



**2016/159521**

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

Covering the period - 01 October 2015 to 31 March 2016



ONR's new CEO Adrienne Kelbie during a visit to the Sellafield Site on 03 March 2016

## **Foreword**

This report is issued as part of ONR's commitment to make information about inspection and other regulatory activities relating to the Sellafield 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/llc/>).

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:  
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## 1 INSPECTIONS

### 1.1 DATES OF INSPECTION

ONR nuclear safety inspectors made inspections on the following dates during this quarter:

	<b>Oct 2015</b>	<b>Nov 2015</b>	<b>Dec 2015</b>	<b>Jan 2016</b>	<b>Feb 2016</b>	<b>March 2016</b>
<b>Plutonium</b>	<b>Oct 22-22</b>	<b>Nov 17-18</b>	<b>Dec 15-17</b>	<b>Jan 26-28</b>	<b>Feb 09-11</b>	<b>Mar 01-03</b>
<b>Thorp</b>	<b>Oct 21-22</b>		<b>Dec 10</b>	<b>Jan 20</b>	<b>Feb 09-11</b>	<b>Mar 08-09</b>
<b>Decommissioning</b>	<b>Oct 14</b>	<b>Nov 10-11</b>	<b>Dec 1-2</b>		<b>Feb 09-10</b>	<b>Mar 08-09</b>
<b>Magnox</b>	<b>Oct 13-15</b>	<b>Nov 09 &amp; 12 Nov 24-25</b>		<b>Jan 12</b>		<b>Mar 15-16</b>
<b>Infrastructure</b>	<b>Oct 13 Oct 22</b>	<b>Nov 10</b>		<b>Jan 14</b>	<b>Feb 09-11</b>	<b>Mar 17</b>
<b>Corporate</b>	<b>Oct 19-22</b>	<b>Nov 30 Dec 04</b>	<b>Dec 09-11</b>	<b>Jan 09</b>		<b>Mar 8-9</b>
<b>Project Delivery</b>						
<b>Waste and Effluent, Disposition Directorate</b>	<b>Oct 13</b>	<b>Nov 10-11</b>	<b>Dec 09-10</b>		<b>Feb 23-24</b>	

## 2 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).

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 Ltd, 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 Limited covered the following:

#### **Sellafield Compliance, Intelligence and Enforcement (SCIE) sub-programme.**

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

#### **Magnox**

During the period, ONR carried out two planned Licence Condition (LC) compliance inspections and one System Based Inspection (SBI) at Magnox reprocessing plants. ONR judged that compliance with LC 11; 'emergency arrangements', was adequate and LC 26; 'control and supervision', was below standard. For the SBI of the charge machine and dissolver system, ONR judged compliance with LC24; 'operating instructions', LC 27; 'safety mechanisms, devices and circuits', and LC 28; 'examination, inspection, maintenance and testing', to be adequate. Compliance with LC 23; 'operating rules', was considered to be below standard.

During the period, the Magnox reprocessing facilities underwent a periodic shutdown. ONR supported Sellafield Ltd.'s internal regulatory function to deliver a proportionate and targeted assurance plan during the shutdown. ONR took its own work and that of the internal regulator into account when considering its permissioning of the restart of operations. Following an assessment of the evidence, ONR issued a Consent to resume the feed of irradiated fuel to the Magnox reprocessing dissolver.

A revised regulatory strategy for Magnox reprocessing is now being followed to facilitate Sellafield Ltd.'s safe and timely delivery of the UK's Magnox Operating Programme (UK MOP). This is being regulated by ONR's Project Delivery sub-programme and is reported in that section below.

Following ONR's Improvement Notice served on Sellafield Ltd in June 2015, the licensee has continued to make satisfactory progress with regard to the required improvements to ensure that all operations at Magnox Reprocessing which may affect safety are carried out in accordance with written instructions.

### **Corporate Inspection Programme**

The ONR's corporate inspection programme for the Sellafield site has two main areas of focus:

- Examining the adequacy of the arrangements that Sellafield Ltd has made to comply with its nuclear site licence, securing improvements as necessary; and
- Working with Sellafield Ltd to advise and support its leadership and management for safety activities.

A number of inspections of licence condition compliance arrangements were carried out during the period covered by this report as well as continuing work to support and encourage delivery of the improvements identified during earlier inspections.

ONR's licence condition compliance arrangements inspections found steadily improving standards in a number of areas, including the management of human resources necessary for safety, LC 36(1), the examination and testing of safety related structures, systems and components, LC 28, the management of property transactions on the site, LC 3, and control of the company's management system, LC 17. None of the findings from these inspections required formal enforcement activity, although a number of expectations for further improvement were communicated to Sellafield Ltd.

A major inspection of Sellafield Ltd.'s management of conventional (non-radiological) safety was carried out jointly by the ONR Sellafield programme and the ONR conventional safety team. This inspection found that whilst Sellafield Ltd takes conventional safety very seriously, shortfalls in the knowledge and technical capability in some areas of conventional safety were identified together with opportunities for a more appropriate, strategic approach to ensuring that conventional safety is adequately managed.

