

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

Report period 1 April - 30 September 2021



Foreword

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

Site inspectors from ONR usually attend West Cumbria Sites Stakeholder Group meetings where these reports are presented and will respond to any questions raised there. Any person wishing to inquire about matters covered by this report should contact ONR.

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List of Abbreviations

AHF	Active Handling Facility
BEPPS-DIF	Box Encapsulation Plant Product Store-Direct Import Facility
C10	Compartment 10
CA	Competent Authority
CNI	Chief Nuclear Inspector
COMAH	Control Of Major Accident Hazard (Regulations 2015)
COSHH	Control of Substances Hazardous to Health (Regulations 2002)
FGFL	First Generation Finishing Line
FGMSP	First Generation Magnox Storage Pond
HALES	Highly Active Liquor Evaporation and Storage
HLWP	High Level Waste Plants
HPCP	Hold Point Control Plan
HSWA74	Health and Safety at Work Act 1974
ILW	Intermediate Level Waste
INES	International Nuclear Event Scale
IRR17	Ionising Radiations Regulations 2017
ISF	Interim Storage Facility
LAEMG	Low Active Effluent Management Group
LC	Licence Condition
MBGWS	Miscellaneous Beta Gamma Waste Store
MEP	Magnox Encapsulation Plant
MER	Magnox East River
MHSWR99	Management of Health and Safety at Work Regulations 1999
MRF	Magnox Reprocessing Facility
MSSS	Magnox Swarf Storage Silo
NIA65	Nuclear Installation Act 1965
OB	Original Building
ONR	Office for Nuclear Regulation
OSD	Off Site Disposal
PFCS	Pile Fuel Cladding Silo
PFR	Prototype Fast Reactor
PFSP	Pile Fuel Storage Pond
PSR	Periodic Safety Review



REPIIR	Radiation (Emergency Preparedness and Public Information) Regulations 2017
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
RRFSO	Regulatory Reform (Fire Safety) Order 2005
SBI	System Based Inspection
SFM	Spent Fuel Management
SNM	Special Nuclear Materials
SRP	Sellafield (Product and Residue) Retreatment Plant
SSB	Self Shielded Box
THORP	Thermal Oxide Reprocessing Plant
WAGR	Windscale Advanced Gas-Cooled Reactor
WAMAC	Waste Monitoring and Compaction

1 Inspections

Dates of inspection

The ONR site inspectors made inspections on the following dates during the report period 01 April – 30 September 2021.

	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021
Special Nuclear Materials	27	11	15 22-23	13	-	7
Retrievals	13	11	8	28-29	10	7, 16
Remediation	15	6, 20, 26	8	-	11	7, 28, 29
Spent Fuel Management (SFM)	13-14	5, 11, 12- 13, 25-26	8, 9-10, 22-24	13-14, 28-29	11-12,17, 24	9
Site Infrastructure	-	5-7, 25-26	22	-	-	14-15
Corporate	-	5-7	15-16	-	-	22-24

2 Routine Matters

Inspections

Inspections are undertaken as part of the process for monitoring compliance with:

- the conditions attached by ONR to the nuclear site licence granted under the Nuclear Installations Act 1965 (NIA65) (as amended);
- the Energy Act 2013
- the Health and Safety at Work 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).

The inspections entail monitoring licensee’s actions on the site in relation to incidents, operations, maintenance, projects, modifications, safety case changes and any other matters that may affect safety. 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.

During the reporting period, we judged the arrangements made and implemented by the site in response to safety requirements to be satisfactory in the areas inspected. Where improvements have been identified, Sellafield Ltd has made a commitment to address those issues, and ONR inspectors will closely monitor progress during future

site inspections. Where necessary, we will take formal regulatory enforcement action to ensure that appropriate remedial measures are implemented to reasonably practicable timescales. Members of the public, who would like further information on ONR's inspection activities during the reporting period, can view site Intervention Reports at www.onr.org.uk/intervention-records on our website www.onr.org.uk. Should you have any queries regarding our inspection activities, please email contact@onr.gov.uk.

Chief Nuclear Inspector Themed Inspection on Management of Ageing Assets

Our Chief Executive and Chief Nuclear Inspector (CE/CNI), Mark Foy, recognised ageing management as a regulatory priority for the nuclear estate in his 2019/20 annual report on Great Britain's nuclear industry and reiterated that it would continue as a priority in his [2020/21 Annual Report on Great Britain's Nuclear Industry](#).

The following five nuclear licenced sites were prioritised:

- Aldermaston and Burghfield
- Sizewell B
- Devonport
- Hinkley Point A
- Sellafield

We initially requested that the licensees of each of the above sites complete a self-assessment against a selection of ONR specified criteria derived from the following four themes:

- Theme 1 - Effective strategies for the characterisation, monitoring, trending and analysis of ageing - at facility, system and component level are present.
- Theme 2 - Commitment to ensure that the right level of organisational capability to sustain specialist safety case and other technical capability to substantiate on-going safe operation.
- Theme 3 - Methods to identify and manage obsolescence in facilities for their operation design life and any potential lifetime extensions.
- Theme 4 - Sustained focus and commitment to ongoing investment in plant, people and processes concerned with ageing management.

Following the self-assessment exercise by Sellafield Ltd, a programme of inspections commenced during the reporting period to look at the management of ageing assets across the site. This inspection programme is continuing and once completed the findings will be reported on the ONR website.

In addition to the programme of inspections to look at the management of ageing assets, our inspectors have also completed a series of other inspections during the reporting period at Sellafield. Further details are below.

Special Nuclear Materials Value Stream (SNM)

We carried out five planned Licence Condition (LC) compliance inspections, and one System Based Inspection (SBI) covering:

- LC 11 – Emergency arrangements
- LC 23 – Operating rules
- LC 32 – Accumulation of radioactive waste
- LC 35 – Decommissioning
- LC 36 – Organisational capability (as part of CNI themed inspection)
- SBI - The ventilation Systems for two product stores in SNM (North) facilities.

