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

Covering the period – 01 April to 30 September 2016



Foreword

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

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

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1 INSPECTIONS**DATES OF INSPECTION**

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

	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016
Plutonium		May 18		July 14		September 28-29
Thorp		May 11-13	June 28-29	July 27-28		September 22-23 29
Decommissioning	April 19-20	May 17-18	June 07	July 05-06	August 02	September 13-14
Magnox	April 12-14	May 17	June 21-22	July 13-15		
Infrastructure	April 12	May 04 17	June 14 29	July 20-22		September 01
Corporate		May 24-25	June 30			September 13-14
Project Delivery		May 05		July 21	August 31	September 21
Waste and Effluent, Disposition Directorate	April 12-14	May 17-18 24-26	June 02 14-16 23	July 12-14		September 13-15

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.

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

The SCIE sub-programme'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.

In this period, SCIE's routine inspections at Sellafield Ltd covered the following:

Routine Matters - Corporate Inspection Programme

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

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

ONR carried out a number of inspections of licence condition compliance arrangements during the period covered by this report. ONR also continued to work to

support and encourage delivery of the improvements identified during earlier inspections.

Licence Compliance Arrangements Inspections (LCAIs) delivered over the period included LC8; warning notices, which was rated Green, (no formal action), and LC23; operating rules, also rated Green. Operating rules are an important aspect of the licensee's safety case and set the plant limits and conditions necessary for safety. ONR noted that Sellafield Ltd has made significant improvements over recent years in its approach and application of operating rules.

ONR identified one area where further improvement is required following an LAI on LC6; documents, records, authorities and certificates. Here we noted that the work Sellafield Ltd was planning to improve its document management processes is also needed for legal compliance. ONR made clear its expectation that this plan should now be progressed.

None of the findings from these inspections required formal enforcement activity, although a number of expectations for further improvement were communicated to Sellafield Ltd, including those concerning LC6.

ONR continues to encourage improvements in site-wide management of a number of matters identified in earlier inspections. During the period covered by this report ONR decided that it no longer needs to undertake specific regulatory oversight of Sellafield Ltd's improvements regarding arrangements for training. These arrangements were modernised following previous ONR interventions and sufficient progress has now been made in implementing improved training that ONR considers the associated regulatory issue to be closed.

Routine Matters - Magnox

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

For the planned compliance inspections, ONR judged that licensee compliance with LC7; incidents on the site, LC26; control and supervision of operations, LC27; safety mechanisms, devices and circuits, and LC32; accumulation of radioactive waste, were all rated Green (no formal action).

For the SBI of the Thermal De-Nitration reactor and supporting systems, ONR judged compliance with all six sampled 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 Green (no formal action).

Routine Matters - Infrastructure

During the period ONR inspected arrangements for compliance with LC22; modification or experiment on existing plant, within the National Nuclear Laboratory's

(NNL's) Central Laboratory. This facility contains a significant inventory of nuclear and radioactive material, and the quantity of such material and associated scope of operations is likely to grow in the future, as more of the facility undergoes active commissioning. It is also proposed that analytical services for the Sellafield site may transfer from another facility to this laboratory in the future. Although the facility is on the licensed site, and hence duties under the licence conditions rest with Sellafield Ltd, the facility is operated by NNL as a tenant under Sellafield Ltd oversight.

ONR considered the facility's implementation of the site's arrangements merited a Green rating (no formal action), and noted some good practice during the inspection, as well as some minor areas for improvement.

ONR also undertook an inspection to determine if the Utilities organisation is adequately implementing the licensee's site-wide arrangements for compliance with LC7; incidents on the site. This followed a similar inspection in the Analytical Services facility in 2015.

ONR considered the Utilities organisation's implementation of the site's arrangements to be good in many areas. There were only minor shortcomings identified, and ONR considered an inspection rating of Green (no formal action) was merited.

ONR undertook an inspection targeting the implementation of Sellafield Ltd.'s arrangements for compliance with the Ionising Radiations Regulations 1999 (IRR99) within the Analytical Services facility on the Sellafield site. This inspection was a follow-up activity to the IRR99 inspection undertaken in July 2015. Following this previous inspection, ONR had raised a regulatory issue which detailed a number of shortfalls against legal requirements, where Sellafield Ltd was required to make improvements. ONR has since monitored progress against the associated actions on a regular basis, but decided to undertake this follow-up inspection as a targeted activity because of the importance of this topic area and the facility.