Following joint work with Sellafield Ltd during the first half of the year examining safety leadership and safety culture at the site, ONR and Sellafield Ltd senior management will work together to support a site-wide programme to deliver further improvements necessary in the interests of safety.

## **Infrastructure**

During the period, ONR inspected arrangements for compliance with LC 22; modification or experiment on existing plant, LC 26; 'control and supervision of operations', and LC 28; 'examination, inspection, maintenance and testing', within the Package Management and Railways (PM&R) organisation on the licensed site. ONR considered Sellafield Ltd.'s compliance with the requirements of LC 26 and LC 28 to be good. In particular, ONR considered that there was a good demonstration of compliance with the Plant Maintenance Schedule across all parts of PM&R. Sellafield's Ltd compliance with LC 22 was considered to be adequate, although some improvements were identified relating to the control of temporary plant modifications.

ONR undertook an inspection against LC 11; 'emergency arrangements', in PM&R. Sellafield Ltd had already recognised the need for improvements in this area and this was confirmed during the inspection. ONR is monitoring Sellafield Ltd.'s progress against the required improvements through a Regulatory Issue.

ONR also carried out an inspection against LC 28 in the Analytical Services Laboratory with a focus on electrical equipment within the facility. During this inspection, ONR identified a specific shortfall against Sellafield's Ltd arrangements for safe electrical isolations. ONR has tracked the licensee's progress against closing this shortfall over subsequent months and is content that Sellafield Ltd has made good progress in understanding and remedying the problems. ONR has also continued to engage with the Analytical Services facility management team to track their progress in a number of other areas of regulatory interest; some associated with the age and condition of the facility, others related to the need to bring some practices into line with modern standards. ONR is pleased with the progress which Sellafield Ltd has made here and with the open and pro-active reporting culture it has witnessed.

ONR carried out inspections against LC 25; 'operational records', and LC 35; 'decommissioning', during the reporting period. In both inspections ONR was satisfied with Sellafield Ltd.'s implementation of its arrangements, although some areas for improvement were also identified.

ONR undertook a System Based Inspection against the electrical distribution system on the Sellafield site. Managed by the Utilities organisation, this system provides a key support function to many facilities on the site that control nuclear matter. From the inspection findings, ONR considered that Sellafield Ltd is developing and implementing some good arrangements for the provision of staff training, including the recent procurement of a power switching-board training simulator. Sellafield Ltd also provided good evidence regarding the Command and Control arrangements in place to manage the effects of a loss of electrical supplies on the site. However, ONR identified two specific areas for improvement; the first relates to the adequacy and justification of the safety classification of the electrical distribution control system, the second to the present arrangements for reconnecting grid supplies following a loss of offsite power. ONR will monitor Sellafield Ltd.'s progress to close these shortfalls.

During the period, ONR examined progress against a number of Regulatory Issues where shortfalls against legal requirements had been identified during previous inspections, or actions placed on Sellafield Ltd by ONR to encourage continuous improvement. ONR noted that Sellafield Ltd has made some good progress regarding fire-fighting arrangements, including improvements to the condition of fire hydrants on

the site, work to provide additional sources of water on the site, and improved arrangements for fighting metal fires.

During the period, ONR attended the National Nuclear Laboratory's (NNL) Annual Review of Safety for 2014/15 at the NNL Central Laboratory and was satisfied with the process and the supervisory role performed by Sellafield Ltd. as the site licensee.

### **Plutonium Management**

Currently, there are several different workstreams being progressed in the Sellafield Mixed Oxide Plant (SMP), e.g. Post Operational Clean Out (POCO), material storage, decommissioning operations, care and maintenance, and it is recognised that these can stress the arrangements in place for the control and supervision of 'permits to work'. Consequently, following a number of instances where concerns had been noted regarding the control of operations' an inspection was conducted on the 'permit to work' system during this period. From the inspection findings, ONR considered the arrangements for the control and supervision of maintenance operations to be adequate, but identified opportunities to reduce their complexity and increase their resilience at peak workloads. ONR identified a number of relatively simple and straightforward measures that could help SMP and these were discussed with the relevant staff during the inspection.

### **PMF(N) Storage Facilities**

An inspection was carried out to review the operation of the stores in the PMF(N) complex. The key findings of the inspection were that the stores were considered to be suitably safe. ONR, did, however, identify two areas for improvement; The current heat load-based operating rules (ORs) were now not in line with how the stores were being managed, while the equipment installed to condition the inlet plenum air (and thereby guarantee good storage conditions in the store) was in a degraded condition. It is now being replaced. These findings were discussed with Sellafield Ltd and appropriate arrangements to address the issues were agreed.