With one exception, all the inspections were undertaken physically at the Sellafield site, albeit with some additional remote inspector support for the SBI. The exception being the LC 36 Inspection that was undertaken at the Sellafield Ltd Whitehaven office. That inspection was part of the Chief Nuclear Inspector themed inspection on management of ageing assets – theme 2: Organisational capability.

The purpose of these inspections was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 11, LC 23, LC 32, LC 35 and LC 36.

For all the planned LC compliance inspections, we judged that compliance with the LC was adequate, and awarded green (no formal action) inspection ratings.

The SBI was against the standard set of licence conditions for such inspections; LC 10 - training, LC 23 - Operating rules, LC 24 - operating instructions, LC 27 - safety mechanisms, devices and circuits, LC 28 - examination, inspection, maintenance and testing, and LC 34 - leakage and escape of radioactive material and radioactive waste. We judged that compliance with all six standard licence conditions to be met and the inspection was rated as green (no formal action). Our overall judgement was that the store ventilation systems adequately fulfil the requirements of the safety case.

Retrievals Value Stream

During this period within the retrievals value stream, we carried out nine planned LC compliance inspections, one Ionising Radiations Regulations 2017 (IRR17) compliance inspection and one SBI covering:

- LC 7 – Incidents on the site
- LC 10 – Training
- LC 15 – Periodic review
- LC 17 – Management systems
- LC 22 – Modification or experiment on existing plant
- LC 26 – Control and supervision of operations
- LC 27 – Safety mechanisms, devices and circuits
- LC 28 – Examination, inspection, maintenance and testing
- LC 36 – Organisational capability
- IRR17 – Ionising Radiations Regulations 2017

- SBI – Structural containment.

It should be noted that due to the ongoing COVID-19 pandemic one inspection was postponed.

Two planned compliance inspections were carried out across the whole of the retrievals value stream. The purpose of these inspections was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 10 and LC 36.

We judged that compliance with LC 36 was adequate and awarded a green (no formal action) inspection rating. However, for the LC 10 compliance inspection we identified shortfalls in compliance with the corporate arrangements in the First Generation Magnox Storage Pond (FGMSP). These shortfalls related to how the facility establishes and delivers training requirements for nuclear safety significant roles. We judged that Sellafield Ltd had failed to adequately implement the corporate arrangements for LC 10 and therefore awarded an amber (seek improvement) inspection rating. An enforcement letter has been issued to seek the necessary improvements and this is being monitored via a level 3 regulatory issue.

First Generation Magnox Storage Pond (FGMSP)

Two further planned compliance inspections were carried out at FGMSP. The purpose of these inspections was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 7 and LC 26. We judged that compliance with LC 7 and LC 26 was adequate and awarded green (no formal action) inspection ratings.

In addition, a planned compliance inspection was carried out to confirm operations were undertaken in compliance with IRR17. We judged that compliance with IRR17 was adequate and awarded a green (no formal action) inspection rating.

Pile Fuel Storage Pond (PFSP)

Two planned compliance inspections were carried out at the PFSP on the Sellafield site. The purpose of these inspections was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 27 and LC 28. We judged that compliance with LC 27 and LC 28 was adequate and awarded green (no formal action) inspection ratings.

Magnox Swarf Storage Facility (MSSS)

Three planned compliance inspections were carried out at the MSSS facility on the Sellafield Site. The purpose of the inspection was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 15, LC 17 and LC 22. We judged that compliance with LC 15 was adequate and awarded a green (no formal action) inspection rating.

However, for the LC 17 and LC 22 compliance inspection we identified shortfalls in compliance with the corporate arrangements. For LC 17, the shortfalls related to the recording practices on a quality control plan. We judged that Sellafield Ltd had failed to adequately implement the corporate arrangements for LC 17 and therefore awarded an

amber (seek improvement) inspection rating. We issued regulatory advice and raised a level 3 regulatory issue to seek the necessary improvements. For LC 22, the shortfalls related to the use of an incorrect process and the lack of a provision for the classification of modifications according to their safety significance. We judged that Sellafield Ltd had failed to adequately implement the corporate arrangements for LC 22 and therefore awarded an amber (seek improvement) inspection rating. An enforcement letter has been issued to seek the necessary improvements and this is being monitored via a level 3 regulatory issue.

We also conducted a planned SBI of the structural containment of the MSSS facility against the standard set of licence conditions for such inspections; LC 10 - training, LC 23 - operating rules, LC 24 - operating instructions, LC 27 - safety mechanisms, devices and circuits, LC 28 - examination, inspection, maintenance and testing, and LC 34 - leakage and escape of radioactive material and radioactive waste. We judged that compliance with all the six standard licence conditions was adequate and awarded green (no formal action) inspection ratings. Our overall judgement was that the structural containment adequately fulfils the requirements of the safety case.

Remediation Value Stream

During this period within the remediation value stream, we carried out ten planned LC compliance inspections, one unannounced compliance inspection and one IRR17 compliance inspection covering:

- LC 7 – Incidents on site
- LC 10 – Training
- LC 11 – Emergency Arrangements
- LC 12 – Duly authorised and other suitably qualified and experienced persons
- LC 15 – Periodic Reviews
- LC 24 – Operating Instructions
- LC 26 – Control and supervision of operations (unannounced)
- LC 28 – Examination, inspection, maintenance and testing
- LC 35 – Decommissioning
- LC 36 – Organisational capability
- IRR17 – Ionising Radiations Regulations 2017

Waste Operating Unit

A planned compliance inspection was conducted at the waste operating unit on the Sellafield site. The purpose of the inspection was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 36.

We judged that compliance with LC 36 was adequate and awarded a green (no formal action) inspection rating.

Waste Monitoring and Compaction (WAMAC) and Off Site Disposal (OSD) Facilities

A planned compliance inspection was conducted at WAMAC and OSD facilities on the Sellafield site. The purpose of the inspection was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 7.