ONR noted a number of improvements: for instance, Sellafield Ltd has recently purchased some new radiological monitoring equipment, and its staff were highly knowledgeable regarding the inspection subject area. However, there still remained some shortfalls to be progressed and hence ONR awarded the inspection a rating of Amber (seek improvement). ONR then continued to monitor progress against this regulatory issue, and once Sellafield Ltd had made sufficient progress the regulatory issue was closed.

ONR also undertook an inspection in Analytical Services to determine if Sellafield Ltd is implementing its site-wide arrangements for compliance with LC10; training, LC12; duly authorised and other suitably qualified and experienced persons, and LC26; control and supervision of operations. ONR awarded inspection ratings of Green (no formal action) against these three licence conditions as a result of this inspection.

ONR undertook an inspection to determine if the Utilities organisation is adequately implementing the licensee's arrangements for compliance with LC28; examination, inspection, maintenance and testing, focussed on the water supply provision to the licensed site. The reliable provision of water to the Sellafield site is important to ensure the safe operation of facilities, as well as playing a role in hazard and risk reduction activities on the site.

Although Sellafield Ltd displayed a good knowledge of its infrastructure, ONR identified a specific shortfall relating to the need to review and update the plant

maintenance schedule to ensure it correctly reflects the present safety case. For this reason ONR awarded an inspection rating of Amber (seek improvement), and raised an associated regulatory issue to track this compliance gap to closure.

ONR also undertook an inspection to determine if the Utilities organisation is adequately implementing Sellafield Ltd's site-wide arrangements for compliance with LC28; examination, inspection, maintenance and testing, focussed on the steam distribution system on the licensed site. The reliable provision of steam is important to ensure the safe operation of facilities, as well as being needed for hazard and risk reduction activities on the site. ONR considered that Sellafield Ltd's implementation of its arrangements to be adequate in this respect, and we noted that Sellafield Ltd has a good understanding of the condition of these assets and their importance to safety.

ONR undertook a System Based Inspection targeted at the Containment Systems under the control of the Utilities organisation. These comprise three Highly Active / Medium Active pipebridges where Utilities are responsible for the secondary containment features to protect against leaks of radioactive liquids. The scope of the inspection also covered the Low Active drain from the NNL Central Laboratory, and also included ducts and trenches across the site from a general condition perspective, noting that these contain important services and also form part of the site's water drainage arrangements.

ONR considered that Sellafield Ltd has adequately implemented the safety case claims that relate to these features. In particular, Sellafield Ltd has undertaken a significant amount of intrusive maintenance and refurbishment work for the active pipebridges in recent years, to ensure their continued safe operation, and has in place a detailed surveillance regime going forwards targeted at specific locations. As such, ONR awarded inspection ratings of Green (no formal action) for all six licence conditions inspected against.

During the period, ONR monitored Sellafield Ltd's progress against a number of regulatory issues where shortfalls against legal requirements had been identified during previous inspections or in other regulatory engagements. ONR has been generally pleased with the progress made against these issues, and will continue to monitor licensee performance until these matters are resolved.

ONR also attended the NNL's Annual Review of Safety for 2015/16 (focussed on the NNL Central Laboratory) and was satisfied with the process undertaken, and the supervisory role performed by Sellafield Ltd as the site licensee.

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 LC24; operating instructions, and LC28; examination, inspection, maintenance and testing were adequate and awarded Green (no formal action) inspection ratings.

For the planned inspection of LC7; incidents on the site, ONR judged that compliance was below standard (Amber rating, seek improvement), and a regulatory issue was raised to track the Sellafield Ltd's progress in addressing the shortfalls identified at the

time of the inspection. At the time of publishing this report, the licensee is making good progress to remedy these shortfalls as part of a wider drive to improve incident investigation processes within Plutonium Management Facility (South).

