discuss all regulatory matters, i.e. nuclear safety, security, conventional safety, safeguards and transport safety, in one meeting. A key supporting document for the RIM is the Hold Point Control Plan which SL is developing to identify all forthcoming permissioning, hold points and commitments required by ONR.

In addition, as part of our strategy, a collaborative approach has been adopted between the six key organisations with a common objective of accelerating hazard and risk reduction on the site. A working group was established earlier this year that facilitates a coordinated approach to complex issues where input may be required from a broad range of decision makers. The group incorporates DECC, NDA, Sellafield Limited, Environment Agency, SHEx (the Government's Shareholder Executive) and ONR. This continues to be an effective way of working which is delivering tangible hazard and risk reduction across the Sellafield site.

3 NON-ROUTINE MATTERS

Licencees 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.

Magnox Reprocessing Plant criticality safety case

On 29 September 2014, SL took the conservative decision to shut down the Magnox Reprocessing Plant to allow investigation of a potential discrepancy with the criticality safety case for a feed tank in the plutonium purification cycle. The plant remained shut down in a safe and quiescent state for approximately four weeks. During this period SL established the nature of the potential discrepancy, and put in place a new safety case and additional measures to prevent a criticality in the feed tank. ONR decided, after taking cognisance of the assurance work undertaken by the SL internal regulator and our own inspection findings, that the application of formal permissioning procedures to the restart of operations would be disproportionate to the risk.

Magnox Reprocessing Plant stack monitor event

On 8 December 2014 an alarm indicating the potential failure of a discharge stack monitor (a safety mechanism) was activated, ultimately leading to the shutdown of the Magnox Reprocessing Plant. SL is conducting an investigation to establish the root causes of the event, to determine whether the monitor continued to fulfil its safety function throughout the event and whether its operational decision-making was suitably conservative. ONR will examine SL's preliminary report before deciding on a proportionate regulatory response.

Control of Asbestos

ONR served Sellafield Ltd with an Improvement Notice on 16 November 2014 requiring improvements in its arrangements for managing asbestos at the Calder Hall facility on the Sellafield site. The Improvement Notice followed our inspection of SL's arrangements for managing asbestos at a number of locations on the site.

ONR's inspection included a review of the licensee's arrangements for identifying the location and condition of asbestos-containing materials, and focused on how well SL is managing the risk presented to those working in the affected buildings. ONR concluded that SL must improve its arrangements for these materials at Calder Hall. SL is now required, by 6 March 2015, to improve its management arrangements for identifying the materials containing asbestos, and for ensuring that those materials are not disturbed during routine work on buildings.

Analytical Services waste control event

On 15 Oct 14, during a planned transfer of chemical waste from the Analytical Services building to another waste control facility on site, the waste contractor undertaking the transfer by vehicle planned to move between those areas of site via the North Gate. On attempting to exit, the gate post monitors alarmed, and the vehicle was stopped from leaving the site. On return to the Analytical Services facility, three radioactive items were detected within the waste consigned.

Initial investigations by the site indicate that one of the sources was from naturally occurring radiation as a result of minerals within fire extinguisher powder, but that the other two sources were unidentified liquids within separate litre bottles. Measured radiation doses from each were between 30 – 105 micro-Sieverts; this dose level would require significant sustained contact/proximity (of the order of over 20 days) before dose limits were exceeded.

The licensee has already undertaken an internal investigation, the review of which took place on 12 Jan 15. That investigation has identified wider problems associated with the control of chemical waste within the facility. ONR is reviewing the report and will, as a result of our findings and the response from the licensee to our related queries, consider if further investigation and/or enforcement action is merited. ONR will provide an update covering our actions against this event, and our rationale for any further enforcement action, at the next issue of this WCSSG report.

Loss of forced circulation event

During planned maintenance operations of a level indication circuit within the cooling system, the relevant level transmitter was isolated as part of the procedure. Following that isolation, the pressure in the isolated sensing leg fell, which in turn isolated power to the cooling water circulation pumps as part of a designed pump protection circuit. The maintainer, having communicated with the facility control room, restored supplies to the level transmitter, and thus restored pumped flow. Subsequent investigation by the facility identified that a defective isolating valve on the level transmitter could have been the cause. ONR consider that the facility completed initial plant response and the follow-up investigation effectively, and that no further regulatory action is merited.

4 REGULATORY ACTIVITY

ONR 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.

In response to a request from SL, ONR granted removal of the requirements specified in LI524 in October 2014 as the requirements of this long standing specification didn’t align with ONR new regulatory strategy for Sellafield. LI524 required the licensee to send safety documentation to ONR related to certain specified operations in the Active Handling Facility.

During this period ONR issued an Improvement Notice (IN) on SL, with regards to a failure to manage appropriately the risk from asbestos at the Calder Hall facility. The IN required the necessary improvements to be completed by March 2015.

Licence Instruments and Enforcement Notices Issued by ONR during this period

Date	Type	Ref No	Description
December 2014	Agreement	882	Agreement to product finishing and storage, finish line 3 removal of the redundant glovebox project - installation, inactive commissioning and implementation of the safety case.
November 2014	Improvement Notice	305888106	Management of the risk from asbestos in Calder Hall

Reports detailing the above regulatory decisions may 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 reports on the key themes and developments in each of ONR's regulatory programmes and provides an update about the ongoing changes at ONR. . For the latest news and updates from ONR visit the [website](#) and sign up for our [ebulletin](#).

6 CONTACTS

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