We judged that compliance with LC 7 was adequate and awarded a green (no formal action) inspection rating.

Active Handling Facility (AHF)

A planned unannounced compliance inspection was conducted at AHF on the Sellafield site. The purpose of the inspection was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 26.

We judged that compliance with LC 26 was adequate and awarded a green (no formal action) inspection rating.

Miscellaneous Beta Gamma Waste Store (MBGWS)

Four planned compliance inspections were conducted at MBGWS on the Sellafield site. The purpose of the inspection was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 10, 12, 24 and 26.

For all the planned LC compliance inspections, we judged that compliance with the LC was adequate, and awarded green (no formal action) inspection ratings.

Windscale Advanced Gas-Cooled Reactor (WAGR) Intermediate Level Waste (ILW) Facility

A planned compliance inspection was conducted at WAGR ILW facility on the Sellafield site. The purpose of the inspection was to confirm Sellafield Ltd's compliance to its corporate arrangements for IRR17.

We judged that compliance with IRR17 was adequate and awarded a green (no formal action) inspection rating.

Prototype Fast Reactor (PFR)

A planned compliance inspection was conducted at PFR on the Sellafield site. The purpose of the inspection was to confirm Sellafield Ltd's compliance with its corporate arrangements for LC 15.

We judged that compliance with LC 15 was adequate and awarded a green (no formal action) inspection rating. However, during this inspection shortfalls were identified with implementation of Sellafield Ltd's LC 28 corporate arrangements with respect to the examination, inspection, maintenance and testing of the PFR C5 containment. An enforcement letter has been issued to seek the necessary improvements and this is being monitored via a level 3 regulatory issue.

Thermal Oxide Reprocessing Plant (THORP)

Three planned compliance inspections were conducted at THORP on the Sellafield site. The purpose of these inspections was to confirm SL's compliance to its corporate arrangements for LCs 11, 28 and 35.

For LC 28 and LC 35 we judged that compliance was adequate and awarded green (no formal action) inspection ratings. However, for the LC 11 compliance inspection we identified shortfalls in compliance with the corporate arrangements. The shortfalls related to the updating of key documentation following a change in the arrangements for fulfilling the role of incident controller. Sellafield Ltd implemented interim measures to ensure the emergency arrangements were adequate to allow continued operations while the documentation was updated. However, we judged that Sellafield Ltd had failed to adequately implement the corporate arrangements for LC 11 and awarded an amber (seek improvement) inspection rating. An enforcement letter has been issued to seek the necessary improvements and this is being monitored via a level 3 regulatory issue.

Spent Fuel Management (SFM) Value Stream

During this period within the SFM value stream, we carried out 13 planned LC compliance inspections, one unannounced compliance inspection, two IRR17 compliance inspections and four SBIs covering:

- LC 11 – Emergency arrangements (including one unannounced)
- LC 22 – Modification or experiment on existing plant
- LC 23 – Operating rules
- LC 24 – Operating Instructions
- LC 26 – Control and supervision of operations
- LC 28 – Examination, inspection, maintenance and testing
- LC 32 – Accumulation of radioactive waste
- LC 34 – Leakage and escape of radioactive material and radioactive waste
- IRR17 – Ionising Radiations Regulations 2017
- SBI – Civil structures, sumps and safety systems at highly active liquor evaporation and storage facility
- SBI - Ventilation systems at magnox east river
- SBI - Pipebridges at the magnox reprocessing facility
- SBI – Criticality, lifting and handling at fuel storage facilities

Highly Active Liquor Evaporation and Storage (HALES)

A planned compliance inspection was conducted at the HALES facility on the Sellafield site. The purpose of this inspection was to confirm Sellafield Ltd's compliance to its corporate arrangements for LC 28.

We judged that compliance with LC 28 was adequate and awarded a green (no formal action) inspection rating.

We also conducted a planned SBI of the civil structures, sumps and safety systems used within the HALES facility to ensure the safe containment of radioactive liquid effluent during normal operation and in the event of a fault. This intervention was against the standard set of licence conditions for such inspections; LC 10 - training, LC 23 - Operating rules, LC 24 - operating instructions, LC 27 - safety mechanisms, devices and circuits, LC 28 - examination, inspection, maintenance and testing, and LC 34 - leakage and escape of radioactive material and radioactive waste. We judged that compliance with LCs 10, 27, 28 and 34 was adequate, and awarded green (no formal action) inspection ratings.

However, for the LC 23 and LC 24 we identified shortfalls in compliance with the corporate arrangements. The shortfalls related to the implementation of the safety case requirements relating to the transfer of liquor between some tanks and therefore awarded amber (seek improvement) inspection ratings. An enforcement letter has been issued to seek the necessary improvements and this is being monitored via a level 3 regulatory issue.

High Level Waste Plants (HLWP)

A planned compliance inspection was conducted at HLWP on the Sellafield site. The purpose of these inspections was to confirm Sellafield Ltd's compliance to its corporate arrangements for LC 28.

We judged that compliance with LC 28 was adequate and awarded a green (no formal action) inspection rating.

Magnox Reprocessing Facility (MRF)

Four planned compliance inspections were conducted at the MRF on the Sellafield site. The purpose of these inspections was to confirm Sellafield Ltd's compliance to its corporate arrangements for LC 11, 24, 26 and 32. The LC 11 compliance inspection was an unannounced inspection.

For all the planned LC compliance inspections, we judged that compliance with the LC was adequate, and awarded green (no formal action) inspection ratings.

We also conducted a planned SBI of the pipebridges at the MRF. This intervention was against the standard set of licence conditions for such inspections; LC 10 - training, LC 23 - Operating rules, LC 24 - operating instructions, LC 27 - safety mechanisms, devices and circuits, LC 28 - examination, inspection, maintenance and testing, and LC 34 - leakage and escape of radioactive material and radioactive waste.