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

Routine Matters - Decommissioning

During this period, ONR undertook four planned Licence Condition Compliance Inspections against LC8; warning notices, LC11; emergency arrangements, LC17; management systems, and LC26; control and supervision of operations. ONR was supported by the Environment Agency in the case of the LC17 inspection.

The LC8 planned inspection was carried out in the Magnox Swarf Storage Silo (MSSS). 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, which will be followed up as routine regulatory business.

The LC11 inspection focused on the emergency arrangements at the Pile Fuel Cladding Silo (PFCS). 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, we noted a number of minor issues and are pleased at the progress Sellafield Ltd subsequently made in addressing these.

The LC17 inspection focused on the implementation of the site's management systems arrangements in the Decommissioning Directorate. ONR noted the formation of the Independent Programme Assurance Group and that Sellafield Ltd is setting out how this group will interact with the licensee's internal regulator. ONR considered that the application of the licensee's arrangements met our expectations and although some minor improvements were identified, we awarded a Green (no formal action) rating.

The LC26 inspection, focused on the control and supervision of operations in the Active Handling Facility (a facility managed by NNL on the Sellafield licenced site). ONR found that the implementation of Sellafield Ltd's arrangements did not meet legal standards in regard to how NNL allocates competent individuals to supervise tasks important to safety and awarded an Amber (seek improvement) inspection rating. We will track improvements here through a regulatory issue.

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

The first SBI focused on the liquor level monitoring system serving the MSSS. 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 (listed above). However, for LC23; operating rules, and LC24; operating instructions, ONR determined that application of the Sellafield Ltd arrangements did not meet legal standards and ONR is seeking improvements. 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 tank and sump level monitoring system containment features within the Sludge Packaging Plant 1 (SPP1). This system was considered to meet the requirements of the safety case and the implementation of Sellafield Ltd's compliance arrangements required no formal action (Green rating) for all six standard SBI licence conditions (listed above). ONR nevertheless noted a number of minor shortfalls which will be taken forward as part of routine regulatory business.

The third SBI focused on the First Generation Magnox Storage Pond (FGMSP) fire systems. This system was considered to meet the requirements of the safety case and the implementation of Sellafield Ltd's compliance arrangements required no formal action (Green rating) for all six standard SBI licence conditions (listed above). ONR nevertheless noted a number of minor shortfalls which will be progressed under 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 that improvements in waste management exhibited by the FGMSP facility and suggested that the lessons learnt be shared across Sellafield Ltd.

ONR continues to monitor and encourage the control and supervision improvements being implemented within Decommissioning. These activities are considered to be particularly important in view of the temporary increases in risk from the Legacy Ponds and Silo facilities as waste retrievals accelerate.

Routine Matters - Waste and Effluent Disposition

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

Within the HALES OU, ONR undertook an inspection against the requirements of the Ionising Radiations Regulations 1999 (IRR99). Following examination of implementation arrangements and a plant inspection, ONR concluded that legal duties were being complied with, awarding a Green (no formal action) inspection rating and noted a good practice in one area.

For this OU ONR also undertook a System Based Inspection (SBI) examining the implementation of cooling system safety claims within an area of the facility associated with the storage of transfers of reprocessing waste. ONR concluded that the cooling system safety claims are being adequately implemented. We nevertheless identified a small number of areas for improvement associated with the clarity of instructions and the labelling of some systems and components during this SBI.

Within the HLWP OU ONR undertook planned LC Compliance Inspections against LC7; incidents on the site, LC12; duly authorised and other suitably qualified and experienced persons, LC26; control and supervision of operations, and LC36;

organisational capability. For LC7, LC12 and LC26, ONR considered that Sellafield Ltd had complied with its legal duties and awarded Green (no formal action) inspection ratings. However for LC36, ONR identified a minor shortfall associated with how Sellafield Ltd provides evidence to substantiate its organisational nuclear baseline in the absence of a new computer system being implemented for this purpose. The OU is working closely with Sellafield Ltd's corporate functions to resolve the associated Regulatory Issue.

For this OU ONR also undertook a SBI examining the implementation of steam system safety claims. ONR concluded that the steam system safety case has been adequately implemented and awarded Green ratings (no formal action) against all six standard SBI LCs (listed above). A small number of areas for improvement were nevertheless identified, associated with the labelling of safety systems, and also with safety case clarity. These matters will be taken forward as routine regulatory business.

