



# Office for Nuclear Regulation (ONR) Six Monthly Site Report for Sellafield Site West Cumbria Sites Stakeholder Group (WCSSG)

Covering the period – 01 April to 30 September 2017



## 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 every six months to members for the West Cumbria Sites Stakeholder Group and are also available on the ONR website (<http://www.onr.org.uk/lrc/>).

Site inspectors from ONR usually attend West Cumbria Sites 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.gov.uk

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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>Period - 01 April 2017 30 September 2017</b>	<b>April 2017</b>	<b>May 2017</b>	<b>June 2017</b>	<b>July 2017</b>	<b>August 2017</b>	<b>September 2017</b>
<b>Plutonium</b>	<b>25 April</b>	<b>10-11 31 May</b>	<b>21-22 June</b>	<b>04 11-13 July</b>	<b>15-17 22-24 August</b>	<b>13-14 September</b>
<b>Thorp</b>		<b>09 May</b>	<b>06-07 June</b>	<b>11-12 July</b>		<b>11-13 September</b>
<b>Decommissioning</b>	<b>11-12 April</b>	<b>11-12 May</b>	<b>06 June</b>	<b>04-05 July</b>	<b>22 August</b>	<b>12 September</b>
<b>Magnox</b>		<b>23 May</b>	<b>28-29 June</b>	<b>27-28 July</b>		<b>11- 14 17 September</b>
<b>Operational Waste Facilities</b>	<b>11-12 27-28 April</b>	<b>11 17 May</b>	<b>13-15 June</b>	<b>14 18 July</b>	<b>08-10 August</b>	<b>13-15 September</b>
<b>Infrastructure</b>	<b>04 April</b>	<b>09-10 May</b>	<b>13-14 June</b>	<b>11 July</b>		<b>25 September</b>
<b>Corporate</b>		<b>09-10 May</b>	<b>21-22 June</b>	<b>18-19 July</b>		<b>12 15 September</b>
<b>Project Delivery</b>		<b>10 May</b>			<b>10 August</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 Ltd covered the following:

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

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

#### **Routine Matters - Corporate Inspection Programme**

ONR's corporate inspection programme for the Sellafield site has three 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 on, and support, its leadership and management for safety activities; and
- Overseeing Sellafield Ltd's organisational capability and management of organisational change.

ONR carried out a number of inspections of Sellafield Ltd's nuclear site licence compliance arrangements during the period covered by this report. ONR also continued to monitor and support delivery of the improvements identified during earlier inspections.

Licence condition arrangements inspections delivered during this period included Licence Condition (LC) 36; Organisational capability, LC24; Operating instructions, LC18; Radiological protection - including the Ionising Radiations Regulations 1999 (IRRs), and LC 2; Marking of the site boundary. ONR was satisfied that Sellafield Ltd's arrangements for compliance with Licence Conditions 36, LC18 / IRRs and LC2 are adequate. However in relation to Licence Condition 24 ONR's opinion was that there were shortfalls in aspects of Sellafield Ltd's arrangements. ONR escalated an existing Regulatory Issue on this topic and received a satisfactory response from Sellafield Ltd in the form of a credible forward improvement which ONR will track. ONR also raised a separate Regulatory Issue for Sellafield Ltd to clarify its approach to ensuring compliance with standards related to disciplined operations.

During this period ONR closed Regulatory Issues relating to Sellafield Ltd's identification of resources required for nuclear safety, quality of event investigations, staffing of the Contractor's Control Room and arrangements for compliance with Licence Condition 28 (Examination, inspection, maintenance and testing).

ONR is continuing to track Sellafield Ltd's progress in addressing four open Regulatory Issues relating to leadership and management for safety (specifically: consistency of safety leadership, shared understanding of 'fit for purpose' hazard and risk reduction, the design and implementation of the licensee's safety management system, and working level instructions). ONR is satisfied with Sellafield Ltd's progress on all four of these issues during this period.

ONR is continuing to monitor Sellafield Ltd's progress towards closure of a Regulatory Issue raised in July 2016 concerning Licence Condition 6 (Documents, records, authorities and certificates). ONR is seeking improvements in Sellafield Ltd's records management system.

During this period ONR has increased its oversight of Sellafield Ltd's transformation plan. ONR will apply a targeted and proportionate approach to permissioning the organisational changes associated with this transformation.

### **Routine Matters – Magnox**

Within the Magnox Operating Unit (OU), ONR carried out seven planned Licence Condition Compliance Inspections within the wider Magnox OU, and one System Based Inspection (SBI) at the Magnox Reprocessing Facility.

