



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

Covering the period – 01 April 2018 to 30 September 2018



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/llic/>).

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: contact@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:

Period - 01 April 2018 30 September 2018	April 2018	May 2018	June 2018	July 2018	August 2018	September 2018
Special Nuclear Materials	01 04 17 April	01 10 May	13-14 June	24-25 July		19 September
THORP		10 May	05-07 June	03-04 July		06 11-12 September
Decommissioning	10-11 April	08-11 15-16 May	05 June	03-04 July	08 August	04 September
Magnox	26 April	22-24 May	27 June	3-5 July		
Operational Waste Facilities	10-12 17-18 April	09-10 22-24 May	05-07 13-14 20-21 June	10-12 July	07-08 22-23 August	05-06 12-14 September
Infrastructure	11 April	02 23 May	19-20 June	10 July		04 September
Corporate					08-09 August	

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 2017 (IRR17) 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 during the period covered by this report. ONR also continued to monitor and support delivery of the improvements identified during earlier inspections.

During this period ONR closed a Regulatory Issue relating to Sellafield Ltd's arrangements for periodic review of safety cases. ONR also withdrew its approval of Sellafield Ltd's arrangements for compliance with LC 15 (Periodic Review). This means Sellafield Ltd is now free to modify these arrangements in the future without detailed regulatory scrutiny. ONR made this decision on the basis that the approval no longer serves a useful purpose, with the requirement for 10-yearly reviews now well established on the site.

Through other Regulatory Issues, ONR is seeking improvements in Sellafield Ltd's records management system, clarity of decommissioning strategy, and approach to disciplined operations.

ONR is continuing to monitor Sellafield Ltd's progress in addressing three open Regulatory Issues relating to leadership and management for safety (specifically: consistency of safety leadership, the design and implementation of the licensee's safety management system, and working level instructions). ONR is satisfied with Sellafield Ltd's progress on the first two issues but has escalated our oversight of the third.

During this period ONR raised three Regulatory Issues to track improvements Sellafield Ltd is making to its management arrangements in line with its revised status as an 'upper tier' site under the Control of Major Accident Hazard (COMAH) Regulations, 2015. ONR is satisfied with the progress Sellafield Ltd is making on two of these issues but has escalated its oversight of the third, (concerning improvements to Sellafield Ltd's safety management system).

ONR has maintained close oversight of Sellafield Ltd's transformation plan, which defines the way Sellafield will organise its operations going forwards. ONR applied our flexible permissioning arrangements to the organisational changes associated with introduction of Sellafield Ltd's new operating model in June 2018. This entailed a series of interventions to gain confidence in the design of the organisational changes and Sellafield Ltd's readiness to implement them. A further intervention will be carried out post-implementation.

ONR also carried out an intervention in August 2018 to gain confidence in Sellafield Ltd's 'intelligent customer' capability ahead of award of the Programme and Project Partners (PPP) contracts. ONR found minor shortfalls in Sellafield Ltd's arrangements which we are following up via a Regulatory Issue.

Routine Matters – Magnox

Within the Magnox Operating Unit (MOU), ONR carried out two planned Licence Condition (LC) Compliance Inspections and two System Based Inspections (SBIs) during the period of this report.

For the planned inspections, ONR judged that licensee compliance with LC27; (Safety mechanisms, devices and circuits), LC32; (Accumulation of radioactive waste), and

LC26; (Control and supervision of operations) were all rated as Green (no formal action).

For the SBI of the fuel route and dissolution in the Magnox Reprocessing Facility (MRF), the LCs inspected were the 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.

All six LCs were rated as Green (no formal action). During the inspection, a few minor observations were raised with the licensee, however, ONR judged that these did not merit further regulatory oversight. Overall, ONR judged that the system adequately fulfils the requirements of the safety case.

For the SBI of the high active and medium active cycles in the Magnox Reprocessing Facility (MRF), the LCs inspected were the standard set for SBIs listed above.

All six LCs were rated as Green (no formal action). During the inspection, ONR raised three Regulatory Issues for Sellafield Ltd to address minor shortfalls, which we will follow up as normal business. Overall, ONR judged that the system adequately fulfils the requirements of the safety case.

Routine Matters – Infrastructure

During the period ONR inspected the arrangements for compliance with LC32; Accumulation of radioactive waste, within the National Nuclear Laboratory (NNL) Central Laboratory organisation. NNL is a tenant on the licensed site conducting activities that affect nuclear safety, and so is subject to licence condition compliance and other relevant inspections. NNL Central Laboratory 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.