Within the E&EP OU ONR undertook planned LC Compliance Inspections against LC10; training, and LC12; duly authorised and other suitably qualified and experienced persons. For LC10 and LC12, ONR considered that Sellafield Ltd had complied with its legal duties and Green (no formal action) inspection ratings were awarded. In addition ONR examined the progress Sellafield Ltd was making in delivering a self-derived improvement programme associated with training, and competence of personnel. ONR noted that the improvement plan was on track, and this initiative will strengthen the licensee's performance within E&EP.

Within the Remediation OU ONR undertook planned LC Compliance Inspections against LC10; training, LC12; duly authorised and other suitably qualified and experienced persons, LC27; safety mechanisms, devices and circuits, and LC28; examination, inspection, maintenance and testing. For LC12, LC27 and LC28, ONR considered that Sellafield Ltd had complied with its legal duties and Green (no formal action) inspection ratings were awarded. However for LC10, ONR identified a shortfall in the local implementation of a site-wide software system used to record and track staff training and competence and awarded an Amber (seek improvement) rating. The OU is working closely with Sellafield Ltd's corporate functions to resolve the associated Regulatory Issue.

Routine Matters - THORP

During the reporting period, ONR undertook planned Licence Condition Compliance Inspections against LC7; incidents on the site, LC11; emergency arrangements, LC22; modification or experiment on existing plant, LC24; operating instructions, LC28; examination, inspection, maintenance and testing, and LC36; organisational capability. For these inspections ONR concluded that Sellafield Ltd had demonstrated that it was in compliance with its legal duties, and ONR only identified minor areas for further improvement. Green (no formal action) inspection ratings were awarded in all instances.

In addition, ONR undertook a SBI to assess the adequacy of implementation of the safety case claims with respect to THORP's nuclear fire safety systems. ONR judged that this system did not adequately fulfil the associated safety case requirements as elements of the safety case had yet to be fully implemented. Amber inspection ratings

(seek improvement) were also awarded against LC23; operating rules and LC27; safety mechanisms, devices and circuits, though Green ratings (no formal action) were given against the other four standard LCs inspected in SBIs (as listed above). The Amber ratings reflected problems with the usability and accessibility of the safety case to operators and delays in updating the designation of fire detection and protection systems on the plant. ONR was satisfied however, that these shortfalls do not represent any significant nuclear safety risk requiring immediate action. This was due to the generally robust standards of operational nuclear fire safety and high nuclear fire safety passive protection measures in place on the plant. A regulatory issue was raised to track Sellafield Ltd's progress in addressing these shortfalls and ONR welcomes the significant progress made in this area since this SBI.

2.2 Other work

Project Delivery sub-programme

The ONR Project Delivery sub-programme regulates the programmes, projects and activities, associated with the delivery of high hazard and risk reduction on the Sellafield site. This includes projects in the legacy ponds, legacy silos, decommissioning, high level waste, and infrastructure areas of the site. In addition to regulating these areas, the sub-programme also has a number of improvement themes, aimed at encouraging Sellafield Ltd to accelerate risk and hazard reduction, namely;

- Prioritisation
- Use of resources
- Removal of blockers
- Removal of diversions and distractions
- Incentivisation
- Fit for purpose solutions.
- Risk Appetite
- Communications

Key points from ONR's interventions with the licensee during this reporting period 01 April to 30 September are:

Legacy Ponds

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

Pile Fuel Storage Pond (PFSP)

The ONR regulatory focus continues to be on the retrieval, removal and export of intermediate level waste and bulk sludge from the pond. With respect to sludge retrievals, ONR is assessing Sellafield Ltd's request to commence active commissioning of the PFSP sludge transfer route to the Wastes Encapsulation Plant (WEP) for encapsulation of the drummed sludge prior to safe interim storage on site. To inform the regulatory decision, ONR has undertaken a readiness inspection of both PFSP and WEP against implementation of Sellafield Ltd's LC21 arrangements and judged them to be adequate.