We judged that compliance with all the six standard licence conditions was adequate and awarded green (no formal action) inspection ratings. Our overall judgement was that the pipebridges fulfil the requirements of the safety case.

Magnox East River (MER)

A planned compliance inspection was conducted at MER on the Sellafield site. The purpose of the inspection was to confirm Sellafield Ltd's compliance to its corporate arrangements for IRR17.

We judged that compliance with IRR17 was adequate and awarded a green (no formal action) inspection rating.

We also conducted a planned SBI of the ventilation systems at MRF. This intervention was against the standard set of licence conditions for such inspections; LC 10 - training, LC 23 - operating rules, LC 24 - operating instructions, LC 27 - safety mechanisms, devices and circuits, LC 28 - examination, inspection, maintenance and testing, and LC 34 - leakage and escape of radioactive material and radioactive waste.

We judged that compliance with all the six standard licence conditions was adequate and awarded green (no formal action) inspection ratings. Our overall judgement was that the pipebridges fulfil the requirements of the safety case.

Fuel Storage (formally the oxide fuel storage group)

Four planned compliance inspections were conducted at the fuel storage facilities on the Sellafield site. The purpose of these inspections was to confirm Sellafield Ltd's compliance with IRR17 and to its corporate arrangements for LC 22, LC 28 and LC 32.

The LC 28 inspection was undertaken as part of the Chief Nuclear Inspector's ageing management themed inspections programme and was undertaken under theme 3.

We judged that compliance with IRR17, LC 22, LC 28 and LC 32 was adequate and awarded a green (no formal action) inspection rating.

We also conducted a planned SBI of criticality, lifting and handling at the fuel storage facilities. This intervention was against the standard set of licence conditions for such inspections; LC 10 - training, LC 23 - operating rules, LC 24 - operating instructions, LC 27 - safety mechanisms, devices and circuits, LC 28 - examination, inspection, maintenance and testing, and LC 34 - leakage and escape of radioactive material and radioactive waste.

We judged that compliance with all the six standard licence conditions was adequate and awarded green (no formal action) inspection ratings. Our overall judgement was that the criticality, lifting and handling arrangements fulfil the requirements of the safety case.

Magnox Encapsulation Plant (MEP)

A planned compliance inspection was conducted at the MEP on the Sellafield site. The purpose of the inspection was to confirm Sellafield Ltd's compliance to its corporate arrangements for LC 32.

We judged that compliance with LC 32 was adequate and awarded a green (no formal action) inspection rating.

Low Active Effluent Management Group (LAEMG)

Four planned compliance inspections were conducted within LAEMG on the Sellafield site. The purpose of the inspections was to confirm Sellafield Ltd's compliance to its corporate arrangements for LC 11, 23, 24 and 34. These inspections focused on the following plants within LAEMG:

- LC 11 – Site Sludge Storage Facility
- LC 23 and 24 – Waste Product Encapsulation Plant
- LC 34 - Salt Evaporation & Medium Active Storage

For these LC compliance inspections, we judged that compliance was adequate and awarded green (no formal action) inspection ratings.

Site Infrastructure

During this period across the site infrastructure, we carried out two planned LC compliance inspections as well as other planned compliance inspections covering:

- LC 2 – Marking of the site boundary
- LC 11 – Emergency arrangements
- Control of Substances Hazardous to Health (COSHH) regulations 2002
- Control of Major Accidents Hazards (COMAH) regulations 2015
- Regulatory Reform (Fire Safety) Order 2005

Analytical Services

A planned compliance inspection was undertaken against the COSHH regulations 2002 in analytical services at the Sellafield site. The purpose of the inspection was to confirm Sellafield Ltd's compliance with these regulations.

We identified shortfalls in compliance relating to COSHH regulation 6 - assessment of the risk to health created by work involving hazardous substances to health and regulation 10 - monitoring of exposure. An inspection rating of amber (seek improvement) was therefore awarded, and an enforcement letter issued to seek the necessary improvements. This is being monitored via a level 3 regulatory issue.

A planned compliance inspection was also undertaken against the requirements of the Regulatory Reform (Fire Safety) Order 2005 (RRFSO). The purpose of the inspection was to confirm Sellafield Ltd's compliance with these regulations. We judged that compliance with RRFSO was adequate and awarded a green (no formal action) inspection rating.

Inactive Tank Farm

A planned compliance inspection was undertaken against the COMAH regulations 2015 in the inactive tank farm. The purpose of the inspection was to confirm Sellafield Ltd's compliance with these regulations.

We undertook this inspection as part of the Competent Authority (CA) defined under these regulations. Sellafield Ltd was not able to demonstrate that they had taken all measures necessary to prevent an accident resulting from the overfilling of the nitric acid tank or incompatible mixing during deliveries of nitric acid as required under COMAH Regulation 5(1). An inspection rating of amber (seek improvement) was therefore awarded, and an enforcement letter issued to seek the necessary improvements. This is being monitored via a level 3 regulatory issue and will be followed up by ONR inspectors as part of future inspections.

Security and Resilience

A planned inspection of Sellafield Ltd's on-site emergency arrangements was undertaken. The purpose of the inspection was to confirm Sellafield Ltd's compliance to its corporate arrangements for LC 11.

We judged that compliance with LC 11 was adequate and awarded a green (no formal action) inspection rating. We are satisfied that the sites emergency arrangements meet the requirements of COMAH regulations 2015 and the Radiation (Emergency Preparedness and Public Information) Regulations (REPPiR) 2017.

We also carried out a planned inspection of the marking of the Sellafield site boundary. The purpose of the inspection was to confirm Sellafield Ltd's compliance to its corporate arrangements for LC 2.

We judged that compliance with LC 2 was adequate and awarded a green (no formal action) inspection rating.

Corporate

Our corporate inspection programme for the Sellafield site has two main areas of focus:

- Examining the adequacy of the arrangements that Sellafield Ltd has made to comply with its nuclear site licence; and
- Overseeing strategic change at Sellafield, including leadership and culture.