ONR considered that Sellafield Ltd, as the licensee, provided an adequate level of assurance as to its management and control of its tenant. The NNL Central Laboratory organisation demonstrated an adequate understanding of the licensee's site-wide arrangements and had adequately implemented its arrangements here. Indeed, this implementation was good in several areas, for example through planned introduction of a very low level waste stream, and the use of the licensee's subject matter experts to assess NNL's waste co-ordinators. However, there were also some minor areas for improvement, for example the establishing of designated parking locations for waste drums within its laboratories. ONR considered that an inspection rating of Green (No formal action) was merited here.

ONR also inspected arrangements for compliance with LC35; Decommissioning, within the licensee's Inactive Tank Farm. Although the Inactive Tank Farm has limited direct claims placed on it for the purpose of nuclear safety it has an important duty role to provide bulk chemicals to the site. It supports several operations on the Sellafield site that are important to nuclear safety and the high hazard and risk reduction activities.

The licensee demonstrated an adequate understanding of the site-wide LC35 arrangements and that SL had adequately implemented its arrangements here.

Indeed, the implementation was good in several areas, for example through establishing an adequate understanding of its customer requirements. ONR considered an inspection rating of Green (no formal action) was merited here.

During the period ONR inspected arrangements for compliance with LC12; Duly authorised and other suitably qualified and experienced persons, and LC26; Control and supervision of operators, within the licensee's Analytical Services 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 licensee's site-wide operating facilities, including its high hazard and risk reduction work.

The Analytical Services organisation demonstrated an adequate understanding of the site-wide LC12 and 26 arrangements and had adequately implemented the arrangements here. Indeed, the implementation was good in several areas, for example its arrangements for sealed sources in general. However, there were also some minor areas for improvement identified, for example the disposal of redundant and embargoed sealed sources. Overall ONR considered an inspection rating of Green (no formal action) was merited here.

ONR also conducted a System Based Inspection of the Licensee's steam generation facility. The Fellside Combined Heat and Power facility has an important duty role as it supplies process steam to a number of Sellafield site-wide operating facilities, including support to its high hazard and risk reduction work. Steam has an important safety function as it is used to transfer radioactive liquids via steam ejectors, as well as being used for heating and evaporation functions.

ONR established that LC34; Leakage and escape of radioactive material and radioactive waste, was not applicable to this System Based Inspection. ONR considered the implementation of the licensee's arrangements for LC10; Training, LC23; Operating rules, LC24; Operating instructions, LC27; Safety mechanisms, devices and circuits, and LC28; Examination, inspection, maintenance and testing was good in several areas. ONR considered inspection ratings of Green (no formal action) were merited for these conditions.

During the period ONR inspected arrangements for compliance with LC36; Organisational capability within the licensee's Resilience organisation. The Resilience organisation has an important role as it is responsible for the Sellafield Site-wide emergency arrangements. The licensee demonstrated an adequate understanding of its site-wide arrangements and had adequately implemented its arrangements here. Indeed, this implementation was good in several areas, for instance establishing external benchmarking of its subject matter experts, plus implementation of operational learning. However, there were also some areas for improvement identified, for example its application of the site-wide management of change arrangements. ONR considered an inspection rating of Green (no formal action) was merited here.

Routine Matters – Special Nuclear Materials

Within the Special Nuclear Materials Operating Unit (SNM OU), ONR carried out four planned Licence Condition Compliance Inspections within the wider OU and one Ionising Radiations Regulations 2017 (IRRs) Inspection within the Special Nuclear Materials (North) facility.

For the planned compliance inspections, ONR judged that licensee compliance with LC27; Safety mechanisms, devices and circuits, LC28; Examination, inspection, maintenance and testing, LC12; Duly authorised and other suitably qualified and experienced persons and LC26; Control and supervision of operations, were adequate, and awarded Green (no formal action) inspection ratings.

For the IRRs inspection within the Special Nuclear Materials (North) facility, ONR judged compliance was also adequate, and awarded a Green (no formal action) inspection rating.

Routine Matters – Decommissioning

During this period, ONR undertook four planned Licence Condition Compliance Inspections against LC7; Incidents on the 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 First Generation Magnox Reprocessing Plant stack demolition organisation. Here the facility's application of the Sellafield Ltd arrangements met our expectations and a Green (no formal action) inspection rating was awarded.