An inspection was carried out to determine the adequacy of the emergency response arrangements at PMF(N). This involved the observation of a joint security and nuclear incident emergency exercise. From the findings of the inspection, it was ONR's opinion that a good deal of progress has been made towards providing suitable facility emergency response arrangements in PMF(N). Some minor issues were noted with communications, and emergency response protocols. These were discussed with the dedicated PMF(N) emergency response team and resolved. Sellafield Ltd recognises that it still needs to make further progress in order to achieve an adequate standard.

The Sellafield Plutonium Residues Store (SPRS) is storage facility built to modern standards; it is mostly remotely operated with fully automatic computer control. It is ONR's opinion that the standard of fit out and finish is exemplary and there is no evidence of any concerns regarding general plant safety or operability. During the period, an inspection was carried out to examine the adequacy of the safety system for criticality and leak detection in the SPRS facility. From the findings of the inspection, it was ONR's opinion that the arrangements in SPRS are adequate.

## **Decommissioning**

During this period, ONR undertook a planned inspection, jointly with the Sellafield internal regulator, against LC 6; 'documents, records, authorities and certificates'. This looked, in particular, at the adequacy of Sellafield Ltd.'s for the management of records for radioactive wastes. With regard to LC 6, it was ONR's opinion that these arrangements are below standard and did not meet ONR expectations. Sellafield Ltd has accepted an action from ONR to address the identified shortfall.

ONR also undertook a System Based Inspections during this period. This focused on the inerting system serving the Pile Fuel Cladding Silos (PFCS). This system was considered to meet the requirements of the safety case and that implementation of Sellafield Ltd.'s compliance arrangements for LC 10; 'training', LC 23; 'operating rules', LC 24; 'operating instructions', LC 27; 'safety mechanisms, devices and circuits', and LC 28; 'examination, inspection maintenance and testing' were adequate. Although considered adequate overall, ONR did identify opportunities for Sellafield Ltd to improve its alignment with the relevant ONR guidance. Sellafield Ltd has committed to address these areas and ONR will monitor progress during future visits.

ONR undertook a planned inspection, jointly with the Sellafield Ltd.'s internal regulator, against LC 28. This inspection examined the adequacy of Sellafield Ltd.'s arrangements for 'examination, inspection maintenance and testing', particularly as applied to the Active Handling Facility and the Redundant Active Handling Facility. It was ONR's opinion that the arrangements and their implementation were adequate. ONR considered that suitable work was being undertaken on asset care, and, in most areas, ONR judged it to be appropriately comprehensive. Some areas for improvement were identified but considered to be minor and would not affect the immediate safety of the plants.

ONR carried out a planned inspection in the Pile Fuel Storage Pond (PFSP) against the requirements of the Ionising Radiation Regulations 1999 (IRR99). From the evidence examined, ONR judged that radiological hazards are being adequately managed by the licensee and that Sellafield Ltd is complying with the requirements of IRR99. Furthermore, a clear commitment to accelerating hazard and risk reduction at the plant in a safe manner was noted. ONR identified some minor areas for improvement which were shared with the licensee and which will be followed up during future visits.

During this period, ONR also undertook a planned inspection, jointly with the Sellafield Ltd.'s internal regulator and the Environment Agency, against LC 35; 'decommissioning'. This looked at the adequacy of Sellafield Limited's arrangements for decommissioning. It was ONR's opinion that these arrangements are below standard and do not meet our expectations. Sellafield Ltd has accepted an action from ONR to address the identified shortfall.

ONR attended the regular Level 4 quarterly meeting to review Sellafield Ltd.'s environmental, safety, health and quality performance. ONR considers that these meetings have provided a good forum for monitoring the performance of the Decommissioning Division and to discuss and agree actions to address any adverse trends in safety. ONR noted that the restructuring of the Division could result in a dilution of the resource available to the Decommissioning Division and increased



complexity in communication of decommissioning matters. ONR will monitor this through our regular interactions with Sellafield Ltd.

In response to an adverse condition trend, ONR attended a meeting to review the arrangements for the control and supervision of operations in the Magnox Swarf Storage Silo (MSSS). Sellafield Ltd provided evidence regarding the processes currently in place. ONR is currently assessing these, but to date a determination on their adequacy has not been made. Further work is planned to engage with Sellafield Ltd to gain confidence that these procedures will be adequate to meet the increased work rate expected in MSSS as it moves from storage to waste retrieval mode in the future.

Sellafield Ltd has continued to make progress against the outstanding Level 4 Regulatory Issues, enabling several to be closed. Two new Regulatory Issues were raised at Level 3 during this period relating to matters described above.

### **Waste and Effluent Disposition**

Within this reporting period, ONR undertook planned compliance inspections in the Highly Active Liquor Evaporation and Storage (HALES) OU against LC 23; 'operating rules', and LC 28; 'examination, inspection, maintenance and testing'. From these inspections, a good standard of compliance was noted against LC 23, and an adequate standard against LC 28. The performance of the facility in respect of their review of operating rules was identified as a particular strength and the recent improvements made to the management and delivery of maintenance was also recognised at the time of the inspection.