For the six routine planned compliance inspections, ONR judged that licensee compliance with LC7; Incidents on site, LC11; Emergency arrangements, LC12; Duly authorised and other suitably qualified and experienced persons, LC23; Operating rules, LC24; Operating instructions, and LC26; Control and supervision of operations, were all rated Green (no formal action).

ONR also undertakes some unannounced inspections on the licensed site. For the one unannounced planned inspection, ONR judged that licensee compliance with LC32; Accumulation of radioactive waste, was rated Green (no formal action).

For the SBI of the fire protection system (incorporating both detection and suppression functions), ONR judged compliance with four of the five sampled licence conditions to be adequate. The LCs inspected were the standard set for SBIs: LC10; Training, LC23; Operating rules, LC24; Operating instructions, LC27; Safety mechanisms, devices and circuits, and LC 28; Examination, inspection, maintenance and testing. LC34; Leakage and escape of radioactive material and radioactive waste, was not inspected at this time, as it was not applicable to the system under consideration.

Four of the five LC were rated as Green (no formal action), but LC 27 was rated as Amber (seek improvements). During the inspection, ONR noted that component condition had, in a small number of areas, not been maintained to an adequate standard, although this had not impacted on the safety function of the system in this case. ONR therefore raised a Regulatory Issue, in order to seek improvements in the licensee's performance in this area, and will track Sellafield Ltd's timely delivery in accordance with the relevant ONR process.

### **Routine Matters - Infrastructure**

During the period ONR in conjunction with the Environment Agency inspected arrangements for compliance with LC35; Decommissioning, within the licensee's Analytical Services organisation. The licensee is required to make and implement adequate arrangements for the decommissioning of any plant or process which may affect safety.

No significant findings were identified during this inspection. Nevertheless, ONR considered it proportionate to raise a minor Regulatory Issue to track the licensee's progress to establish a detailed decommissioning strategy for its near term planned decommissioning projects.

ONR inspected arrangements for compliance with LC12; Duly authorised and other suitably qualified and experienced persons, and LC26; Control and supervision of operations, within the licensee's Fellside Combined Heat and Power facility. The supply of process steam to a number of Sellafield site-wide operating facilities is important to safety.

No significant findings were identified during this inspection. Overall, ONR considered the licensee had adequately implemented its arrangements for compliance with LC12 and LC26 for its Fellside Combined Heat and Power facility.

During the period ONR inspected arrangements for compliance with LC36; Organisational capability, within the licensee's Analytical Service organisation. The Organisation provides a number of important roles (e.g. material characterisation, chemical, physical and radiometric measurement and analysis) that support the safety of Sellafield site-wide operating facilities, including its high hazard and risk reduction work.

No significant findings were identified during this inspection. Overall, ONR considered the licensee had adequately implemented its arrangements for compliance with LC 36 for its Analytical Services organisation.

ONR conducted a System Based Inspection of the Licensee's Package Management, Road and Railways organisation. The inspection targeted the Sellafield site railway infrastructure as this provides a safe and secure transportation function between the licensee's facilities.

During the course of ONR's inspection the licensee demonstrated several examples of good practice. However, the inspection identified a number of minor deficiencies and anomalies against LC 10; Training, and LC 34; Leakage and escape of radioactive material and radioactive waste. However, ONR considered the significance of these deficiencies to be low and will not be following up any associated improvements. Regarding LC24; Operating Instructions, the licensee provided an adequate level of evidence to demonstrate that operations that affect safety are conducted in accordance with written instructions.

The inspection identified a number of more significant shortfalls however, and as a result ONR awarded an Amber inspection rating (seek improvement) against LC 23; Operating Rules, LC27; Safety mechanisms, devices and circuits, and LC 28; Examination, inspection, maintenance and testing. ONR has consequently raised two Regulatory Issues as a result of these shortfalls, and will follow these up to ensure that Sellafield Ltd returns to compliance.

During the period ONR conducted inspections covering LC 12; Duly authorised and other suitably qualified and experienced persons, and LC26; Control and supervision of operations, within the National Nuclear Laboratory (NNL) Central Laboratory. NNL is a tenant on the licensed site conducting activities affecting nuclear safety, and so its activities are subject to licence condition compliance and other relevant inspections. The NNL Central Laboratory undertakes a number of important functions (e.g. material characterisation, chemical, physical and radiometric measurement and analysis) on the Sellafield site.