With respect to the export of intermediate level waste, ONR has continued to engage and influence Sellafield Ltd to progress this work stream. As a result, ONR has granted permission for the use of a Magnox skip lifting capability, which is an enabler for intermediate level waste exports. ONR has also reviewed Sellafield Ltd's proposal to commence intermediate level waste exports to an existing site storage facility and judged that no further engagement is required. This was on the basis of the low radiological risks and the fact that previous fuel and low level waste exports have successfully been undertaken by the facility. Subsequently, Sellafield Ltd safely commenced intermediate level waste exports.

First Generation Magnox Storage Pond (FGMSP)

ONR is also encouraged with the progress being made with the programme of work associated with the FGMSP. ONR has issued Licence Instrument 902, agreeing to Sellafield Ltd's request to commence active commissioning and operation of the FGMSP export route. Sellafield Ltd has since commenced skip exports of legacy fuel to a more modern facility on the site for safe interim storage, thus meeting the agreed Key Decommissioning Milestone. Sellafield Ltd also continues to retrieve sludge to the Sludge Packaging Plant 1 as part of continued active commissioning of the bulk sludge retrieval equipment.

Legacy Silos

ONR recognises the progress that Sellafield Ltd continues to make on risk and hazard reduction in the legacy silos. The following aspects are of note:

Magnox Swarf Storage Silo (MSSS)

Sellafield Ltd has continued to make progress in installing the Silo Emptying Plant (SEP2) at MSSS during this period and expects to complete installation by the end of October 2016. ONR is encouraged by delivery of this key project in line with Sellafield Ltd's planned schedule. In preparation for inactive commissioning, ONR undertook an inspection against Licence Condition 21; commissioning, which was rated as Green (no formal action). ONR continues to engage with Sellafield Ltd to ensure regulatory confidence that those activities which directly support safe and secure early hazard and risk reduction from MSSS are progressed in a timely manner (noting that a significant number of projects will need to be delivered prior to starting retrieval operations). Sellafield Ltd has a number of improvement projects underway to address the challenges it faces and regulatory confidence is improving. However, ONR will engage to test the improvements proposed and gain evidence that Sellafield Ltd can deliver the activities needed for sustained hazard and risk reduction in future years.

Pile Fuel Cladding Silo (PFCS)

ONR has continued to see improvements in Sellafield Ltd's performance here. Importantly, ONR has now closed our regulatory issue raised in 2015 related to regulatory confidence in the PFCS hazard and risk reduction programme in view of the programme Sellafield Ltd has put in place and improvements that have been made.

ONR recently issued a licence instrument agreeing to the commencement of deflector plate removal within the silo. This is a major milestone in the programme of work to access the silo and, ultimately, to retrieve the waste and remove the hazard posed by this legacy facility. We will be monitoring this work closely to ensure that Sellafield Ltd continues to manage the additional risk associated with this activity, such that it is as low as is reasonably practicable. A further significant development has been the installation of three of the six silo access doors, with the remaining three doors expected to be installed by the end of 2016. ONR has been engaging with Sellafield Ltd on its proposals for the cutting of access penetrations into the silo, which is expected to take place in 2017, once the doors have been fitted. ONR will receive the safety case for this activity and will be undertaking a detailed assessment prior to deciding whether to permit this work. In support of this decision, ONR undertook an essential operations inspection in May 2016 which concluded that a fit-for-purpose fire-fighting capability is now in place, and the further requirement to complete staff training and to finalise the supporting arrangements has now been completed.

More generally, ONR's approach to regulating PFCS was presented to the WCSSG Hazard and Risk Reduction and Waste Management Working Group meeting in September.

Waste Handling Facilities

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

Dounreay Materials Consolidation

The UK Government / Nuclear Decommissioning Authority policy is to consolidate the UK's Special Nuclear Materials (SNM) in one location. As part of this initiative, SNM from Dounreay will be transferred to Sellafield. The equipment required to facilitate the resultant import and storage at Sellafield draws upon designs that are already in operation in the site's product stores and takes advantage of the learning from existing operations. ONR has issued Licence Instrument 905, agreeing to Sellafield Ltd's request to commence active commissioning of the associated storage facility, thus allowing the first phase of material shipments to commence.