ONR also undertook a planned compliance inspection in High Level waste Plants (HLWP) OU against LC 32; 'accumulation of radioactive waste' and an adequate standard of compliance was observed. A number of sustained improvements made by the licensee in respect of its management of medium active (MA) waste was noted.

Within this reporting period, ONR undertook planned compliance inspections in Effluent and Encapsulation Plants (E&EP) OU against LC 7; 'incidents on site'. From the findings of this inspection, the standard of compliance was considered to be adequate. ONR also noted a number of areas, particularly with regard to the trending of events, where Sellafield Ltd is seeking to progress improvements.

ONR also undertook planned compliance inspections in Solid Waste OU against LC 7; 'incidents on site' and the compliance against the licence condition was considered to be adequate. In common with the findings in E&EP, opportunities for improvements in trending had been identified and were being progressed. Subsequent inspections will be used to determine whether these activities are delivering sustained improvements.

ONR carried out a System Based Inspection within Solid Waste OU that examined the implementation of safety claims relating to the containment system within the waste storage facilities. The inspection focussed on the two engineered barriers claimed to prevent radioactive release to the environment. It was ONR's opinion that the safety claims made against the system were adequately implemented. It was also noted that there had been significant work undertaken to reduce waste within the facilities inspected. The recommendations made by ONR following the inspection were relatively minor in nature and were recognised and accepted by the licensee.

## **THORP**

During the reporting period, ONR undertook planned licence condition compliance inspections against LC 15; 'periodic review' (focusing on short term periodic review), LC 35; 'decommissioning', LC 12; 'duly authorised and other suitably and qualified and experienced persons', and LC 26; 'control and supervision of operations'. From the inspection findings, ONR concluded that Sellafield Ltd had demonstrated adequate compliance with these licence conditions.

ONR also carried out a planned compliance inspection against the requirements of the Ionising Radiation Regulations 1999, focusing on the adequacy of Sellafield Ltd.'s arrangements for the control of radioactive sources. From the findings, ONR concluded that, at the time of the inspection, Sellafield Ltd had demonstrated adequate implementation of its arrangements for the control of radioactive sources.

During the period, ONR undertook two Systems Based Inspections at THORP to assess the adequacy of the implementation of safety case claims in respect of the shearing and dissolver operations system and the criticality incident detection and alarm system (CIDAS).

For the shearing and dissolver operations system, ONR judged that the safety case had been adequately implemented and that compliance with the assessed licence conditions was adequate for all the examined licence conditions with the exception of LC 24; 'operating instructions', where ONR judged a good standard was present. In particular, there was evidence of above standard operational documentation being used to ensure compliance.

For the CIDAS, ONR judged that the safety case had been adequately implemented and that compliance with the assessed licence conditions was adequate for all licence conditions with the exception of LC 23, where compliance with LC 23 was considered to be below standard. It was ONR's opinion that the safety case supporting the CIDAS was not visible, user friendly or maintained with suitable rigour. ONR has raised a formal regulatory issue requiring Sellafield Ltd to address this issue.

## **2.2 Other work**

### **Project Delivery sub-programme**

The ONR Project Delivery sub-programme regulates the programmes, projects and activities, associated with the delivery of high hazard and risk reduction on the Sellafield 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 Sellafield Ltd to accelerate risk and hazard reduction, namely;

- Prioritisation
- Use of resources
- Removal of blockers
- Removal of diversions and distractions

- Incentivisation
- Fit for purpose solutions.
- Risk Appetite
- Communications

Key points from ONR's interventions with the licensee during this reporting period (October 2015 – March 2016) were:

#### Legacy Ponds:

ONR remains particularly encouraged with the progress that Sellafield Ltd continues to make on risk and hazard reduction in the legacy ponds. Of note:

Pile Fuel Storage Pond (PFSP): During this reporting period, ONR issued Licence Instrument 894 agreeing to Sellafield Ltd commencing export operations of the PFSP metal fuel transfer route. Sellafield Ltd has subsequently completed the export of bulk metal fuel from the PFSP. This coupled with the completion of the export of canned fuel represents a significant reduction in hazard and risk associated with PFSP. ONR is pleased with the rate of progress given the number of challenges that this project has had to overcome. The ONR regulatory focus for PFSP continues, but is now in relation to the retrieval, removal and export of intermediate level waste and bulk sludge from the pond. Sellafield Ltd has confirmed that an identified Key Decommissioning Milestone associated with the Pile Fuel Storage Pond Drum Filling Plant (DFP) project will be delayed into the next financial year due to a risk with sludge characteristics being realised. This issue affects the project schedule; however ONR remains content with how Sellafield Ltd is reviewing options to minimise the impact on the schedule.