During the course of the inspection Sellafield Ltd, as the licensee, provided an adequate level of assurance as to its management and control of its NNL tenant. In addition, NNL provided an adequate level of assurance as to ownership and implementation of its safety case. NNL also demonstrated an adequate understanding of the licensee's LC 26 site-wide arrangements. Overall, ONR considered Sellafield Ltd and NNL had adequately implemented arrangements for compliance with LC 26 for this Central Laboratory facility.

During the period ONR has also inspected arrangements for compliance with LC 22; Modification or experiment on existing plant, within the Fellside Boiler Park and Steam Generation Plant Projects. The supply of process steam to a number of Sellafield site-wide operating facilities is important to safety.

No significant findings were identified during this inspection. However, ONR considered it proportionate to raise a minor Regulatory Issue requiring that the licensee confirms that it has validated that the plant will meet its design intent prior to transition to operations.

ONR has continued to monitor the licensee's progress against a number of Regulatory Issues where shortfalls against legal requirements, or other actions, have been

identified through previous inspections or other regulatory engagements. ONR has been content with the progress made in this area, and will continue to monitor licensee performance until these matters are resolved.

### **Routine Matters - Plutonium Management**

Within the Plutonium Finishing and Storage Operating Unit (PF&S OU), ONR carried out three planned Licence Condition Compliance Inspections within the wider OU and one System Based Inspection (SBI) within the Plutonium Management Facility (North).

For the planned compliance inspections, ONR judged that licensee compliance with LC12; Training, LC 24; Operating Instructions, and LC32; Accumulation of radioactive waste were adequate, and awarded Green (no formal action) inspection ratings.

For the SBI which covered the ventilation systems, ONR judged compliance with all six of the standard set of SBI licence conditions to be adequate and awarded Green (no formal action) ratings for each.

### **Routine Matters - Decommissioning**

During this period, ONR undertook planned Licence Condition Compliance Inspections against LC7; Incidents on site, LC11; Emergency arrangements, LC25; Operational records, LC26; Control and supervision of operations and LC35; Decommissioning.

The LC7 planned inspection was carried out in the Magnox Swarf Storage Silo (MSSS). Here the facility's application of Sellafield Ltd's arrangements met our expectations and a Green (no formal action) inspection rating was awarded. ONR nevertheless identified some minor improvements, which will be followed up as routine regulatory business.

The LC11 inspection focused on the emergency arrangements at the Pile Fuel Storage Pond (PFSP). ONR considered that the use of cross-Decommissioning Directorate resources by Sellafield Ltd provides good emergency staffing and equipment coverage across the legacy ponds and silos. Though we awarded a Green (no formal action) inspection rating here, we noted a number of minor issues and Sellafield Ltd has subsequently made satisfactory progress in addressing these.

The LC25 inspection focused on the implementation of Sellafield Ltd's operational records arrangements in the First Generation Magnox Storage Pond (FGMSP). Here the facility's application of the arrangements met our expectations and a Green (no formal action) inspection rating was awarded. ONR nevertheless identified some minor improvements, which will be followed up as routine regulatory business.

The LC26 inspection, focused on the control and supervision of operations in MSSS. This was carried out with ONR's corporate site inspector in support of his work plan. ONR found that the implementation of Sellafield Ltd's arrangements meet legal standards in regard to how MSSS allocates competent individuals to supervise tasks important to safety and awarded a Green (no formal action) inspection rating here. We also identified some minor improvements which will be followed up as routine regulatory business.

The LC35 inspection focused on the implementation of Sellafield Ltd's decommissioning arrangements in the Thorp Mini Pilot Plant (TMPP). Here the facility's application of the arrangements met our expectations and a Green (no formal action) inspection rating was awarded. ONR nevertheless identified some minor improvements, which will be followed up as routine regulatory business.

ONR also undertook two System Based Inspections (SBIs) during this period.

The first SBI focused on the containment system serving the FGMSP. ONR considered this system meets the requirements of the safety case and awarded a Green (no formal action) inspection rating for four of the six standard SBI licence conditions. However, for LC28; Examination, inspection, maintenance and testing, and LC34; Leakage and escape of radioactive material and radioactive waste, ONR determined that the implementation of the Sellafield Ltd arrangements did not meet required standards and awarded Amber inspection ratings (seek improvement) here. ONR has raised a Regulatory Issue to track the delivery of Sellafield Ltd's action plan to address the identified shortfalls.