The LC11 planned inspection was carried out in the Active Handling Facility. Here the facility's application of the Sellafield Ltd arrangements met our expectations and a Green (no formal action) inspection rating was awarded. ONR nevertheless identified some minor improvements and has raised a Regulatory Issue to track the delivery of Sellafield Ltd's improvements.

The LC25 planned inspection was carried out in the Windscale Advanced Gas Cooled Reactor complex. Here the facility's application of the Sellafield Ltd arrangements met our expectations and a Green (no formal action) inspection rating was awarded. ONR nevertheless identified some minor improvements and has raised a Regulatory Issue to track the delivery of Sellafield Ltd's improvements.

The LC26 planned inspection was carried out in the Solvent Recovery Building. Here the facility's application of the Sellafield Ltd arrangements met our expectations and a Green (no formal action) inspection rating was awarded. ONR nevertheless identified some minor improvements and has raised a Regulatory Issue to track the delivery of Sellafield Ltd's improvements.

The LC35 planned inspection was carried out in the Pile Fuel Storage Pond. Here the facility's application of the Sellafield Ltd arrangements met our expectations and a Green (no formal action) inspection rating was awarded.

ONR also conducted a System Based Inspection (SBI) of the First Generation Magnox Storage Pond (FGMSP) Ventilation System. ONR considered this system meets the requirements of the safety case and awarded a Green (no formal action) inspection rating for five of the six standard SBI licence conditions. However, for LC 24; Operating instructions, ONR determined that application of the Sellafield Ltd arrangements did not meet our expectations and ONR is seeking improvement here. ONR has raised a Regulatory Issue to track the delivery of Sellafield Ltd's action plans to

address these identified shortfalls. In addition, ONR identified some minor improvements and has raised two additional Regulatory Issues to track the delivery here.

ONR also conducted a System Based Inspection (SBI) of the Magnox Swarf Storage Silo (MSSS) cooling system. ONR awarded a Green (no formal action) inspection rating for four of the six standard SBI licence conditions. However, for LC 27; Safety Mechanisms, devices and circuits and LC28; Examination, inspection, maintenance and testing, ONR determined that application of the Sellafield Ltd arrangements did not meet our expectations and ONR is seeking improvements here. ONR has raised two Regulatory Issues to track the delivery of Sellafield Ltd's action plans to address these identified shortfalls. In addition, ONR identified some minor improvements and has raised an additional Regulatory Issue to track the delivery of Sellafield Ltd's improvements. In summary, ONR determined that this area did not meet the requirements of the safety case, but we are satisfied that the appropriate regulatory response is to manage Sellafield Ltd back into compliance through the identified Regulatory Issues.

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 two events involving items being dropped from the First Generation Magnox Reprocessing Plant stack demolition and the Pile 1 demolition projects. In addition, some areas for improvement were identified during the LC 26 inspection activities, all within the Remediation value stream. ONR has provided regulatory advice here and will continue to monitor the control of operations within these areas as part of normal regulatory business.

Routine Matters – Operational Waste Facilities

During this reporting period, ONR undertook planned compliance inspections in the Highly Active Liquor Evaporation and Storage (HALES) facilities, the High Level Waste Plants (HLWP) and the Remediation Operating Unit (OUs).

Within the HALES OU, ONR carried out four planned Licence Condition Inspections and one System Based Inspection (SBI). For the planned Licence Condition Compliance inspections ONR judged that licensee compliance with LC26; Control and supervision of operations, LC28; Examination, inspection maintenance and testing, and LC35; Decommissioning, met the required standard and ONR gave Green (no formal action) inspection ratings here.

For the LC11; Emergency arrangements, compliance inspection, ONR targeted the training requirements and associated records for the Emergency Duty Team (EDT). Under the route to competence initiative, Sellafield Ltd had introduced new Suitably Qualified and Experience Person (SQEP) role assessment specifications for each member of the EDT from 01 April 2018. Unfortunately a significant number of the EDT within the HALES OU had not completed all of the required training detailed in their new role. This shortfall applied to the majority of the EDT within HALES and numerous EDTs in other facilities across the site.

Whilst there was no direct evidence to challenge the competence of the EDT, Sellafield Ltd had not met its legal requirements to fully implement this aspect of the site arrangements for compliance with LC11. ONR therefore judged that licensee compliance with LC11 was below the required standard and awarded an Amber (seek improvement) rating.

