

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

**Report for period 1 January – 31 March 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 for the West Cumbria Site Stakeholder Group and are also available on the ONR website (<http://www.onr.org.uk/lc/>).

Site inspectors from ONR usually attend the West Cumbria Site Stakeholder Group 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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## Executive Summary

The Sellafield site continues to be subject to a highly intrusive nuclear licensing regime. ONR seeks to ensure that the licensee understands its hazards and how to control them through detailed assessments of Sellafield Limited's safety arguments (safety cases) and by making sure that it has a robust nuclear safety management system, effective leadership and a strong safety culture. In addition, ONR undertakes regular inspections to ensure that the licensee implements its systems and complies with the law.

ONR inspectors completed 26 inspections during the quarter. In general, we 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 inspectors will monitor progress during future visits. Where necessary, we will take formal regulatory enforcement action to ensure that appropriate remedial measures are implemented to reasonably practicable timescales.

We have updated our regulatory strategy to secure accelerated risk and hazard reduction on the Sellafield site. The new strategy consists of a number of themes, each one aimed at providing Sellafield latitude to focus on key activities that will achieve an overall risk and hazard reduction on site, without unnecessary distractions. This represents a subtle change in our regulatory approach, requiring our inspectors to use a range of influencing techniques in order to secure the necessary improvements. Nevertheless, this does not mean we will compromise our regulatory standards and we will continue to take enforcement action where it is appropriate to do so.

On 31 January 2014 apparently elevated levels of radioactivity were detected at the site boundary. Investigation showed these to be false-positive results caused by an instrument fault within the detection equipment. ONR is content with the way Sellafield Limited managed this event.

In February, Sellafield's Magnox Reprocessing facility was shut down after operators experienced problems with the flow of chemicals in the primary separation stage of the process. We are content that there was adequate scrutiny and independence in the decision making process leading to shut down. A recovery exercise proved successful and the plant has now restarted operations. In line with our new strategy, ONR was able to remove some of the excessive bureaucracy in the permissioning process that normally would have been required under Sellafield's own arrangements.

ONR has issued formal cautions to two Sellafield employees, after an investigation into a contamination event in December 2013 revealed that the workers had carried out unauthorised work in violation of Sellafield Limited's approved safe systems of work. Their actions could have resulted in the exposure of themselves or others to increased levels of ionising radiation. ONR found no evidence that Sellafield Ltd's systems of work for controlling such activities were deficient.

ONR investigations into the Waste Vitrification Plant (WVP) line 3 event and the Magnox Swarf Storage Silo (MSSS) facility continue, these enquiries are expected to be completed in the next quarter. Both events are linked to problems with the electrical infrastructure which will also be considered as part of our investigations.

## 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 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 licensee is required to make and implement adequate arrangements under the conditions attached to the licence in order to ensure legal compliance. Our inspections seek to judge both the adequacy of these arrangements and their implementation. The inspections monitor licensee's actions on the site in relation to operations, maintenance, projects, modifications, incidents, safety case changes and any other matters that may affect safety.

ONR inspectors draft an Intervention Report following each inspection, these reports are used to record findings and, if appropriate, any significant actions we require the site operator to carry out in order to improve matters. We have started to publish the Executive Summaries of our intervention reports for the Sellafield site on our website. Publishing the executive summaries of these reports is one part of ONR's aim to be open and transparent by helping all of our stakeholders, including the public, understand our work. ONR's regulatory decisions and judgments are available on our website [Click here](#)

ONR inspectors completed 26 inspections during the quarter. The more significant issues identified during these inspections are summarised below, under 'routine matters'.

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 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.

## ROUTINE MATTERS

Risk and hazard reduction on the Sellafield site remains ONR's top priority and we continue to work with Sellafield Limited and other stakeholders such as DECC, the Environment Agency and NDA to find safe, innovative ways of accelerating the remediation of legacy ponds and silo facilities. ONR has developed a revised regulatory strategy this year to support this philosophy.

### Decommissioning Directorate

We saw good progress at the Pile Fuel Storage Pond (PFSP) and also the Magnox Swarf Storage Silo (MSSS) where there has been a step change in the management and communications within this programme.

The improved reliability observed at the First Generation Magnox Storage Pond (FGMSP) Skip Handler Machine reliability is important to a number of risk and hazard activities. The recent permissioning to return the FGMSP export crane to service will support the installation of export equipment and then export of skips from the facility, which will be a considerable risk reduction activity.

A conventional fire safety inspection on the Sludge Packaging Plant 1 (SSP1) has raised some regulatory concerns which we are discussing with Sellafield Ltd, and we are applying the EMM (Enforcement Management Model) to determine our regulatory response.