The second SBI focused on the electrical system within the PFSP. As an outcome of the inspection, ONR considered this system to meet the requirements of the safety case and awarded Green ratings (no formal action) for all six standard SBI licence conditions. ONR nevertheless noted a number of minor shortfalls which will be taken forward as part of routine regulatory business.

ONR attended regular quarterly meetings 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 organisation and to discuss and agree actions to address any adverse trends in safety. ONR noted some improvements in control and supervision of operations within the FGMSP and PFSP facilities, and suggested that the lessons learnt be shared across Sellafield Ltd.

ONR continues to monitor and encourage the control and supervision improvements being implemented across all Decommissioning activities by Sellafield Ltd. This has included operations within the National Nuclear Laboratory Active Handling Facility during this period.

This subject is considered to be particularly important in view of the temporary increases in risk from the Legacy Ponds and Silo facilities as waste retrievals and remediation activities accelerate across the Sellafield site.

### **Routine Matters – Operational Waste Facilities**

Within this reporting period, ONR undertook planned compliance inspections in the High Level Waste Plants (HLWP), and the Highly Active Liquor Evaporation and Storage (HALES) facilities, the Encapsulation and Effluent Plants (E&EP), and the Remediation Operating Units (OUs).

Within the HALES OU, ONR carried out three planned Licence Condition Inspections and one System Based Inspection (SBI). For the planned Licence Condition

Compliance inspections ONR judged that licensee compliance with LC 7; Incidents on the site, LC22; Modification or experiment on existing plant, and LC28; Examination, inspection, maintenance and testing, met the required standard and ONR awarded Green (no formal action) inspection ratings here.

For the SBI of the pipebridges within HALES, ONR judged that the associated systems met the requirements of the safety case, and rated the six standard licence conditions as Green (no formal action).

Within the HLWP OU, ONR carried out an LC11; Emergency arrangements, compliance inspection and judged that the licensee compliance met the required standard and ONR awarded a Green (no formal action) inspection rating here.

ONR also carried out two planned licence condition compliance inspections within the Remediation OU, covering: LC11; Emergency arrangements and LC34; Leakage and escape of radioactive material and radioactive waste. ONR judged that compliance with both these licence conditions met the required standards and we awarded Green (no formal action) inspection ratings here.

### **Routine Matters – THORP**

Within this area of regulatory interest, which covers THORP and the Oxide Fuel Storage Group, ONR carried out five planned Licence Condition Inspections and one System Based Inspection (SBI). For the planned Licence Condition Compliance inspections ONR judged that licensee compliance with LC 7; Incidents on the site, LC11; Emergency arrangements, LC22; Modification or experiment on existing plant, LC24; Operating instructions, and 36; Organisational capability, was adequate and awarded Green (no formal action) inspection ratings.

For the SBI of the Thorp Highly Active Laboratories ONR judged compliance with all six standard licence conditions to be adequate. The LCs inspected (a standard set for SBIs: LC10; Training, LC23; Operating rules, LC24; Operating instructions, LC27; Safety mechanisms, devices and circuits, LC 28; Examination, inspection, maintenance and testing, and LC34; Leakage and escape of radioactive material and radioactive waste) were all rated as Green (no formal action).

## **2.2 Other work**

### **Project Delivery sub-division**

The ONR Project Delivery sub-division 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-division 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 – 01 April 2017 to 30 September 2017 are:-

### **Strategic Improvement Themes**

ONR continues to engage with Sellafield Ltd across a wide variety of areas to improve its processes for delivering projects on site. The key regulatory foci over the past reporting period have been influencing Sellafield Ltd to develop a fully integrated plan to improve the performance of its supply chain, to expedite hazard and risk reduction activities on site, and to develop fit for purpose engineering solutions and safety cases.

### **High Level Waste Plants**

In May 2017 ONR assessed and agreed (via Licence Instrument 502) to Sellafield Ltd's request for permission for a new Highly Active Liquor (HAL) stocks control mechanism. This requires the Sellafield Ltd Spent Fuel Management Director to undertake a critical review of the performance of the reprocessing and vitrification facilities to ensure that the risks from HAL stocks are being maintained as low as reasonably practicable. ONR is continuing to closely monitor HAL stock levels and wrote to Sellafield Ltd to confirm our regulatory expectations that HAL stocks should be eliminated as soon as reasonably practicable, and that the highest risk HAL should be prioritised for vitrification.