First Generation Magnox Storage Pond (FGMSP): ONR is also encouraged with the progress associated with the programme of work associated with the FGMSP. Sellafield Ltd has completed the active commissioning progress of the Sludge Packaging Plant, which will support bulk retrievals of sludge in the next financial year. During March 2016, Sellafield Ltd successfully commenced the transfer of bulk sludge from FGMSP to the Sludge Packaging Plant via washing skips, which is another key enabler in terms of hazard and risk reduction. The ONR regulatory focus for FGMSP continues in relation to bulk sludge retrievals and commencement of export of fuel.

#### Legacy Silos:

ONR recognises the progress that Sellafield Ltd continues to make on risk and hazard reduction in the legacy silos. Of note:

Magnox Swarf Storage Silo (MSSS): Sellafield Ltd has continued to make progress in installing the Silo Emptying Plant (SEP2) to MSSS during this period - ONR is encouraged to note that 50% of the SEP2 build is now complete. ONR continues to engage with Sellafield Ltd to gain regulatory confidence that activities which directly support earliest hazard and risk reduction from MSSS are progressed in a timely manner.

Pile Fuel Cladding Silo (PFCS): ONR has had ongoing concerns that Sellafield Ltd was not making adequate progress with its programme of risk and hazard reduction for the PFCS and has, in consequence been working intensively with this facility. Based on evidence from recent interactions there appears now to be an improving

picture in developing an integrated programme and we have increased in confidence that this can be delivered in a timely manner. In particular, ONR notes the endorsement of the Programme Level Business Case, setting out the overall decommissioning programme, by the Nuclear Decommissioning Authority (NDA). ONR is also pleased that the sanctioning strategy for the Waste Retrieval Project Business Case has been agreed with NDA ahead of full approval of the case and its subsequent presentation to Government. ONR has started the assessment of the safety case supporting Sellafield Ltd.'s request to commence the removal of the deflector plates within the silo. We expect to reach a regulatory decision on this key stage of enabling work in the first quarter of the next financial year. Finally, ONR also notes the significant progress which Sellafield Ltd has made in installing a metal fire-fighting system on the silo. ONR undertook an Essential Operations Inspection in March 2016 which concluded that a fit-for-purpose fire-fighting capability is now in place, although some further work remained to be done to complete staff training and to finalise the supporting arrangements.

**Waste Handling Facilities:** Sellafield Ltd is progressing a number of new build and existing facility modification activities that will directly support waste retrieval from MSSS and PFCS. ONR has engaged with Sellafield Ltd to gain regulatory confidence that these facilities can be delivered in time to meet the overall programme for earliest safe waste retrievals from the silos. In particular, ONR has focused on the Box Encapsulation Plant (BEP), Alternative Intermediate Level Waste Approach (AILWA) implementation and significant storage and handling facilities. ONR's regulatory focus will continue in this area in the coming months.

**Decommissioning:** As previously reported, ONR still remains concerned with Sellafield Ltd.'s rate of delivery and the management of risks associated with the First Generation Magnox Reprocessing Stack demolition project. ONR has stressed the importance of timely delivery of this project while continuing to manage safety risks appropriately. This is a significant hazard reduction project and ONR is working to encourage Sellafield Ltd to adopt a fit for purpose solution to achieve a timely outcome, whilst still maintaining good standards of nuclear safety.

ONR is encouraged with the progress that is being made by Sellafield Ltd in relation to Separation Area Ventilation project, especially in terms of the commencement of the first active diversion being completed during March 2016. ONR continues to provide regulatory focus on the remaining diversions and progress towards commencing routine vent operations.

ONR also continues to monitor the commissioning of a process to remove redundant equipment from a legacy processing facility, supporting ONR's hazard and risk reduction strategy for the Sellafield site. The process will enable the removal and packaging of redundant equipment to secure storage on the Sellafield site and continues to deliver post operational clean out of that legacy facility.

**High Level Waste Plants:** ONR has accepted Sellafield Ltd.'s safety case for continued operation of Evaporator C following assessment of the results from its base inspections. Sellafield Ltd has complied with its operating rule for reducing highly active liquor (HAL) stocks for the 2015/16 financial year. ONR will continue to encourage Sellafield Ltd to commence timely active commissioning of Evaporator D to secure ongoing HAL stock reductions.

**Infrastructure:** As previously reported, ONR remains disappointed that Sellafield Ltd still has open recommendations, findings and considerations with regard to completing

the first phase of its post-Fukushima resilience improvements. ONR has considered its regulatory position in this regard and issued an enforcement letter detailing the remedial actions required by Sellafield Ltd that is to be delivered at the end of the 2015/16 financial year.

ONR continues to engage with Sellafield Ltd over the need to secure long term provision of analytical services for the Sellafield site. This is necessary to support the safety of ongoing operations, and specifically, hazard and risk reduction across the site. ONR has also continued to engage with Sellafield Limited to secure the reduction in the legacy waste presently stored within the Analytical Services facility, and is pleased with current progress.

ONR continues to remain focussed on Sellafield Ltd.'s improvements to secure long term resilience of electricity, steam, compressed air and water utility site utility systems. ONR has observed adequate progress in line with the declared Sellafield Ltd programme.