Following the approval of the Rapid Retrievals Concept the PFCS Retrievals Project is proceeding to optimise the scope and schedule for the retrievals design and process. This plan is crucial to providing a credible programme to underpin the risk and hazard reduction activities and maintaining regulatory confidence.

We remain concerned with the delivery of some of the new plants that support the risk and hazard reduction programmes

### **Spent Fuel Management (SFM)**

We previously reported an incident at the thermal oxide reprocessing plant (THORP) on 14 May where an Intermediate Bulk Container (IBC) was received at the facility containing formalin instead of hydroxylamine nitrate (HAN). We have now judged, based upon the potential risk posed by the event, that no further enforcement action is appropriate.

System inspections conducted in Magnox Reprocessing, and Long Term Period Review (LTPR) inspections in THORP Receipt and Storage and Magnox Reprocessing Facilities were deemed to be adequate, with some areas for improvement identified.

ONR's assessment of four periodic reviews in the SFM area is ongoing. ONR's main and ongoing focus is ensuring Sellafield Limited effectively implements the improvements to plant and procedures identified in these periodic reviews.

### **Waste & Effluent Disposition Directorate**

We have continued to provide oversight of the hazard reduction performance of the WVP. However, performance has been disturbed due to a loss of power event which has left line 3 shutdown and likely to remain shutdown until autumn 2014. The Line 2 rebuild is close to completion with the line expected to be back in Highly Active Liquor (HAL) feed in April 2014. Line 1 has performed well this quarter, exceeding its expected throughput for the period. However, this has not been enough to make up for the shortfall due to the unavailability of line 3 resulting in the total glass vitrified for the year being below budget.

ONR completed its readiness inspection for refurbished evaporator B and no issues were identified to delay any return to service of this plant; this is good news as evaporator B has a key role to play in reducing site HAL stocks.

ONR completed an inspection of the LC 17 (management systems) arrangements for the Evaporator D project. The inspection concluded that overall the arrangements sampled, including improvements put in place since issue of the Improvement Notice, were adequate.

### **Infrastructure Directorate**

Following on from the information provided at the last stakeholder meeting, investigations into the two incidents at site involving the temporary loss of electrical supplies to the Magnox Swarf Storage Silo facility and the Waste Vitrification Plant line 3 have been completed by ONR; both events are linked to problems with the electrical infrastructure which will also be considered as part of our investigations. We will publish our decisions in the next quarter.

### **Emergency Preparedness**

Sellafield nuclear site is required to produce a Hazard Identification & Risk Evaluation (HIRE) report to comply with the Radiation Emergency Preparedness and Public Information Regulations (REPPiR). Sellafield's was received in November 2013 and has been assessed by ONR. It is likely that the assessment of this report taken together with the revised ONR guidance for determining the emergency planning will result in a revision to the emergency planning area. We have informed the local authority about this possibility and will provide further details as our work progresses

## Site-Wide Themes

### Leading and Management

As part of our ongoing work on leadership and management for safety within Sellafield Limited, we undertook a joint intervention with the Environment Agency on the top level governance of the site, focusing on nuclear safety and environmental management. We reviewed board papers from a fifteen month period and interviewed both Executive and Non-Executive Directors of the Board including the Managing Director, Chief EHS&Q Officer and Chief Operating Officer. We, with the Environment Agency, are now in the process of collating the findings from this inspection.

### Operational Safety

ONR can report positive findings following a follow up inspection of Sellafield Limited's LC 7 (incidents on site) arrangements at the Spent Fuel Management Operating Unit. Significant improvements were also found in relation to fatigue management arrangements and minimum manning levels in THORP; better documented evidence which is required by the arrangements is needed however, ONR considers that more time is required to allow the new arrangements to embed. ONR will perform further inspections to check these arrangements

### Safety Cases

A Safety Case meeting was held between Sellafield Limited and ONR primarily to discuss / review Sellafield Limited progress on implementing Safety Case improvements across the Sellafield Limited site. The Safety Case Improvement Programme (SCIP) was initiated a number of years ago to address poor Safety Case submissions and implementation by Sellafield Limited.

ONR noted that:

- Delivery Directorates were at different levels of maturity in terms of having a fundamental understanding of what SCIP means.
- The adoption of IT tools across the site appear to be varied
- The implementation of the Safety Case Configuration System was still low, with some OUs not sure if this provided them with an added benefit
- ONR commended Sellafield Limited on the use of the 'Peer Assist' process which has now evolved to a high level of maturity and noted the new found confidence to implement it in-house without corporate support.