In light of this ONR sent a formal enforcement letter to the company seeking the necessary improvements. ONR considers that Sellafield Ltd has now responded appropriately to this enforcement letter, and reviewed all of the deployed EDT roles across the site and confirmed that these individuals are SQEP to undertake their individual roles in accordance with the written LC11 arrangements.

The LC26 compliance inspection was an unannounced compliance inspection and targeted the completion of operator safety rounds. As stated above ONR judged that licensee compliance with LC26; Control and supervision of operations, met the required standard and ONR awarded a Green (no formal action) inspection rating.

For the SBI of the HALES cooling system, ONR judged that the associated system met the requirements of the safety case, and rated five of the six standard licence conditions as Green (no formal action). LC34 was not deemed relevant to this SBI and therefore was not rated.

Within the HLWP OU, ONR carried out three planned Licence Condition inspections and one SBI. For the planned Licence Condition Compliance inspections ONR judged that licensee compliance with LC7; 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 HLWP cell shielding system, ONR judged that the associated system met the requirements of the safety case, and rated five of the six standard licence conditions as Green (no formal action). LC34 was not deemed relevant to this SBI and therefore was not rated.

Within the remediation OU, ONR carried out two planned Licence Condition compliance inspections. For these inspections ONR judged that licensee compliance with LC12; Duly authorised and other suitably qualified and experienced persons and LC26; Control and supervision of operations, met the required standard and ONR 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 (OFSG), ONR carried out five planned Licence Condition compliance 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, LC 11; Emergency arrangements, LC 22; Modification or experiment on existing plant, LC 23; Operating instructions, and LC 36; Organisational capability, were all adequate and awarded Green (no formal action) inspection ratings.

The SBI was targeted at the two fuel storage ponds operated by OFSG. The SBI considered compliance against a standard set of LCs 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. ONR judged compliance with five of the six standard licence conditions to be adequate. Hence those LCs were all rated as Green (no formal action). The exception was for compliance with LC 10; Training, for which ONR judged that there was a significant shortfall against relevant good practice. This related specifically to OFSG not being able to provide adequate records to demonstrate that all personnel who are required to compile and check Authorisation for Fuel Transfer documents (for conducting fuel moves within the site) had received a specific training package, which is necessary for compliance with local OFSG arrangements. Consequently, for this Licence Condition ONR awarded a rating of AMBER (seek improvement). Nevertheless, based on the evidence sampled the ONR inspectors judged that the plant operators and maintainers had in fact been adequately trained. Since the inspection, OFSG have now made the necessary improvements for demonstrating compliance with their arrangements under LC 10.

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 2018 to 30 September 2018 are described in the following paragraphs.

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, (Magnox

Swarf Storage Silo (MSSS) and Pile Fuel Cladding Silo (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 these legacy silos. In particular, ONR has focussed on the Box Encapsulation Plant (BEP), Box Encapsulation Plant Product Store / Direct Import Facility (BEPPS/DIF), Waste Transfer Route (WTR), Silo Maintenance Facility (SMF), and other key waste retrieval and storage enablers. ONR's regulatory focus will continue in this area to ensure we have the necessary regulatory confidence in these aspects of Sellafield Ltd's hazard and risk reduction programmes.

Infrastructure

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 activities across the site. The project has recently completed the concept design phase and is preparing business case submissions for NDA and Government sanctioning purposes. 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 Sellafield Ltd continues to make significant progress in the removal of legacy wastes (both aqueous and solvent) from this facility.

During this reporting period ONR has continued a high level of focus on Sellafield Ltd's projects to deliver improved long term resilience of the site's utilities infrastructure. This includes upgrades and improvements to the site's electrical distribution, steam, compressed air, and water systems. In particular, ONR has maintained regular engagements with key managers within Sellafield Ltd and its partners to influence the timely provision of 'fit for purpose' solutions for new, major electrical and steam infrastructure projects, in line with long term site needs. ONR has noted continuing progress in line with Sellafield Ltd's declared plans.

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. At the end of August 2018 approximately 45% of the planned demolition has been completed. ONR has stressed the importance of safe and secure, timely delivery of this project. On 09 May 2018 ONR carried out a planned unannounced inspection of Sellafield Ltd's control and supervision of operations (LC26) and confirmed that all the stack safety related operations are carried out under the control and supervision of suitably qualified and experienced personnel. A Green (no formal action) inspection rating was awarded. However, ONR raised a Regulatory Issue for Sellafield Ltd to make minor improvements in project record keeping and work site access control. We will monitor progress against this Regulatory Issue as routine regulatory business.