Magnox Reprocessing Separation Plant: The Magnox Reprocessing Separation Plant (MRSP) has an important role within the UK nuclear industry until circa 2020, as it supports a number of UK national risk and hazard reduction programmes, including the UK Magnox Operating Programme (UK MOP). If the MRSP is not available to reprocess spent Magnox fuel, there would be significant knock-on effects on a number of other nuclear facilities which would result in safety and security issues. Continuing operation of the MRSP is fundamental to ongoing risk and hazard reduction on the Sellafield site.

In June 2015, ONR issued an Improvement Notice (IN) in relation to LC 24; 'operating instructions' breaches related to events on the site over the previous 14 months. Since the IN was served, further related events have occurred at the MRSP and reported to ONR in line with normal arrangements. In July 2015, ONR approved a revised regulatory strategy for the MRSP which recognises the strategic importance of the plant, its age and design, and that events such as those that led to ONR's Notice will likely continue to occur until the improvements Sellafield Ltd is making have become properly embedded. This revised regulatory strategy, which increases our regulatory focus on MRSP, has now been implemented and is being actively managed by the Project Delivery sub-programme.

#### General:

During this reporting period, ONR has continued to embed its regulatory strategy for Sellafield and has supported key messages at the relevant WCSSG sub-groups related to the extension request by Cumbria County Council to ONR to revise and implement Phase 2 of the off-site emergency plan for the area surrounding the Sellafield site. The request for an extension to the time limit follows the impact of unprecedented rainfall and subsequent flooding within the county of Cumbria.

ONR continues to hold a monthly Regulatory Interface Meeting (RIM) with Sellafield Ltd where it discusses all aspects within its regulatory remit, i.e. nuclear safety, security, conventional safety, safeguards and transport safety.

### **3 NON-ROUTINE MATTERS**

In March 2016, ONR issued a Licence Instrument (Agreement) giving Sellafield Ltd permission to commence an organisational change leading to a change of ownership

of the company on the 1<sup>st</sup> April 2016. The change is from a model where NDA has a commercial contract with Nuclear Management Partners to own and run Sellafield Ltd on its behalf, to one of direct ownership by NDA. ONR had undertaken proportionate engagement with NDA and Sellafield Ltd over more than a year and has assessed evidence from documents, observation, and interviews. ONR examined whether:

- The proposed new structure would allow Sellafield Ltd to remain an autonomous, capable licensee with suitable governance;
- There would be effective risk management of the change by Sellafield Ltd and NDA;
- The process of transition would be managed so that any potential confusion and disruption to nuclear safety and hazard remediation would be minimised.

ONR is satisfied from its assessment of the evidence that all of these matters are being adequately managed. Sellafield Ltd and ONR will review how well the new structure is functioning once it is properly embedded.

### **NON-ROUTINE MATTERS - PLUTONIUM**

Due to the high levels of project work associated with the SPRS retreatment plant design and build and the refurbishment of the First Generation Finishing Line (FGFL) facility, two Level One Regulatory Issues (i.e. our highest level) have been raised to recognise the importance of these areas of work to site hazard/risk reduction. A corresponding project has been set up in ONR's Project Delivery sub-programme and ONR has transferred resources so that the necessary regulatory focus is applied.

### **NON-ROUTINE MATTERS - THORP**

On 2nd October 2015, Sellafield Ltd identified that a potential failure of Alpha Monitor a3038 had occurred. This safety mechanism is one of a number whose function is to prevent unsafe levels of fissile material being unexpectedly fed forward to a non-criticality safe part of the plant. ONR carried out a fact finding investigation into the event and concluded that Sellafield Ltd had failed to secure compliance with the requirements of Licence Condition 23 which requires that operations are at all times controlled and carried out in compliance with the limits and conditions identified in the safety case.

ONR's investigation identified that a number of regular checks had failed to properly identify that a3038 was in a potentially degraded state. ONR acknowledged that Sellafield Ltd had taken prompt action to implement enhanced processes and procedures for ensuring the availability of alpha detectors in response to the event, and that there had been no significant impact on safety due to the inclusion of another independent safety mechanism in the plant's design. ONR concluded, however, that there were a number of human and organisational issues which had contributed to the event which require improvement.

Following application of our enforcement management model, and in accordance with ONR's Enforcement Policy statement, we judged it appropriate to issue a formal regulatory letter requiring Sellafield Ltd to identify and implement a suitable

improvement plan to address the human and organisation shortfalls which contributed to this event.

### **NON-ROUTINE MATTERS - Effluents and Encapsulation Plants**

During the period of this report, the Effluent and Encapsulation Plants Operating Unit (E&EP OU) has experienced a number of events relating to control of plant operations, configuration of plant, management of plant modifications, and responses to plant condition. Across all these events, a number of wider concerns were identified by ONR, relating to engineering plant management, and timely effective challenge by the plant's leadership teams. ONR held a formal 'Regulatory Fact-Finding' meeting with the licensee at Bootle to define those concerns, and to gain confidence that Sellafield Ltd has developed an appropriate programme of improvements which would address the key issues identified from these events. ONR gained suitable confidence from that engagement and the licensee's progress with the implementation of its improvement plan will be monitored by ONR through a Regulatory Issue.