### Engineering

We have engaged Sellafield Limited to develop adequate arrangements for the use of construction cranes on the Sellafield site and their implementation; this engagement will continue during 2014. ONR was disappointed on the lack of progress, however Sellafield Limited believes that they have now implemented adequate changes to their arrangements and intend to demonstrate this by delivering an exemplar to ONR in April.

Sellafield Limited has provided a good level of support for the Design Authority Intervention and has taken on board relevant good practice to make improvements to its current arrangements.

## **NON-ROUTINE MATTERS**

Licensees are required to have arrangements to respond to non-routine matters and events and ONR inspectors judge the adequacy of the licensee's response to these, including actions taken to implement any necessary improvements.

Matters and events of particular note during the period were:

### **ONR updates its strategy for regulating the Sellafield site**

Sellafield ranks as one of Europe's largest industrial complexes probably storing more radioactive waste in one place than any other nuclear facility in the world. Given the age and fragility of many of the facilities on site, it is a UK priority to reduce the hazard and risk on site quickly and safely.

Whilst responsibility for hazard and risk reduction rests with DECC, NDA and Sellafield Limited, ONR has updated its regulatory strategy to stimulate, facilitate and expedite hazard and risk reduction for the site.

The issues which have led to the current situation and the ongoing delays in hazard and risk reduction are complex so there is no simple solution. The new regulatory strategy for Sellafield comprises eight strands, each of which will contribute to the overall risk and hazard reduction if implemented in a coordinated way. These are:

- effective prioritisation – a new, agreed prioritised work list for ONR, NDA and Sellafield Limited, that will help focus attention;
- effective use of resources, to ensure regulatory and licensee activity is taken forward effectively and efficiently;
- removal of blockers e.g. eliminating any unnecessary bureaucracy
- avoidance of distractions and diversions – we will look at the site holistically across the programme to ensure risks from the whole site are reduced ALARP;
- incentivisation – we will examine contractual arrangements to examine whether they can encourage the acceleration of hazard and risk reduction;
- fit for purpose design and engineering rather than over complex, over engineered work;
- balance of risk - a balanced and proportionate regulatory approach which recognises and accepts increases in the near-term risk profile as a necessary consequence of reducing long-term risks and hazards;
- communications - a coordinated and systematic approach to communications and stakeholder management activities to ensure that messages regarding the importance of accelerated risk and hazard reduction are consistent.

Whilst delivery of improvements under these themes is particularly relevant to successful delivery of hazard and risk reduction, it is anticipated that improvements in these areas will also contribute to enhanced regulatory compliance of the Sellafield site more generally.

This new strategy is innovative and will require lateral thinking; we have therefore put in place robust governance and assurance processes to support the challenging decisions we will have to make. Although this strategy represents a change in ONR's approach, it has not led in any way to a weakening in its regulatory standards.

### **Apparently elevated levels of radioactivity detected at site boundary**

On 31 January, ONR was informed that elevated levels of radioactivity had been detected by one of the site boundary detectors. Sellafield Limited took the conservative decision to only allow essential workers on to site whilst they investigated. By mid-day it was clear from Sellafield Limited's investigation that the apparently increased activity was due to false-positive results caused by an instrument fault within the detection equipment. Even so, the

apparent increase in activity was extremely small and within normal fluctuations in background levels of radiation that would be expected within the parameters of the safety case.

ONR is content with the decisions and actions that Sellafield Limited took throughout the event; and we have undertaken an evaluation of our own actions to capitalise on any experiential learning.

### **Magnox Reprocessing shut down**

In February, ONR were informed of an event at the Magnox Reprocessing facility on the Sellafield site.

Primary Separation Stage 4 in the Magnox Reprocessing plant experienced problems with the flow of ferrous sulphamate in to the process during the initial few hours of plant start-up. The ferrous sulphamate is introduced as part of the chemical processing to separate plutonium from uranium in the reprocessing of spent Magnox reactor fuel.

When attempts to stabilise the flow rate were unsuccessful, a decision was taken to shut the plant down safely and in accordance with the safety case. We are content that there was adequate scrutiny and independence in the decision making process leading to shut down.

We were kept informed and consulted in terms of the recovery and are content that Sellafield Limited developed a recovery plan which was pragmatic with the right level of technical and independent challenge to ensure they acted appropriately. A recovery exercise proved successful.

As part of our permissioning of the restart of this process and in line with our revised strategy, we were able to remove some of the excessive bureaucracy in the process that normally would have been required under Sellafield's own arrangements. This pragmatic approach was appropriate because we had good intelligence of activities on site and appropriate engagement. We continue to engage with Sellafield Limited on a longer term improvement plan for this plant.