ONR continues to monitor closely the progress of work related to the demolition of the Pile 1 reactor chimney diffuser section. In July 2018 ONR issued Licence Instrument 508, agreeing to Sellafield Ltd's request to commence the erection of a tower crane adjacent to the reactor chimney to facilitate this demolition work. The tower crane, which has been manufactured specifically for this project, has now been fully erected. Operation of the tower crane requires further ONR agreement which is conditional on

Sellafield Ltd completing planned enabling works and documentation. ONR's assessment and engagement continues here. Demolition is presently scheduled by Sellafield Ltd to commence in the last quarter of 2018.

Sellafield Ltd's hazard and risk reduction strategy for the demolition of a legacy low active effluent treatment plant includes the transfer of residual flocculent for processing in an up-stream facility. ONR continues to monitor Sellafield Ltd's work to complete the design, manufacture, installation and operation of the transfer equipment; and ONR has introduced hold points into the licensee's programme to provide a degree of regulatory control here. Sellafield Ltd is required to provide ONR with an adequate safety justification to progress beyond these defined hold points.

Pile Fuel Cladding Silo (PFCS)

Within this reporting period, Sellafield Ltd has continued on-site construction work on the Waste Container Handling Area (WCHA), which is part of the PFCS Early Retrievals plant. This will eventually be used to export boxes filled with waste removed from PFCS compartment 5. The construction work is expected to be complete shortly.

ONR had granted permission for WCHA construction in late 2017, having assessed the Pre-Commencement Safety Report (PCSR) which provides the safety case for the operation of the Early Retrievals plant. During this assessment, ONR had identified some areas for improvement that we wished to see resolved prior to the next phase of construction: the installation of the Waste Retrievals Containerisation Area (WRCA). We have had a number of positive engagements with Sellafield Ltd and, following the submission of further safety case documentation to ONR, we are now satisfied that the necessary improvements have been achieved. Sellafield Ltd has now requested ONR's permission for WRCA installation and we expect to give our agreement to this activity shortly. We expect to see Sellafield Ltd undertake commissioning work on the WCHA and WRCA during 2019 with a view to starting the retrieval of waste thereafter.

ONR has been continuing to engage with Sellafield Ltd on proposals to change the limits and conditions associated with the oxygen levels permitted within the silo during active waste retrievals, in order to support future operations. Sellafield Ltd has supplied ONR with a number of safety case documents which we are currently examining. Sellafield Ltd has yet to make a formal request for amendment to the PFCS safety case here but, subject to the results of a number of commissioning tests on the WRCA, we expect that this request could be made in 2019.

Magnox Swarf Storage Silo (MSSS)

Sellafield Ltd has revised its strategy for preparation for waste retrievals from Compartment 10 (C10) within the MSSS. This will allow inactive commissioning of the Silo Emptying Plant (SEP2) to continue whilst parallel trace active commissioning work will commence on C10. Sellafield Limited currently considers that the overall date for commencement of waste retrievals remains at June 2019. ONR's granting of permission for this activity is dependent on Sellafield Ltd successfully completing SEP2 inactive and trace active commissioning.

Work on SEP2 continues to alternate between inactive commissioning and completion of plant modifications. ONR currently considers that 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 continues to engage with Sellafield Ltd to secure regulatory confidence in the licensee's delivery plans.

Sellafield Ltd is also maintaining its programme of work to ensure that the building infrastructure is suitable and sufficient for the duration of the retrievals programme. ONR has now issued License Instrument number 512 giving permission to Sellafield Ltd to commence construction crane operations to support installation of new roof replacement modules on the MSSS.

Special Nuclear Material Projects

Through ONR's three 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) facilities. Specifically, this includes asset care improvements on the First Generation Finishing Line (FGFL) facility and the delivery of capabilities to allow continued safe and secure storage of SNM.

With respect to FGFL asset improvement, Sellafield Ltd continues to make satisfactory progress on the civil, electrical and containment upgrade tasks having recently completed the required structural improvements to a pipe-bridge. Sellafield Ltd also continues to decommission the legacy Finishing Line 3 within the FGFL and decrease the risk posed by this legacy area.