### **NON-ROUTINE MATTERS - Decommissioning**

During the period, Sellafield Ltd notified ONR that a loss of functionality of hydrogen monitoring equipment on the Magnox Swarf Storage Silo (MSSS) had not been recognised for a period of several days. ONR has examined Sellafield Ltd.'s initial response to the event and is monitoring the progress of its Board of Enquiry investigation into the causes and learning opportunities. Once Sellafield Ltd has completed this work, ONR will meet with the licensee to consider the adequacy of its investigation and corrective action plan in order to determine its regulatory response.

### **Periodic Safety Reviews**

Following a review of Sellafield Ltd.'s implementation of its Long Term Periodic Review (LTPR) arrangements on the First Generation Magnox Storage Ponds (FGMSP), ONR has issued a decision letter confirming it is satisfied that Sellafield Ltd had undertaken an adequate review of safety for FGMSP. ONR also closed out its review of the Conversion Plant in Plutonium Manufacturing facilities (North) following a successful inspection of Sellafield Ltd.'s implementation of its LTPR improvement programme and receipt of Sellafield Ltd.'s Confirmation of Safety Letter (COSL).

During this six month period, ONR also undertook inspections of Sellafield Ltd.'s implementation of the LTPR improvement programme for the Pile 1 facility and the Waste Treatment Complex. Sellafield Ltd.'s COSLs for these facilities are expected in the next reporting period.

## **4. REGULATORY ACTIVITIES**

### **Licence Instruments issued:**

LI 895, 897, 898, 899, 900 & 901:

Following a critical analysis of all extant Specifications and Approvals placed on the licensee (Sellafield Ltd), six Approvals were identified as being no longer required as a result of change in use of certain facilities or that facilities had ceased operations. These six Licence Instruments (LI), issued in February 2016, withdraw those Approvals. In addition, the covering letter accompanying the LIs also highlighted two Specifications that ONR consider to no longer be proportionate and so

for the time being will not enforce against them. This is a direct result of ONR's increased confidence in Sellafield Ltd.'s arrangements for dealing with these matters and the alignment with ONR's current Sellafield programme strategy of reducing the regulatory burden on Sellafield Ltd where this is appropriate.

LI 896:

Following a period of specialist assessment, ONR has issued an 'Agreement' via a LI that permits a share transfer on the 1<sup>st</sup> April that will see the Nuclear Decommissioning Authority become the owners of Sellafield Ltd. The LI was issued in March 2016.

LI 893:

The Central Laboratory on the Sellafield site provides a key Research & Development function for both Sellafield and the wider UK nuclear industry. Sellafield Ltd submitted a request (on behalf of National Nuclear Laboratory (NNL), the operators of the Central Laboratory) to begin active commissioning on part of the facility known as 'Area 400'. Following a period of assessment by Criticality, Human Factors, Fault Studies, Control & Instrumentation (C&I) and Mechanical specialists, ONR has issued a LI permitting active commissioning of Area 400 to begin. However, as part of this process, ONR identified the need for two further hold points in NNL's commissioning programme. The LI was issued in December 2015.

LI 892 & 892A:

Sellafield Ltd has recently revised its on-site emergency plan. As this plan has been previously Approved by ONR, subsequent revisions must also be Approved. Therefore, following a period of assessment by the appropriate specialists within ONR's Emergency Preparedness & Response team, ONR issued an LI to Approve the revised arrangements. Unfortunately, following the issue of LI 892, minor clerical errors were identified and LI 892A was issued to correct these. The LIs were issued in December 2015 (892) and February (892A).

### L3 RIM Decision Records:

As part of the ONR Sellafield Programme's flexible permissioning arrangements, ONR can elect to permission activities via the Level 3 Regulatory Interface Meeting (L3 RIM) – a monthly meeting between ONR Superintending Inspectors and Sellafield Ltd senior management. The process of making and recording each regulatory decision is documented in a Decision Record (DR). Part I of the DR justifies the regulatory strategy, and Part II provides the justification for the regulatory decision made. A proportionate degree of specialist assessment is usually required. Production and authorisation of DRs is subject to similar scrutiny to that applied to Project Assessment Reports supporting the issue of a LI (i.e. the Decision Record is signed off by a Superintending Inspector), but the detail included in the DR is reduced in proportion to the lower risks and hazards pertaining to the circumstances where flexible permissioning is used.

ONR-SEL-DR-15-26:

An Automated Guided Vehicle (AGV) is used within the Solid Waste Complex to move low level waste drums from the operational areas to store. The current AGV had reached the end of its life and a new, modern version, operating on a different principle was to be installed. Specialist assessment from Mechanical Engineering and C&I inspectors was undertaken. The activity was permissioned at the January 2016 Level 3 RIM.