Following extensive interventions and assessment ONR released the regulatory hold point on the 15 September 2017 to allow Sellafield Ltd to start work on the active connections between Evaporator D and the Highly Active Liquor Evaporation and Storage (HALES) facility, the Thermal Oxide Reprocessing Plant, and the Waste Vitrification Plant. Evaporator D is a new build facility on the Sellafield nuclear licensed site being constructed to replace the existing aging fleet of evaporators which are approaching end of life. The availability of high activity liquor evaporation at Sellafield is essential to ensure the timely completion and support to safe and secure hazard and risk reduction on the site. This includes the management of highly active liquor stocks, support to reprocessing, securing the long term AGR fuel storage strategy, the Post Operational Clean Out (POCO) activities, and decommissioning of the spent fuel management facilities. Pending completion of ONR's assessment, and if appropriate release by ONR of the associated permission, Sellafield Ltd will commence active commissioning of this new plant before the end of the 2017 calendar year.

## **Decommissioning**

In November 2016 ONR issued Licence Instrument 910, agreeing to Sellafield Ltd's request to commence the demolition of the First Generation Reprocessing Plant stack. A self-climbing platform has now ascended to the top of the stack and is undergoing planned re-configuration before commencing demolition. Main demolition is expected to commence before the end of the 2017 calendar year. ONR has stressed the importance of safe and secure, timely delivery of this project. ONR continues to maintain regulatory focus in this area and has raised a Regulatory Issue to monitor the platform's climb and reconfiguration phases.

ONR continues to monitor closely the progress of work related to the demolition of the Pile 1 reactor chimney diffuser section. Removal of the diffuser from this legacy chimney forms part of Sellafield Ltd's hazard and risk reduction strategy. Sellafield Ltd is currently installing the foundations for a tower crane that will assist the demolition activity. The tower crane, which has been manufactured specifically for this project and is now in storage at Sellafield, will be erected adjacent to the Pile 1 reactor chimney. Erection of the tower crane requires ONR's permission, which is subject to the submission of an adequate safety justification and subsequent ONR assessment. Erection of the tower crane is scheduled to commence during 2018.

## **Pile Fuel Cladding Silo – (PFCS)**

ONR has been monitoring Sellafield Ltd's progress against its programme of work to remove the deflector plates within the silo and to cut the Retrievals Access Penetrations in the side of the building. The deflector plate removal project is close to completion, with circa 5.5 from the total of 6 plates having been removed as of the end of September 2017. Three of the six access penetrations have now also been completed, with the fourth due in early October 2017.

ONR has been assessing a Pre-Commencement Safety Report submitted by Sellafield Ltd that sets out the design and safety arguments justifying the start of the first phase of installation of the waste retrievals plant and equipment. ONR will be assessing this submission and if appropriate will grant permission for Sellafield Ltd to commence the installation work later this calendar year. ONR's further agreement will also be required in 2018 prior to Sellafield Ltd starting the second phase of the installation work.

ONR has also engaged with Sellafield Ltd to understand initial proposals to change the limits and conditions associated with the argon environment inside the silo. This work is being undertaken to explore whether further operational flexibility can safely be provided during future waste retrieval work. It is expected that further discussion will take place over the next period.

## **Magnox Swarf Storage Silo (MSSS)**

Sellafield Ltd has completed installation of the Silo Emptying Plant (SEP2) at MSSS and is about to commence its inactive commissioning. ONR notes that whilst the commissioning activities have been delayed due to a number of necessary modifications and other enabling projects within the MSSS facility, the overall schedule for availability of SEP2 is aligned with the expected availability of waste

handling facilities being built or modified to accept MSSS retrieved waste. ONR recognises the complexity of SEP2 and is engaging with Sellafield Ltd to secure regulatory confidence in the licensee's delivery plans.

In June 2017 ONR issued Licence Instrument 504, agreeing to Sellafield Ltd's request to implement pressurised inerting to manage excursion of hydrogen within the Magnox Swarf Storage Silo. Sellafield Ltd has now fully implemented this process, which reduces risks from a possible, though unlikely, hydrogen excursion event in a silo compartment.

ONR continues to engage with Sellafield Ltd regarding the detail of the improvements it is proposing and its overall delivery plans for retrievals. ONR will maintain regulatory oversight here to ensure the licensee achieves safe, secure and sustained hazard and risk reduction at the site.