As part of the consolidation of un-irradiated SNM from Dounreay to Sellafield we have granted permission for Sellafield to receive, handle and store the next (and final) phase of fuel sub-assemblies and have granted Licence Instrument 505 Agreeing to Sellafield Ltd's request to receive, handle and store the next phase of can shipments. We continue to engage and influence Sellafield Ltd to implement the capabilities required for the safe longer term storage (i.e. greater than 10 years) of this SNM inventory.

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 this pond.

Following a series of plant interventions and assessment of the licensee's safety submission, ONR released the hold pint to grant permission to operate the 'knock out pot', which improves separation of debris from sludge retrieved from the pond. This enables Sellafield Ltd to increase the sludge feeds into the system for export to a more suitable storage facility, and further reduces hazardous inventory within the PFSP.

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.

Following a series of plant interventions and assessment of the licensee's safety submission, ONR released the hold point to grant permission to install and operate an in-pond manipulator. This provides Sort and Segregation capability within the pond to improve the consolidation and treatment of wastes for export. This enables Sellafield Ltd to improve characterisation and treatment of wastes and to open export routes for some of the legacy wastes.

A planned LC21; Commissioning, inspection was carried out in the First Generation Magnox Storage Pond (FGMSP) facility. This was targeted to support the assessment for active commissioning of the D-Bay sludge retrievals system. The facility's application of the Sellafield Ltd arrangements met our expectations and a Green (no formal action) inspection rating was awarded here. A number of minor actions were identified, which will be closed out as part of the assessment process prior to the permission being granted in due course. The assessment is now at an advanced stage and a decision whether to grant the permission will be made shortly.

Within this period Sellafield Ltd has continued to make progress in the key area of ONR focus to export hazardous inventory from this pond. Sellafield Ltd has exported 6 skips of solid fuel and U Bit Bins to a more suitable modern facility thereby ensuring safer interim storage. Sellafield has also consolidated further fuel ready for future export.

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 therefore, on occasions, 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 on site. However, taking into account the range of supporting functions inspected and findings during previous years, ONR has taken the decision not to undertake any Essential Operations Inspections during the financial year 2018/19, and instead to prioritise inspector resource on the primary hazard and risk reduction project work.

3 NON-ROUTINE MATTERS

Non-Routine Matters - Corporate Inspection

ONR followed up on a concern raised in July 2018 on proposed changes to Sellafield Ltd's arrangements for work delivery. ONR determined that there was substance to the concern raised and wrote to Sellafield Ltd in August 2018 seeking assurance over certain aspects of the proposed changes. We have subsequently met with Sellafield Ltd management here and will continue to engage going forwards.

Non-Routine Matters - Conventional Health & Safety

Legionella management across the Sellafield Ltd site has continued to remain a regulatory priority for ONR. An investigation into legionella management at the HALES facility has been completed and the investigation findings have been communicated to the site to inform management improvements. ONR continues to have oversight of legionella management arrangements to ensure risks are being effectively controlled.

Asbestos management across the Sellafield Ltd site also remains a regulatory priority for ONR. Sellafield Ltd are developing and implementing an asbestos strategy and action plan, to enable a site wide and prioritised approach to asbestos management. ONR will maintain focus on the implementation of the strategy and action plan to ensure timely implementation of the actions, and to ensure risks are being effectively controlled.

Sellafield Ltd moved from a Lower Tier to an Upper Tier COMAH establishment, due to a change in hazard classification of nitric acid, in September 2017. In accordance with the Control of Major Accident Hazard Regulations (COMAH) 2015, Sellafield Ltd are in the process of preparing a safety report which demonstrates the measures that are taken to prevent major accident hazards and to limit their consequences for human health and the environment. Discussion is continuing between the Competent Authority (jointly ONR and the Environment Agency) during the development of the report.

Non-Routine Matters – Operational Waste Facilities

During this period, ONR conducted follow-up enquiries on several minor events reported by Sellafield Ltd relating to operational waste facilities. Whilst none of these resulted in a judgement that further investigation was required, this regulatory interaction has led to a number of improvements in these facilities

Non-Routine Matters – Infrastructure

An ONR team of inspectors assessed compliance with LC11; Emergency arrangements, through the annual safety led on-site demonstration exercise, in July 2018. ONR concluded that the licensee had provided an adequate demonstration, and that it would have coped if this had been a real event. However, the demonstration highlighted a number of areas where improvement is required, and ONR issued a letter requiring the licensee to undertake a review that relates to these assessment findings. In addition, the licensee plans to conduct a partial re-demonstration of some elements of the exercise during October 2018, where some specific weaknesses were evident from our assessment.