**ONR-SEL-DR-15-36:**

Sellafield Ltd had proposed to do some intrusive work on the cooling circuit of one of the vessels designed to hold highly active liquor. This work was necessary to mitigate the potential consequences of a failure (caused by corrosion) in the cooling circuit piping. Specialist assessment by Structural integrity, Fault Studies and Process Engineering specialists was undertaken. The activity was permissioned at the January Level 3 RIM.

**ONR-SEL-DR-15-42:**

The Residue Export Facility enables Sellafield Ltd to return waste products from reprocessing operations back to the country of origin. To do this, the facility makes use of a number of accredited transport flasks. A new type of flask was due to arrive in the facility and so needed to be commissioned. The activity was permissioned at the Level 3 RIM in February 2016, following a readiness inspection undertaken by a Mechanical Engineering specialist.

**ONR-SEL-DR-15-45:**

Following the issue of LI 893, the first hold point in the active commissioning programme for 'Area 400' was reached in late January. NNL and Sellafield Ltd submitted further evidence to ONR, as a result of the agreed Human Factors programme. A readiness inspection, attended by the Human Factors specialist found positive progress, such that the hold point could be lifted. This was confirmed at the February Level 3 RIM.

**'For Information' Decision Records:**

As part of the ONR Sellafield Programme's flexible permissioning arrangements, ONR can elect to 'waive' the opportunity to permission activities, classing these as 'For Information Only'. The process of making and recording the regulatory decision to do this is performed through the production of a Decision Record as described above (but Part I only, justifying the regulatory strategy). The Decision Record agreeing the strategy is signed by a Superintending Inspector, thereby retaining sufficient oversight. The 'For information Only' route can be chosen for several reasons, most commonly because the activities proposed are repeat activities that have been previously assessed and permissioned, or simply because ONR has sufficient confidence in Sellafield Ltd to undertake the activity without further regulatory scrutiny.

**ONR-SEL-DR-15-28:**

During the commissioning of Cave 1 within the Active Handling Facility, Sellafield Ltd stated a maximum number of flasks that could be processed. However, as a result of issues during the commissioning process itself, it was identified that more flasks would be needed. As the increase was modest, and had minimal, if any safety impact, the activity was allowed to continue without further ONR scrutiny.

**ONR-SEL-DR-15-29:**

Sellafield Ltd is currently undertaking modifications across a number of shield doors within the Waste Vitrification Plant. As these modifications are identical and are to be repeated a number of times, and ONR had already assessed and issued an LI for the first modification (completed successfully), it was deemed proportionate to allow the activities to continue without further scrutiny.

ONR-SEL-DR-15-40:

Sellafield Ltd wished to extend a 'Licence to Occupy' on the nuclear licenced site to allow the timing of the licence to align with that of a contract made with one of its subcontractors. Given that the risks posed by the subcontractor were well managed, ONR did not request a full submission under Licence Condition 3.

Continuing Permissioning Activities:

Throughout the period, ONR has continued to provide robust challenge to several submissions from Sellafield Ltd. These include:

- Dosing of the THORP storage pond to pH9 to enhance the corrosion protection of the fuel stored within it, whilst ensuring the potential for unwanted effects on other items in the pond are minimised.
- Agreement to allow Cave 1 in the Active Handling Facility to move from commissioning to operational status (see also ONR-SEL-DR-15-28, above).
- Improvements to the radiometric instrumentation within the Active Handling Facility.
- Modification to the operations of a storage tank with THORP as a result of a blockage in a ventilation line.
- Proposals to transfer tritiated material across the site for the purposes of consolidated storage.

**Licence Instruments and Enforcement Notices Issued by ONR during this period**

**Sellafield limited - Sellafield (and Calder Works) – Nuclear Site Licence no. 31G**

Date	Type	Ref No	Description
21/10/15	Consent	SEL77562N	Consent to Resume Feeding of Irradiated Fuel to the B205 Dissolver following the 2015 Periodic Shutdown
02/11/15	Enforcement	SEL77564N	Outcome of ONR Consideration of further regulatory action in the area of resilience at Sellafield site
11/12/15	Approval	SEL77565 (LI892)	Approval of the Sellafield Emergency Plan, Issue 15, dated April 2015
21/01/16	Agreement	SEL77567N	Agreement to Commence Export Operations of the Pile Fuel Storage Pond Metal Fuel Transfer Route

10/02/16	Approval	SEL77572N	Approval of revised Sellafield on-site Emergency Plan.(Amendment to 892)
29/02/16	Withdrawal	SEL77573N	Withdrawal of Six Approvals - Sellafield (Windscale Works and Calder Works)- LI 895,897-901

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 [Regulation Matters](#). The online publication reports on the key themes and developments in each of ONR's regulatory programmes and provides an update about the on-going changes at ONR. For the latest news and updates from ONR visit the [website](#) and sign up for our [ebulletin](#).

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