### **Waste Handling Facilities**

Sellafield Ltd is progressing a number of new build and existing facility modification activities that will directly support waste retrievals from the legacy silos (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 timely, safe waste retrievals from the silos. In particular, ONR has focused on the Box Encapsulation Plant (BEP), Box Encapsulation Plant Product Store/Direct Import Facility (BEPPS/DIF), Silos Maintenance Facility (SMF), Alternative Intermediate Level Waste Approach (AILWA) implementation and other significant storage and handling facilities. ONR's regulatory focus will continue in this area until we have the necessary regulatory confidence in these aspects of Sellafield Ltd's hazard and risk reduction programmes.

### **Essential Operations Inspections**

ONR's regulatory strategy for Sellafield Ltd is focussed on stimulating, facilitating, and expediting safe and secure hazard and risk reduction. ONR has a number of planned interventions in place to ensure these activities are delivered safely and securely. There are also a number of supporting functions at the site that play a key role in delivering this hazard and risk reduction. ONR is keen that such functions have sufficient reliability and resilience such that they can appropriately support these activities. ONR therefore undertakes interventions, termed Essential Operations Inspections, to gain regulatory confidence that such supporting functions can safely and adequately facilitate sustained hazard and risk reduction activities.

Although no Essential Operations inspections have been conducted within this reporting period, ONR intends to conduct two Essential Operations inspections before the end of the financial year.

### **Infrastructure**

ONR continues to remain focussed on Sellafield Ltd's work to secure improved long term resilience of the site's electricity, steam, compressed air, and water utility systems. Over the reporting period ONR has continued its early engagement to influence 'fit for purpose' solutions for new major electrical and steam improvement

projects needed to meet the long term requirements of the site. ONR has observed progress in line with the declared Sellafield Ltd plans here.

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 Ltd to regulate the reduction of legacy waste presently stored within the existing Analytical Services facility. ONR has been encouraged that SL continues to make significant progress in the removal of legacy wastes (both aqueous and solvent) during 2017/18 financial year.

### **Plutonium Management Facilities Projects**

Through ONR's two Level 1 Regulatory Issues (i.e. ONR's highest level of issue) we continue to engage and influence the delivery of hazard and risk reduction activities regarding the Special Nuclear Material (SNM / Plutonium Management) Facilities. Specifically, this includes asset care improvements on the First Generation Finishing Line (FGFL) facility and the delivery of capabilities to allow safe continued storage of SNM.

With respect to FGFL asset improvement, we have issued Licence Instrument 503 'Agreeing' to SL's request to commence modification, active commissioning and operation of the Special Nuclear Material Facility (North) ventilation extract Fans 6 and 7. This was supported by ONR's readiness inspection of Sellafield Ltd's implementation of its Licence Condition 22; Modification or experiment on existing plant arrangements, which was rated Green (no formal action).

ONR judged that whilst the submitted safety case contains a number of shortfalls (and thus requires further work to clearly demonstrate that the risks are reduced as low as reasonably practicable), the modification as proposed provides an overall safety benefit to the facility. This position was communicated to Sellafield Ltd via an enforcement letter. Regulatory scrutiny of the improvements required will be maintained by continued engagement by the project inspector.

The UK Government / Nuclear Decommissioning Authority policy is to consolidate the UK's SNM in one location. As part of this initiative, SNM from Dounreay is being transferred to Sellafield in a number of phases (each of which is subject to a regulatory hold point). We continue to assess Sellafield Ltd's proposal to receive the next phase of shipments. To support our assessment and inform the permissioning decision, we have undertaken a readiness inspection of the receiving facility against Sellafield Ltd's implementation of its Licence Condition 22 arrangements, which was rated Green (no formal action). We have also raised a Level 1 Regulatory Issue on this programme of work to ensure adequate oversight, and that Sellafield Ltd continues to manage the safe and secure long term storage of the SNM on site.

### **Pile Fuel Storage Pond (PFSP)**

ONR's regulatory focus continues to be on the retrieval, removal and export of intermediate level waste and bulk sludge from the pond.

Following ONR's agreement to PFSP sludge exports (Licence Instrument 906), Sellafield Ltd has exported a number of drums for encapsulation and safe interim storage on site. Sellafield has exported 64 Drums this year, and remains on target to meet the ONR Chief Nuclear Inspector Milestone of 100 drums this financial year.

ONR has continued to engage with Sellafield Ltd to progress Intermediate Level Waste (ILW) exports, conducting assessments and observing rig trials to support the permission for phase 2 ILW exports planned for December 2017. Further assessment of the arrangements for safe storage is planned before the permissioning decision is reached.