Decommissioning

During April 2016 Sellafield Ltd completed active commissioning of the Separation Area Ventilation plant. This project has since successfully diverted gaseous waste streams from legacy plant chimneys to a modern standards facility. Completion of the Separation Area Ventilation plant was a pre-requisite to allow Sellafield Ltd to progress its plans to demolish legacy chimneys on the site.

As previously reported, ONR remains concerned with Sellafield Ltd's rate of delivery and management of risks associated with the First Generation Magnox Reprocessing Stack demolition project. ONR has stressed the importance of timely delivery of this project, whilst continuing to manage safety risks appropriately. This is a significant hazard reduction project and ONR is working to encourage Sellafield Ltd to adopt a fit for purpose solution that achieves both appropriate standards of nuclear safety and a timely outcome. Sellafield Ltd has now completed the installation of equipment to support the demolition. ONR is now undertaking specialist assessment to enable a decision on whether to grant permission for the demolition to proceed.

ONR also continues to monitor the progress of the work related to removal of redundant equipment from a legacy processing facility as part of hazard and risk reduction at the site. The work entails the removal and packaging of redundant equipment to safe, modern standards storage, as well as enabling Sellafield Ltd to deliver post operational clean out of this facility.

High Level Waste Plants

Sellafield Ltd is projecting compliance with its operating rule limits on Highly Active Liquor (HAL) stock reduction for the 2016/17 financial year. However, as a result of extended outages this year at the Waste Vitrification Plant, overall stocks are expected to remain roughly constant over the year and if further plant failures were to occur, the annual limits may become prejudiced. While noting that the potential for Sellafield Ltd to reduce its HAL stocks is very limited now that the site is in steady state HAL working and the focus in this area is on supporting the timely and safe termination of the site's reprocessing activities, ONR has nevertheless raised a regulatory issue on this matter. Under our regulatory issue, we are undertaking enhanced monitoring to ensure that Sellafield Ltd takes all reasonably practicable measures to comply with these limits. More generally, ONR continues to encourage Sellafield Ltd in its work to commence active commissioning of Evaporator D, which is needed to complete the site's HAL stocks remediation activities.

Infrastructure

As previously reported, ONR continues to regulate Sellafield Ltd's open recommendations, findings and considerations with regard to completing the first phase of its post-Fukushima resilience improvements. ONR has considered its regulatory position given the previously slower than expected progress and issued an enforcement letter detailing the remedial actions required by Sellafield Ltd (work originally planned to be delivered by the end of the 2015/16 financial year). In response to our letter, accelerated progress is now being made, with the closure of the outstanding recommendations, findings and considerations now expected by the end of March 2017.

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. ONR has observed adequate progress in line with the declared Sellafield Ltd plans.

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 Analytical Services facility.

Magnox Reprocessing Separation Plant

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

In June 2015, ONR issued an Improvement Notice (IN) in relation to Licence Condition 24; operating instructions, following alleged breaches related to events at the plant over the previous 14 months. Following the IN, ONR instigated a revised regulatory strategy for MRSP which recognises the strategic importance of the plant, its age and design, and that events such as those that led to ONR's IN may continue to occur until the improvements Sellafield Ltd is making have become properly embedded. The strategy places the plant under close supervision, with events related to those within the scope of the improvement programmes now in place being regulated under normal regulatory business. Sellafield Ltd has made good progress towards making the improvements sought under these programmes and is on track to meet the requirements of the IN later this year. Once Sellafield Ltd has informed ONR that it considers it has complied with the IN, ONR will carry out a confirmatory inspection.

Plutonium Management Facilities Projects

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

3 NON-ROUTINE MATTERS

Non – Routine Matters – Infrastructure

During the period an ONR team of inspectors assessed the annual safety driven demonstration exercise on the licensed site, undertaken as part of Sellafield Ltd's arrangements to comply with Licence Condition 11; emergency arrangements. In preparation for this demonstration, ONR undertook a number of engagements with Sellafield Ltd regarding the scope and detail of the exercise scenario, to ensure it was sufficiently challenging, and also demonstrated aspects relating to recent improvements in resilience capability for the site. ONR accepted the chosen scenario, which simulated extreme rainfall leading to localised flooding of important facilities and disruption to electrical distribution on the site.