During this period we carried out 3 planned arrangements inspections covering:

- LC 11 - Emergency arrangements
- LC 21 - Commissioning
- LC 35 - Decommissioning

We judged that the arrangements made under LC 11 were adequate and awarded a green (no formal action) inspection rating. We also gained assurance, but did not rate, Sellafield Ltd's emergency arrangements to meet the requirements of REPIR 2019 and the requirements of COMAH 2015.

We also judged that the arrangements made under LC 21 and LC 35 were adequate and awarded green (no formal action) inspection ratings.

During this period, we also continued to monitor improvement actions being taken by Sellafield Ltd in response to previous compliance inspections. Sellafield Ltd has made satisfactory progress against a level 2 regulatory issue concerning its delivery model for disciplined operations and human factors, although with additional focus required on human factors capability. We continue to monitor progress against this level 2 regulatory issue.

Variations due to Covid19

In the previous two reporting periods we advised that in response to the COVID-19 pandemic, Sellafield Ltd has developed variations to its management system in order to introduce some flexibility, but in a way that maintains compliance with legal obligations. During this period we have continued to provide oversight in this area by monitoring the withdrawal of these variations or inclusion of parts of them as permanent features of the management system. Based on Sellafield Ltd's progress to date in recovery of its management system, we do not anticipate the need to refer to this matter again in future reports.

Work Delivery

We continued to engage with Sellafield Ltd on trials that are ongoing at the Pile Fuel Cladding Silo and High Level Waste Plants of new arrangements for work delivery. Given the extended duration of these two trials, Sellafield Ltd is currently reflecting on its way forward with the work delivery project and we are reviewing our regulatory strategy. Further information will be provided in our next report to the WCSSG.

Strategic Change

During this period we have continued to maintain oversight of strategic change at Sellafield, including leadership and culture. Sellafield Ltd is implementing a portfolio of business change aligned to its enterprise strategy. We have been monitoring Sellafield Ltd's proposals for alternative delivery models for group business services and the procurement of information, communications and technology services. We have also maintained oversight of the continued development of Sellafield Ltd's intelligent customer organisation for the Programme and Project Partners contracts, and the establishment of an improved intelligent customer capability for the procurement of manufactured products.

Finally, we have continued to monitor the implementation of leadership standards and training, improvements to the Sellafield Ltd management system, and development of

the Sellafield Enterprise Management System. In all cases we are satisfied that Sellafield Ltd is adequately controlling the changes in line with legal requirements including LC 36 - Organisational Capability. During this period we closed two longstanding Level 2 regulatory issues, reflecting site-wide improvements Sellafield Ltd has made in the area of work instructions and the management system.

Other work

Periodic Safety Review (PSR)

We continue to engage with Sellafield Ltd over opportunities for improvements within the PSR programme and continue to monitor and support delivery of improvements identified during earlier PSR inspections. This includes the PSR deep dive engagement into the advanced gas-cooled reactor fuel storage pond within the spent fuel management value stream. This activity will continue into the next calendar year with an objective to improve confidence in site PSR activities and arrangements.

Chemical Management

We are continuing to monitor Sellafield Ltd's progress relating to chemical management on site. Significant progress has been made with their improvement plan, although progress has slowed in the identification of unknown chemicals due to resourcing challenges. We continue to monitor implementation of the chemicals improvement programme through a level 3 regulatory issue and routine regulatory interactions.

Asbestos Management

Asbestos management across the Sellafield site remains a regulatory priority for us. Sellafield Ltd has developed an asbestos strategy and action plan which is now in the implementation phase, with the supply chain undertaking asbestos survey work across site. We will maintain focus on the implementation of the strategy and action plan to ensure risks are being effectively controlled. This is being managed through a level 3 regulatory issue.

Permissioning Activity

Our permissioning process continues to monitor Sellafield Ltd's planned submissions in accordance with its Hold Point Control Plan (HPCP), which forms part of its arrangements under LC 22. This process ensures we have regulatory oversight and control over Sellafield Ltd's activities with potential for highest risk. Within this reporting period, we have released two hold points on modifications to various plants on Sellafield site. These include:

- HPCP 448: AHF Cave 13 return to operations
- HPCP 538: sites emergency arrangements operator emergency plan issue 20

Under LC 11(3) Sellafield Ltd is required to submit any changes to the on-site emergency plan for approval by ONR before its implementation. Since we approved the on-site emergency plan issue 17, Sellafield Ltd has introduced two interim updates to the emergency plan issue 18 & issue 19, which outlined the strategy to :

- accommodate future compliance with the COMAH Regulations 2015;
- use of a new main site command facility and off-site command facility for the site-wide LC 11 command and control; and
- changes to comply with the REPPiR Regulations 2019.

In June 2021 Sellafield Ltd formally submitted issue 20 of the on-site emergency plan to consolidate the two interim update Issues 18 & 19 and fully incorporate the requirements of the REPPiR regulations 2019 and COMAH regulations 2015.

Following a formal review, we approved issue 20 of the on-site emergency plan under Licence Instrument number LI 535.

Allegations of Bullying and Harassment

In the last reporting period we described discussions we had held with staff and management at the site following a BBC news article in March 2021, which alleged racism, bullying and harassment at the site potentially endangering nuclear safety. We were satisfied that there was no validity to these allegations. However, in view of the events that have occurred, we are following up to ensure that Sellafield Ltd's plans to enhance equality, diversity and inclusion at the site are effective in practice.

As a regulator, if we had any concerns or evidence that bullying and harassment was impacting safety at the site, we would take robust action to ensure this is addressed as a matter of urgency.