### **Sellafield workers cautioned**

ONR has issued formal cautions to two Sellafield employees, after an investigation into a contamination event in December 2013 revealed that the workers had carried out unauthorised work in violation of Sellafield Limited's approved safe systems of work, which could have resulted in the exposure of themselves or others to increased levels of ionising radiation.

The incident occurred in the Highly Active Liquor Evaporation and Storage (HALES) facility at Sellafield, and involved the unauthorised removal of a contaminated malfunctioning resistance thermometer from a High Active Storage Tank pocket during an attempt to repair it. This action exposed the workers involved to elevated levels of ionising radiation, (though within prescribed limits) and released contamination into an area of the facility not specifically designed, maintained or used to prevent the spread of contamination, thus presenting a serious health risk to the individuals and other persons.

ONR's investigation found that the incident was caused solely by the acts and omissions of the individuals, in full knowledge of what was required by the company to safely control and carry out the work. This was a direct violation of established, well-known and obvious risk control measures and arrangements for working with ionising radiation implemented by the employer. ONR found no evidence that Sellafield Limited's systems of work for controlling such activities were deficient.

ONR has issued a formal caution to two individuals for failure to discharge the duties which an employee, while at work, is subject to under the Health and Safety at Work etc Act 1974.

## **REGULATORY ACTIVITY**

Under health and safety legislation, ONR site inspectors, specialist inspectors and other HSE inspectors may issue formal documents to ensure compliance with regulatory requirements, including enforcement notices to secure improvements to safety. In addition, 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' (LI), but can take other forms.

These documents are listed in the table below. Reports providing details of the basis for regulatory decisions can be found on the ONR website. [www.hse.gov.uk/nuclear](http://www.hse.gov.uk/nuclear) once they have been through due process.

During the quarter we issued consent to sub let and licences to occupy various locations on the site. (LI 870, LI 874, LI 875).

We also gave our agreement to inactive commissioning and return to service of the crane at the First Generation Magnox Storage Pond (FGMSP) export facilities. The inactive commissioning and return to service of the 60T crane project is a critical enabler to risk reduction in FGMSP, as it will enable equipment to be installed in the export facility to support the refurbishment of the export route and ultimately enable skips of fuel and historic waste to be exported from FGMSP to other facilities which will provide improvements to the current containment

During the period we gave our consent for commencement of operations for the Floc Retrieval Plant. The Floc Retrieval Plant was constructed to recover legacy residues created by spent nuclear fuel re-processing contained within six large concrete storage tanks. An extended period of commissioning resulted from this work due to the challenges faced by Sellafield Limited by the uniqueness of the project and the limited amount of inactive commissioning that could take place before active working commenced.

**Table 1**  
**Licence Instruments Issued by ONR during this period**

<b>Date</b>	<b>Type</b>	<b>Ref No</b>	<b>Description</b>
28/03/2014	Consent	LI 870	LC3 Consent for Licence To Occupy the Concrete Batch Plant at Sellafield Limited to AMEC Nuclear UK Limited
27/02/2014	Agreement	LI 871	Agreement To Fully Implement: Inactive Commissioning And Return To Service Of The 60T Export Crane'
24/03/14	Consent	LI 872	Consent for Commencement of Operations for Floc Retrieval Plant
28/03/2014	Consent	LI 874	LC3 Consent to Sub-Lease First Floor Office Facilities to the Nuclear Decommissioning Authority
28/03/2014	Consent	LI 875	LC3 Consent For A Licence To Occupy Agreement For the South Sidings, Rail Shed & Welfare/Office Facilities to Direct Rail Services

Reports detailing the above regulatory decisions can be found on the ONR website at [www.hse.gov.uk/nuclear/pars](http://www.hse.gov.uk/nuclear/pars).

## **NEWS FROM ONR**

### **ONR is changing**

On 1 April 2014, ONR was established as a Public Corporation under the Energy Act 2013. As a result of our change in legal status, the way that we operate will evolve as we make use of

the flexibility that the new status affords us. The **Energy Act 2013** clarifies the legal framework for regulation of GB nuclear sites and the responsibility now rests firmly with ONR.

In addition, the legislative changes give ONR the powers to regulate conventional health and safety. This change to legislation will give us the necessary powers to continue to provide efficient and effective regulation of the nuclear industry, holding it to account on behalf of the public.

To support the launch of ONR as a Public Corporation, ONR has its own logo which will be used on all documents and other external communication media. Other changes include a new enforcement policy statement, a new website and email addresses, a new Annual Plan 2014/15, new warrants for inspectors, and new ONR branded personal protective equipment.

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](http://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](http://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](http://www.hse.gov.uk/nuclear/ebulletin/index.htm)).

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