The exercise was undertaken on 21 September and ONR concluded that Sellafield Ltd had provided an adequate demonstration, and would have coped if this had been a real event. However, ONR also identified some minor areas for improvement and these will be further discussed with Sellafield Ltd as routine regulatory business.

Non – Routine Matters – Plutonium Management Facilities

During the period of this report an import /export facility within PMF experienced two fuel handling events. ONR carried out follow-up enquiries into both events to understand the causes and to ascertain the extent to which the licensee had responded appropriately. ONR concluded that the risks arising from these events were very low and that the licensee had an adequate understanding of the technical shortfalls in its fuel handling design which had contributed to them. However, we considered that in the first of these events, the licensee's initial emergency response fell short of the site's formal arrangements. Therefore, following consideration of both events under our Enforcement Management Model (EMM), ONR issued a verbal warning to the licensee with regard to the inadequate implementation of its emergency arrangements.

Non-Routine Matters – Decommissioning

ONR has undertaken a fact-finding intervention into the unrevealed failure of a hydrogen monitor Safety Mechanism in MSSS which Sellafield Ltd reported to ONR in January 2016 and a second related event that occurred a few months later. Though we were satisfied that the risks from these two events were very low, our intervention highlighted a number of concerns relating to Sellafield Ltd's wider processes, both at MSSS and site wide. In consequence we have formally requested an action plan to address these shortfalls and raised a Regulatory Issue to track their resolution.

ONR has conducted a proactive assessment of the Windscale Pile 1 criticality safety case looking at margins of safety. At the time of writing, Sellafield Ltd is considering the safety significance of the matters we have raised.

Non-Routine Matters - Effluents and Encapsulation Plants

ONR is following up an incident that occurred within HALES where a small number of sealed sources, used for the calibration of radiation detection instruments, do not appear to have been controlled and stored adequately. The sealed sources were recovered promptly and ONR is reviewing what regulatory response is proportionate.

Non – Routine Matters – THORP

In April 2016 ONR held a holding to account meeting with senior members of the THORP management team in response to two events related to conduct of operations at the plant, which occurred in August 2014 and October 2015 respectively. Application of ONR's Enforcement Management Model had resulted in formal enforcement letters being sent to Sellafield Ltd seeking improvement plans in each instance. The holding to account meeting was then held to gauge Sellafield Ltd senior management commitment to delivering these improvement plans and ensuring there would be no reoccurrence. The meeting enabled ONR to be confident in the quality of the improvements being implemented at THORP and of the commitment of the plant's senior managers to delivering these.

In August 2016 Sellafield Ltd advised ONR that an individual had exited the THORP radiologically controlled area while carrying low levels of contamination. This led to a small number of spots of low level, relatively immobile contamination being found beyond the controlled area, though still within the THORP facility. In response THORP carried out appropriate decontamination and reassurance monitoring. Sellafield Ltd has initiated its own investigation and ONR is currently conducting its own independent follow-up enquires to determine an appropriate regulatory response.

Non- Routine Matters – Periodic review of safety

Sellafield Ltd's 2nd cycle Periodic Safety Review (PSR) programme is generally on schedule and the new arrangements are bedding-in well. These arrangements are resulting in better attention to the improvements which impact on the nuclear safety case. 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.

Non- Routine Matters – Conventional Health & safety

On 5 September ONR served an improvement notice on Sellafield Ltd in respect of a cooling tower at the HALES facility. The improvement notice requires Sellafield Ltd to improve its management and control of legionella in the cooling tower. The date for compliance is 27 January 2017. The appeal period for the notice expired on 26 September, and Sellafield Ltd has not appealed.

Following an event in September 2015 when a contractor entered an empty stock tank in a Magnox Reprocessing facility without the necessary confined spaces controls in place, ONR carried out follow up enquiries and subsequently wrote to Sellafield Ltd. Our letter advised that although Sellafield Ltd appears to have failed to comply with

the Confined Spaces Regulations in this event, the improvements it put in place immediately following the event returned the licensee to compliance. As such we did not seek any improvement plan, but noted that the event presented learning opportunities.