During the period ONR also conducted follow up enquiries that relate to LC4; Restrictions on nuclear matter on the site. ONR concluded that the proportionate regulatory action was to issue a formal enforcement letter that required the licensee to undertake a review of the adequacy of its radioactive sealed sources control arrangements.

ONR is also presently undertaking follow-up enquiries regarding the loss of an electrical power supply cable to the Fellside area of the site, apparently caused by

construction related piling works. This incident caused disruption to the electrical supply across the site, although all plants and systems responded normally and there was no risk to the workforce or public. ONR has also engaged with Sellafield Ltd regarding the associated resilience of steam supply to the site, and we have been satisfied with the response here. We will continue to engage regarding this matter.

Non-Routine Matters – Special Nuclear Materials (SNM)

During the period of this report ONR conducted a follow up enquiry into an event relating to an electrical near miss within the Special Nuclear Materials North facilities.

Whilst the SNM OU Site Inspector concluded that the event itself did not meet the formal investigation criteria, the ONR Enforcement Management Model was used to determine the appropriate enforcement decision, which for these circumstances resulted in an enforcement letter. This letter required the licensee to undertake a review of its arrangements for electrical fuse box maintenance.

Also during this period, ONR conducted follow-up enquiries into several minor events reported by Sellafield Ltd in the Special Nuclear Materials Operating Unit. Following these enquiries ONR determined that no further regulatory action was necessary.

Additionally during the period of this report ONR brought a prosecution against Sellafield Ltd for breach of Health & Safety at Work etc. Act 1974, Section 2 (1), for a contamination event that took place in SNM (South). The matter remains subject to active court proceedings so ONR cannot comment any further at this stage for legal reasons.

Non-Routine Matters – THORP

In July ONR undertook follow-up enquiries into an incident reported by Sellafield Ltd relating to operations being undertaken in a plant room without an activity in air monitor being present. There had been no radiological exposure as a result of this incident and defence-in-depth remained in terms of other safety measures being available. However, ONR judged that the event was a challenge to nuclear safety and a breach of LC 27; Safety mechanisms, devices and circuits, which requires that *“The licensee shall ensure that a plant is not operated, inspected, maintained or tested unless suitable and sufficient safety mechanisms, devices and circuits are properly connected and in good working order.”*

To determine the appropriate enforcement decision ONR used our Enforcement Management Model, which for these circumstances resulted in an enforcement letter.

The enforcement letter actioned Sellafield Ltd to review the adequacy current arrangements for configuration control of Safety Mechanisms, Devices and Circuits within THORP, and to identify and implement any necessary improvements to the arrangements. SL has provided a timely response to this letter and we will monitor progress going forwards.

Non-Routine Matters – Decommissioning

ONR has continued the intervention into shortfalls in the delivery of safety improvement projects by NNL in the Active Handling Facility, under the supervision and control of Sellafield Ltd. Our intervention highlighted a number of concerns in NNL's capability and capacity to deliver these safety improvement projects and, in the application of Sellafield Ltd's corporate arrangements for the supervision and control of NNL. ONR are routinely monitoring progress with the delivery of an action plan from NNL to address these shortfalls.

Non-Routine Matters – General Permissioning

Within this reporting period, ONR has released five hold points on modifications to various plants on Sellafield site. These include installation of Gamma monitors and detector heads in the rebuild pit for transport Cuboid flasks, ongoing management of Highly Active Liquor (HAL) stock / volume in accordance with Operating Rule (OR) 26, Waste Vitrification Plant (WVP) Lines 1 & 2 filter export route, Dragon waste to Magnox Encapsulation Plant, and installation of ZnBr window level detection system in the Active Handling Facility.

Of the above five projects, the re-instatement of the WVP Lines 1 & 2 filter export route from the filter cell is the most significant as it enables the backlog of the replaced contaminated filters to be cleared from the filter cell, which prevents it from impeding the normal operation of WVP.

ONR has also agreed to the ongoing management of HAL stock / volume in accordance with OR 26. Sellafield Ltd proposed to remove the hard limit on the total safe storage volume from OR 26 but still retain to the '1 in 6' spare capacity principle. This change has been made to provide flexibility regarding storage capacity going forwards, recognising that measures could be taken to increase the total capacity of the storage tanks. Any changes to the claimed total storage capacity will be subject to ONR oversight.

ONR's permissioning process continues to monitor Sellafield Limited's planned submissions in accordance with its Hold Point Control Plan, which forms part of its arrangements.