Projects

Site Infrastructure

Analytical Services

We continue to engage with Sellafield Ltd over the need to secure long-term provision of analytical services for the Sellafield Ltd site. This is necessary to support the safety of ongoing operations and, specifically, hazard and risk reduction activities across the site. The Replacement Analytical Project has recently completed its preliminary design having gained Nuclear Decommissioning Authority and government approval which will enable it to progress to completion of detailed design. We have also continued to engage with Sellafield Ltd to regulate asset care improvements and the reduction of legacy waste presently stored within the existing analytical services facility. Although this work has been challenging due to COVID-19 restrictions, Sellafield Ltd has continued to make significant progress in asset care improvement work and repackaging of legacy wastes from within this facility.

Special Nuclear Materials (SNM) Value Stream

First Generation Finishing Line (FGFL)

Through our three level 1 regulatory issues (highest level of issue) we continue to engage and influence the delivery of hazard and risk reduction activities regarding the Sellafield Ltd SNM facilities. Specifically, this includes asset care improvements on the FGFL facility and the delivery of capabilities to allow continued safe and secure storage of SNM.

With respect to FGFL asset improvements, Sellafield Ltd continues to make satisfactory progress on the electrical and containment upgrade tasks within the SNM complex.

Significantly, within this period, we gave agreement to Sellafield Ltd, under Licence Instrument number LI 533, for commencement of SNM package retrievals from a legacy store within the SNM complex thereby securing the transfer of this inventory into a facility more in line with modern standards.

Sellafield (Product and Residue Store) Retreatment Plant (SRP)

The on-going construction of SRP is fundamental to the success of the Package Integrity Recovery Programme and forms part of our continued engagement and influence at Sellafield Ltd to ensure the timely implementation of capabilities required for the safe longer term storage of SNM inventory that has been consolidated from Dounreay to Sellafield.

Despite the challenges that the COVID-19 pandemic has presented, we have been encouraged that Sellafield Ltd has continued to make significant progress.

Remediation Value Stream

Decommissioning Projects

Our regulatory engagements continue on key remediation projects. Permission was granted to Sellafield Ltd in July 2021 to operate a skip size reduction facility to remotely cut up contaminated skips using robotically deployed laser cutting machines. This facility will enable the continued retrieval of empty ILW skips from the legacy ponds. Technical engagements have started on two other active demonstrators that will support decommissioning and dismantling of other redundant radioactive items.

Sellafield Ltd continues to make good progress with demolition of the pile 1 chimney diffuser. We also granted permission to Sellafield Ltd in July 2021 to remove the North-West corner of the pile 1 chimney diffuser which was closest to the tied tower crane and the final section of the collar. These corner blocks were subsequently removed safely, resulting in the seismic withstand of the remaining chimney section being similar to that of an existing structure.

Retrievals Value Stream

First Generation Magnox Storage Pond (FGMSP)

Our regulatory focus continues to be on the retrieval, removal and export of fuel, ILW, and bulk sludge from the pond.

We continue the assessment of the Interim Storage Facility (ISF) and Self-Shielded Box (SSB) project. Technical engagements continue to discuss additional waste streams for the ISF, and whether modifications are necessary for the additional materials. We are also engaging with Sellafield Ltd regarding the reliable supply of suitable and sufficient SSBs to support the timely retrieval of legacy waste.

We are also progressing a regulatory assessment relating to Sellafield Ltd's proposal to enter and retrieve material from the decanner caves.

Magnox Swarf Storage Silo (MSSS)

The MSSS is deemed to represent an intolerable risk and retrieval of the radioactive waste stored in its twenty-two silo compartments is a priority for high hazard and risk reduction on site. Sellafield Ltd has adopted a phased approach to waste retrievals, starting with retrieval of intermediate level radioactive miscellaneous beta gamma waste (MBGW) from compartment 10 (C10).

We have placed three regulatory hold points on retrieval of MBGW from C10. Two of those hold points have been released, with the final hold point, HP41b, attached to commencement of retrieval operations, subject to our agreement. Sellafield Ltd currently plans to commence retrievals from C10 in early 2022.

In May 2021, following release of the second regulatory hold point, Sellafield Ltd successfully moved Silo Emptying Plant №2 cave onto C10 and commenced trace active commissioning while the cave is connected to the compartment.

In July 2021, our inspectors commenced engagements with Sellafield Ltd on HP41b. One area of focus has been obtaining evidence that Sellafield Ltd's safety case and supporting documentation to justify commencement of C10 MBGW retrievals have addressed previous regulatory concerns. Interactions on HP41b give us confidence that Sellafield Ltd's HP41b submission will address our concerns.

Sellafield Ltd has given us confidence from engagements to date on HP41b that it will meet its plan to submit around October 2021 the request for our agreement to release HP41b.

Commencement of bulk waste retrievals from MSSS original building and first extension silo compartments is currently due to commence in early 2024. We recognise the complexity of delivering hazard and risk reduction in MSSS and continue to engage with Sellafield Ltd to secure regulatory confidence in its delivery plans and to ensure that the overall risks to people on and off site remain reduced so far as is reasonably practicable.

In November 2019, Sellafield Ltd reported falling liquid levels from the MSSS original building waste storage compartments. The most probable source of the leak is from historic leak paths to ground from cracks within the original MSSS building. A previous leak of similar nature occurred at the same building in the 1970s. The liquid loss rate is still relatively slow but has increased with time, from 0.5m³/month to 2.6 m³/day. As of late September 2021, the liquor loss rate has remained relatively unchanged at around 2.4m³/day.

There are currently assessed to be no radiological consequences for the public or workforce as a result of this issue. Ground modelling and underpinning research conclude that the higher activity radioactive species are bound close to the facility. Migration of significant contamination through the ground is predicted to take decades and any risk to the environment and public would be very low and over an extended timescale. This exceeds the time it will take to remove and remediate the MSSS facility.

Based on ground modelling and underpinning research, there is judged to be no risk to public water supply resulting from this leak. We accept Sellafield Ltd's current judgement on this matter.