### **First Generation Magnox Storage Pond (FGMSP)**

The ONR regulatory focus continues to be on the retrieval, removal and export of fuel, intermediate level waste, and bulk sludge from the pond.

Within this period Sellafield Ltd has continued to make progress in all of the ONR key areas of focus. Specifically Sellafield Ltd has;

- Exported 3.2 tonnes of fuel to a more suitable modern facility thereby ensuring safer interim storage, and consolidated further fuel ready for future export.
- Completed commissioning of the bulk sludge retrieval tool to enable retrieval of sludge to the Sludge Packaging Plant 1. This has enabled the improved transfer of sludge to this buffer facility.
- Commenced the removal of waste from the Magazine Transfer Bay (MT Bay)

Sellafield Ltd has consolidated a number of Uranium Bit Bins (UBBs), in preparation for exporting these to a more suitable modern facility for temporary storage. Inspections and trials were also completed on the UBBs to support future decisions on longer term storage and eventual disposal options.

ONR also released a regulatory hold point to allow the removal of a redundant crane on the Effluent Distribution Tanks building and replacement with a lighter modern crane.

### **Resilience (Post Fukushima Recommendations)**

ONR's report on the Fukushima accident and implications for the UK nuclear industry identified a number of recommendations for Licensees to address. Sellafield Ltd subsequently reviewed the expected availability and reliability of key systems important to safety in plants across the site to respond to an extreme event or a severe accident. Further to this review and an extensive period of regulatory engagement, Sellafield Ltd has identified and implemented improvements to make it more resilient to such occurrences.

Sellafield Ltd has procured a range of equipment that is designed to improve the site's resilience against a range of extreme events such as flooding, loss of power and seismic events. This equipment has been delivered and Sellafield Ltd continues to

ensure that this equipment will be integrated into the site's emergency arrangements to ensure an enduring capability. ONR is now satisfied that Sellafield Ltd has demonstrated that it has made sufficient progress with these improvements so that future regulatory engagements will be treated as normal regulatory business.

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

#### **Non-Routine Matters - Conventional Health & safety**

On 5 September 2016 ONR served an Improvement Notice on Sellafield Ltd in respect of the stand-by cooling tower at the HALES facility, requiring improvements in the management and control of legionella. Following extension of the Notice in January 2017, a compliance visit was carried out in May 2017 which judged that Sellafield Ltd had satisfactorily met the requirements of the Notice.

ONR's investigation to determine the underlying causes surrounding the failure to meet the required legal standards remains ongoing.

Legionella management at HALES and across the Sellafield site remains a high regulatory priority for ONR, and resource will continue to be focussed here to ensure risks are being effectively controlled.

ONR wrote to Sellafield Ltd in June 2017, seeking assurance regarding risks from any building features similar to those associated with the Grenfell fire in London. Sellafield responded to ONR in July and September 2017, and in summary, although there is some more assessment work to do here, ONR is satisfied there are no significant issues on the Sellafield site.

#### **Non-Routine Matters – Infrastructure**

During the period ONR has conducted follow up enquires to an event within the licensee's Analytical Services facility relating to a breach of LC 34 (1) requirements, whereby the licensee shall ensure, so far as reasonably practicable, that radioactive material and radioactive waste on the site is at all times adequately controlled and contained so that it cannot leak or otherwise escape from such control or containment.

The circumstances of this event resulted in a quantity of material failing to be adequately confined within its containment and spilling onto the floor of a laboratory. The quantity met the reporting criteria under the Ionising Radiations Regulations 1999.

The outcome of ONR's intervention was that we wrote an enforcement letter to Sellafield Ltd. Within this letter we requested the licensee to undertake a review of the adequacy of its arrangements to handle sample bottles within its Analytical Services organisation, and respond detailing its findings.

During the period ONR has also conducted follow up enquires to an event within NNL's Central Laboratory relating to a fall from height, and a breach of the Work at Height Regulations 2005, Regulation 4(1).

The circumstances of the event resulted in an individual falling through a floor aperture into a laboratory below, and sustaining injuries.

The outcome of ONR's intervention was that we wrote an enforcement letter to NNL. ONR has requested NNL to undertake a review of the adequacy of its arrangements for planning, control and supervision of work packages, and respond detailing its findings.

### **Non-Routine Matters - Corporate Inspection**

During this period ONR maintained regular engagement with Sellafield Ltd on its preparations for, and handling of, industrial action at the site. ONR was satisfied that Sellafield Ltd has given due priority to safety and security in the development and implementation of its contingency plans.