Non-Routine Matters – Magnox

ONR conducted follow-up enquiries on several minor events reported by Sellafield Ltd in the Magnox reprocessing, Magnox East River, and Calder Hall areas. None of the events warranted further investigation or resulted in any specific ONR enforcement activity.

During the previous reporting period, ONR conducted follow-up enquiries on several minor events reported by Sellafield Ltd in the Magnox Reprocessing Facility (MRF). This led to intelligence gained by ONR that a number of the minor events related to behaviours of individuals, some of whom were in leadership or supervisory roles. Sellafield Ltd had independently noted the apparent trend and already started to undertake a self-assessment using a number of data sources, prior to ONR

engagement. Sellafield Ltd has responded positively to this situation and is implementing a number of initiatives to drive improvements to the nuclear professionalism of personnel, improving their safety culture. ONR is monitoring Sellafield Ltd's response and is content with initial indications of improvement, however, a Regulatory Issue has been raised to track progress and requiring Sellafield Ltd to provide evidence to ONR of longer-term embedding of changes.

During September, Sellafield Ltd undertook tests to identify the location of a small leak of activity from process vessels in MRF into a condensate stream. All safety systems worked as designed and ONR is satisfied that there was no risk to workers or the public. Sellafield Ltd has since entered into a periodic outage for the facility, during which time, in addition to planned examination, inspection, maintenance and testing within the facility, it will assess the condition and options regarding the affected part of the plant. ONR will undertake a readiness inspection prior to Sellafield Ltd restarting the facility and has placed a hold point on Sellafield Ltd, which prevents restart until ONR has sufficient confidence in the state of readiness following the outage.

Non-Routine Matters – Periodic Review of Safety

Sellafield Ltd's Periodic Safety Review (PSR) programme remains on schedule. The new arrangements are resulting in better attention being applied to those improvements which have the greatest impact on nuclear safety.

The THORP facility is currently moving towards the end of its operational life and parts of the facility are scheduled to transition from commercial operations into Post Operation Clean Out (POCO), shortly after the planned final fuel shearing operations in November 2018. ONR has continued to interact with Sellafield Ltd at an early stage on the THORP & Finishing Line 6 (FL6) POCO Event Driven Review (EDR). The interactions have included monthly progress updates and consideration of the processes being proposed to achieve POCO. ONR acknowledges the considerable progress that Sellafield Ltd has made in the period, but considers that the EDR has not yet developed far enough to provide adequate confidence in the proposed approach. However, Sellafield Ltd has developed and presented a credible plan for transitioning parts of the THORP & FL6 facility into POCO and we expect the necessary regulatory confidence will be generated as the plan is delivered.

ONR carried out a Licence Condition 15; Periodic review, inspection of the Solvent Treatment Plant to ensure that Sellafield Ltd has adequately reviewed the extant safety case and considered the capability of the facility to support future safe operations. ONR concluded that Sellafield Ltd has carried out an adequate Periodic Safety Review here.

ONR has continued to interact with Sellafield Ltd on a number of safety case initiatives to review the methodology, implementation, and adequacy of its arrangements in this respect.

4 REGULATORY ACTIVITIES

Licence Instruments and Enforcement Notices Issued by ONR during this period

Date	Type	Ref No	Description
21/05/2018	Agreement	505	Agreement to commence receipt, handling and storage of Dounreay 'can packages'
03/08/2018	Agreement	507	Commissioning of the WVP filter export route
17/07/2018	Agreement	508	Decision on Sellafield Limited's Category A submission requesting permission to erect a tied tower crane
29/03/2018	Agreement	509	Agreement to implementation of Active Commissioning and Operation of the First Extension Liquor Activity Reduction System
20/08/2018	Withdrawal of Approval	511	Withdrawal of Approval Issued under LC 15 (3)
20/07/2018	Agreement	512	MSSS Roof Replacement - Agreement to implement Category A Crane Proposal
05/09/2018	Approval	513	Nuclear Safety Committee Approval under LC13(3)
05/09/2018	Approval	514	Nuclear Safety Committee Approval under LC13(12)

Reports detailing the above regulatory decisions may be found on the ONR website at <http://www.onr.org.uk/pars/>.

5 NEWS FROM ONR

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

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This document is issued by the Office for Nuclear Regulation (ONR). For further information about ONR, or to report inconsistencies or inaccuracies in this publication please visit <http://www.onr.org.uk/feedback.htm>.

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