The leak was categorised against the International Nuclear and Radiological Event Scale (INES) as a level 2 incident event on a seven-point scale. In view of the continued leak to ground, we required Sellafield Ltd to review the leak INES categorisation to determine if it approached level 3, serious incident. Sellafield Ltd concluded that the current level 2 rating remains valid with a significant margin to level 3. The UK INES officer, one of our inspectors, accepts Sellafield Ltd's judgement. We will continue to monitor Sellafield Ltd's monitoring of the leak INES rating as part of our routine MSSS leak-related engagements.

We have raised a level two regulatory issue to monitor Sellafield Ltd's progress with managing the risks associated with the leakage. The issue has ten associated actions which Sellafield Ltd is required to address within appropriate timescales. Sellafield Ltd has developed a programme of work to address our concerns and we continue to monitor progress, provide feedback on regulatory expectations, and where necessary offer regulatory advice and guidance. To date Sellafield Ltd has provided evidence that we judged sufficient to close one of the actions.

The MSSS facility does not meet modern safety standards and we continue to support Sellafield Ltd's drive to remove the waste and place it in modern, safe storage as quickly and safely as possible. Once the inventory is safely retrieved, the building will be demolished and any necessary ground remediation will take place.

Facilities to support waste retrievals from legacy silos

To support waste retrievals from the legacy silos, MSSS and PFCS, Sellafield Ltd needs to progress the construction of several new build facilities and implement modifications to existing facilities. We continue to maintain regulatory focus in this area to ensure we have the necessary regulatory confidence that Sellafield Ltd has

the key enablers in place to safely store the waste retrieved from the legacy silos in these facilities.

The Box Encapsulation Plant and Box Encapsulation Plant Product Store and Direct Import Facility (BEPPS-DIF) are facilities currently under construction. Whilst COVID-19 has impacted construction activities and the supporting supply chain, we are satisfied that Sellafield Ltd continues to demonstrate good progress towards bringing these plants operational. Subject to our permission, Sellafield Ltd expects BEPPS-DIF to be available to support PFCS waste retrievals in summer 2022.

Waste retrieved from the legacy silos will be placed in stainless steel containers for export to the storage facilities. We are undertaking targeted engagement with Sellafield Ltd in relation to the impact of quality issues associated with the manufacture of PFCS 3m³ boxes and MSSS 3m³ boxes and internal skips.

In September 2021, we received the safety submission and request for our agreement to commence active commissioning of the Waste Transfer Route and storage of MSSS C10 MBGW waste packages in the Encapsulated Product Store 3. We have now commenced the regulatory assessment and inspection work to support this permission.

Our 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.

Pile Fuel Cladding Silo (PFCS)

PFCS is deemed to represent an intolerable risk and retrieval of the radioactive waste stored in its six silo compartments is a priority to achieve high hazard and risk reduction on the site. Sellafield Ltd has adopted a two-stage approach. The first stage – 'Early Retrievals' - involves accessing only compartment 5 of the silo and removing waste through a high-level penetration in the compartment wall above the level of the waste. This first stage will enable Sellafield Ltd to gain sufficient knowledge, experience and confidence in the waste retrieval approach to implement the second stage – 'Full Retrievals' – which will enable waste retrievals from the remaining five compartments.

Sellafield Ltd requested permission to commence active commissioning of the waste retrievals equipment installed on PFCS compartment 5 in October 2020. COVID-19 restrictions and issues identified during inactive commissioning have meant that Sellafield Ltd's on-site preparatory activities have been delayed. This has meant that we have only recently been able to complete some of the inspection activities required to inform the regulatory decision to permission active commissioning of the waste retrievals equipment located on compartment 5. Subject to Sellafield Ltd adequately closing out a few outstanding queries, we expect to reach our permissioning decision to commence active commissioning and subsequent waste retrievals from PFCS in November 2021.

The ILW retrieved from PFCS should be transferred to BEPPS-DIF. Due to the delays in the availability of BEPPS-DIF, Sellafield Ltd has identified a contingency route which would enable the transfer of a limited number of containers to an alternative waste storage facility on the site. We have not yet received the full safety case

submission for this contingency route, however we continue to engage with Sellafield Ltd to secure regulatory confidence that storage facilities will be available on timescales which support the PFCS waste retrieval activities.

Pile Fuel Storage Pond (PFSP)

Our regulatory focus continues to be on the retrieval, removal and export of ILW and bulk sludge from this pond, and preparation for its interim (dewatered) state.

We have progressed, but not concluded, our regulatory assessment of Sellafield Ltd's proposal to deploy divers into two bays to remove the last remaining items in preparation for final isolation. However, Sellafield Ltd postponed the deployment of divers when greater than expected radiation dose levels within the bays were identified. Sellafield Ltd are reviewing their approach, and our regulatory assessment will continue once they have completed their review and proposed a revised methodology. We also continue to engage on the wider Bay Interim State Pilot and expect Sellafield Ltd to submit a proposal to isolate and dewater the bays in 2022/23. We continue to work closely with the Environment Agency to ensure regulatory alignment.

3 Non-Routine Matters

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

Matters and events of particular note during the period were:

Corporate (Site wide)

Morgan Sindall Construction and Infrastructure Ltd complied with an Improvement Notice served to them on 25 January 2021. The notice was served after workers came close to striking a live high voltage electric cable during excavation work on 7 October 2020. Shortfalls were identified in providing relevant information to workers undertaking the excavation work, adherence to procedures and in supervision. Morgan Sindall took action to put in place measures to prevent any similar occurrences in the future, and we are satisfied that they have complied fully with the requirements of the improvement notice.

In December 2020, we served an Improvement Notice on Sellafield Ltd following a number of electrical safety incidents across the site which have been the subject of enquiries or investigation. The improvement notice requires Sellafield Ltd to make improvements to the training and supervision of staff carrying out electrical work. We have identified these issues to be the root causes of the majority of recent events. The notice also requires that any lessons learned are applied to all areas of the site where electrical work is carried out. Sellafield Ltd must comply with the notice by 15 January 2022 and we are continuing to engage with Sellafield Ltd in relation to this.