### **Non-Routine Matters – Plutonium Management Facilities (PMF)**

During the period of this report ONR completed follow-up enquiries into a contamination event in PMF(South) and determined that, after applying ONR's due process and Enforcement Management Model, this event warranted the undertaking of a formal investigation. The ONR formal investigation into the event is now ongoing

### **Non-Routine Matters – THORP**

In May 2017 ONR concluded its investigation into a worker personal contamination event that had occurred in THORP in August 2016, during which the individual received a whole body committed dose of less than 10% of the statutory annual limit. ONR concluded that an enforcement letter should be served against Sellafield Ltd, and that no further action should be taken against the contaminated individual.

### **Non-Routine Matters – Decommissioning**

The Office for Nuclear Regulation has undertaken an investigation into a shortfall in the control and supervision of radiography operations in the Solvent Recovery Building within the Remediation Division which occurred at Sellafield on 15 August 2016. ONR concluded that there was no harm from radiation to either workers or members of the public as a result of this event and ONR is satisfied that the risks arising from it were low.

However, our intervention highlighted a number of concerns in Sellafield Ltd's conduct and supervision of radiography operations, and its application of radiography processes. In consequence we have issued an enforcement letter to Sellafield Ltd, and subsequently convened a 'holding to account' meeting with Sellafield Ltd management which confirmed that this is the correct enforcement decision. As part of this process we have formally requested an action plan to address the identified shortfalls and have raised a Regulatory Issue to track their resolution.

### **Non-Routine Matters – General Permissioning**

ONR continues to monitor progress against the enforcement letter sent to National Nuclear Laboratory at the start of the year regarding capability and capacity to deliver

reasonably practicable improvements affecting safety in appropriate timescales. Some promising progress has been made corporately, though significant elements that will positively impact in-flight projects are still to be achieved.

ONR's permissioning process continues to track Sellafield Limited's planned submissions.

### **Non-Routine Matters – Magnox**

In January 2017, following the completion of normal daily shift routines within the Magnox Reprocessing Facility, a senior member of the plant staff found themselves to be externally contaminated, specifically as a result of undertaking a routine sampling event.

ONR noted that the licensee's initial response to the event was in accordance with its formal arrangements, and that the contamination was removed using standard procedures. The event was reported by the licensee in accordance with requirements for formal notification to ONR.

ONR has undertaken, and now completed, a formal investigation into this event.

The Enforcement Management Model (EMM) has been used in support of enforcement decisions for both for the two individuals involved in the event, and for Sellafield Ltd as the dutyholder.

The enforcement outcome was that the two individuals directly involved in the incident, should receive formal verbal warnings in respect of their respective failures to comply with the relevant operating instruction. This enforcement action was delivered on 12 July 2017.

For Sellafield Ltd, ONR delivered a formal enforcement letter in respect of its failure to provide both adequate supervision and control measures proportionate to the hazard associated with the operation. This enforcement action was delivered on 10 July 2017.

### **Non-Routine Matters – Periodic Review of Safety**

Sellafield Ltd's Periodic Safety Review (PSR) programme remains on schedule and the licensee's new arrangements continue to bed-in well. These arrangements are resulting in better attention being applied to those improvements which have the greatest impact on nuclear safety. During this period ONR has issued decision letters for the Analytical Services Process Facility and the Encapsulated Product Store 2.

We are working closely with Sellafield Ltd to prepare for the 3rd cycle PSRs which will see several facilities undergoing Post Operational Clean Out (POCO), and moving into care and surveillance, or decommissioning.

#### **4 REGULATORY ACTIVITIES**

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

<b>Date</b>	<b>Type</b>	<b>Ref No</b>	<b>Description</b>
19/05/2017	Agreement	LI 502 Site Licence 103	Agreement to withdraw HALES Operating Rule 20
22/06/2017	Agreement	LI 503 Site Licence 103	Agreement to commence modification, active commissioning and operation of the Plutonium Management Facility (North) Fan 6 and 7
28/06/2017	Agreement	LI 504 Site Licence 103	Agreement to commence step B1 to B5 (relating to pressurised Inerting in the Magnox Swarf Storage Silo).

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 (<http://www.onr.org.uk/regulation-matters.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. <http://www.onr.org.uk/index.htm>.

For the latest news and updates from ONR visit the website and sign up for our ebulletin (<http://www.onr.org.uk/ebulletin/index.htm>).

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