Non-Routine Matters - Panorama Documentary

ONR Response to BBC Panorama Documentary

In early September 2016, the BBC's Panorama programme broadcast a 30-minute documentary titled 'Sellafield's Nuclear Safety Failings.'

As an open and transparent regulator, ONR responded to requests from the documentary makers over many months and sought to offer context and balance to the issues wherever possible.

From a regulatory perspective, the documentary raised a number of issues that are either already resolved, or are currently being addressed by Sellafield Ltd, with ONR's regulatory oversight.

Our position is clear: Sellafield is safe but presents many unique challenges due to the age and history of the site. A considerable amount of work is still required to clean up out of date facilities at Sellafield and decommission their older plants. But this does not mean they pose an immediate safety risk to workers or the public.

Sellafield is the most intensely regulated nuclear site in the UK. ONR has more than 50 highly qualified and experienced inspectors in our Sellafield team scrutinising the site to ensure it operates as safely and securely as possible.

As the UK nuclear safety regulator, we set very high standards throughout the industry and we have seen Sellafield make significant progress in recent years. If we considered any plant to be unsafe we would shut it down or demand urgent action to reduce that risk and return it to safety.

Hazard and risk reduction at Sellafield remains ONR's number one regulatory priority and we will continue to play a key role in encouraging progress at the site and driving the pace of future hazard and risk reduction projects.

There is still considerable work to be done at Sellafield over many years, but there is now a real momentum of progress which is already making the site safer for future generations.

4 REGULATORY ACTIVITIES

Licence Instruments Issued

LI 903

This licence instrument gave ONR's 'Agreement' to the commencement of deflector plate removal using high pressure water jet cutting. The deflector plates are large steel structures in the upper parts of the PDCS facility and they must be removed to gain eventual access to the waste beneath them. ONR undertook a detailed assessment of the licensee's safety case for this activity and we are satisfied in the claims, arguments and evidence underpinning Sellafield Ltd's approach. Although the work unavoidably increases the risk presented by PFCS, ONR is satisfied that the proposed safety precautions are appropriate and that the risk has been minimised so far as is reasonably practicable.

LI 904

This licence instrument gave ONR's 'Agreement' to the modification of Highly Active Liquor Evaporation and Storage (HALES) facility's Operating Rule 26. This operating rule governs the volume of Highly Active Liquor (HAL) Sellafield Ltd can store in the facility. Following the successful vitrification of the legacy HAL stocks and the cessation of in-tank evaporation, the HAL stored is approximately 40% of the concentration of that stored five years ago, resulting in Sellafield Ltd seeking a review of its operating rule. In order to prevent a breach of the operating rule, Sellafield Ltd presented a safety case to ONR demonstrating that reducing the spares capacity from a '1 spare tank in 4' policy to a '1 spare tank in 6' policy retained adequate contingency and avoided delays to the completion of the site's fuel reprocessing operations. ONR undertook a detailed assessment of this safety case and was satisfied that the licensee proposals retained sufficient spare capacity and that risks would be reduced so far as is reasonably practicable.

LI 905

Following a period of specialist assessment, ONR has issued an 'Agreement' via a licence instrument for Sellafield Ltd to commence active commissioning of the Dounreay Exotics Storage Facility to Receive Low Power Cans from Dounreay.

Licence Instruments and Enforcement Notices Issued by ONR during this period
Sellafield limited - Sellafield (and Calder Works) – Nuclear Site Licence no. 31G

Date	Type	Ref No	Description
16/09/2016	LI903	SEL77583N	Arrangement to commence deflector plate removal size reduction operations using high pressure water jet cutting.
26/07/2016	LI904	SEL77589	Agreement to modification of the Highly Active Liquid Evaporation and Storage (HALES) plant's Operating Rule 26
01/08/2016	LI905	SEL77585N	Agreement to commence the first two shipment of Dounreay exotic material to the Sellafield Dounreay Exotic Storage Facility
05/09/2016	Improvement Notice	307424291	Improvement Notice at the Sellafield Ltd HALES facility concerning failure to control exposure to legionella bacteria

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

5 NEWS FROM ONR

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

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