On 25 March 2021, a contractor was leaving a welfare dome and fell down the steps sustaining two broken kneecaps and a broken ankle. The injuries were reported to us by Sellafield Ltd as specified injuries under Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR). The circumstances of this event met our investigation criteria and an investigation into the event was commenced.

Early in our investigation we identified that the steps did not comply with BS EN 12811-1:2003, a British and European standard related to scaffolding performance requirements or technical guidance note TG20:13 'Guide to Good Practice for Tube and Fitting Scaffolding' produced by the National Access and Scaffolding Confederation (NASC). An enforcement letter was issued requiring the steps to be made safe and to seek confirmation that similar scaffolding steps were compliant with these standards. We are satisfied that the requirements of the enforcement letter have now been complied with.

The investigation has now concluded and we are currently considering if further regulatory action is required.

Spent Fuel Management (SFM) Value Stream

Magnox Reprocessing Facility (MRF)

Sellafield Ltd notified ONR in April 2021 of a potential gap in the emergency arrangements connected with the Criticality Incident Detection and Alarm System within MRF. We undertook preliminary enquiries which revealed a lack of sensitivity (threshold of detection) in some of the detectors due to the amount of lead shielding placed around those detector heads. We judged that this incident did not meet the formal investigation criteria, however, minor shortfalls were identified against relevant good practice. An enforcement letter has been issued to seek the necessary improvements and this is being monitored via a level 3 regulatory issue.

High Level Waste Plants (HLWP)

On 8 May 2021 there was an electrical incident at the Waste Vitrification Plant Line 1 in which an electrical arc was inadvertently created during a maintenance task. No personnel were injured but there was damage to some equipment. The circumstances of this event met our investigation criteria and an investigation into the event commenced on 10 May 2021. During the course of this investigation we identified shortfalls in electrical safety in HLWP. At this point, a formal enforcement letter was issued to seek the necessary improvements and this is being monitored via a level 3 regulatory issue.

Our investigation concluded that further enforcement action was not required. Our decision recognised Sellafield Ltd's response to the event and the ongoing improvements being implemented to address the extant site-wide electrical Improvement Notice, served in December 2020 and discussed above.

Remediation Value Stream

Thermal Oxide Reprocessing Plant (THORP)

We were notified by Sellafield Ltd in March 2021 that some routine proof tests had not been carried out on monitoring equipment at THORP, which we judged to be a breach of IRR17. An enforcement letter has been issued to seek the necessary improvements and this is being monitored via a level 3 regulatory issue.

We were also notified by Sellafield Ltd in May 2021 of a minor incident at THORP where the duty team was unable to contact the Incident Controller. This coincided with the planned LC11 inspection discussed under Section 2 of this report and was taken into account at that time.

4 Regulatory Activity

During this period we have issued two Licence instruments, no enforcement notices and 11 enforcement letters, the details of which are all discussed above.

Table 1: Licence Instruments and Enforcement Notices Issued by ONR during this period

Date	Type	Ref No	Description
2 July 2021	Agreement	LI 533	Agreement to Commence the Operation of Package Retrievals from a Legacy Store within SNM North
22 September 2021	Approval	LI 535	Approval of 'Sellafield Site Emergency Arrangements, Operator Emergency Plan, Issue 20'.

Reports detailing the above regulatory decisions can 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 our ebulletin (<http://www.onr.org.uk/ebulletin/index.htm>).

Enforcement action

- In April, we announced that EDF had [complied](#) with a Direction we served on 14 December 2020, under the Pressure Systems Safety Regulations (2000). This followed an inspection, at which found a number of pressure system



components at Heysham 1 Power Station were overdue their scheduled examination.

- In May, we agreed to [extend an improvement notice](#) served on EDF in September 2020, recognising the progress made so far. The notice was served after some of the equipment used to measure reactor power at Heysham 2 was incorrectly configured. We judged that Heysham 2 is able to operate safely, and that additional time to demonstrate the required improvements will not pose a risk to safety.
- In June, we announced that Rolls-Royce Submarines Ltd (RRSL) had [complied](#) with an improvement notice served on 29 May 2020. The notice was served after RRSL operators brought 21 units of fissile material into the facility – which exceeded the limit defined within the safety case and set out in the Criticality Control Certificate for the facility.
- In July, we served an [improvement notice on Devonport Royal Dockyard Ltd \(DRDL\)](#) for shortfalls in its health and safety arrangements. The notice was served after DRDL failed to demonstrate consistent and effective arrangements to control and monitor the risks associated with working at height at its Devonport site. DRDL must comply with the requirements of the improvement notice by 31 March 2022.

COVID-19: ONR Position

- We are continuing to obtain assurance that nuclear site licensees and other dutyholders are adequately resourced to continue to safely and securely carry out their activities. We remain satisfied with industry's response at this time; there has been no significant change to dutyholders' safety and security resilience.
- We have measures in place to try and prevent asymptomatic ONR staff unwittingly conveying the virus onto a regulated site. We require all staff to take a circular 1 health (C1H) antigen test in advance of them visiting a site. In addition to the C1H test, we also require them to take a lateral flow test on the morning of their planned site visit. We are keeping our COVID-19 testing guidance under regular review, in-line with the changing national context and any further developments in industry approaches to testing arrangements.

Other

- In April, we published an [article](#) introducing our newest board member, Jean Llewellyn, who joined us in October 2020, as security lead. Jean brings with her a wealth of experience, including serving as a non-executive director on the board of the World Institute for Nuclear Security since 2018 – which has given her a good understating of the global security challenges facing the nuclear industry.



- In May, we issued our e-bulletin '[ONR News](#)' to subscribers. This issue included farewell reflections from our outgoing chief executive, a leadership update, further information on our COVID -19 response, and the results of our latest stakeholder survey. You can sign up for our e-bulletin [here](#).
- On 1 June, we [announced](#) the full implementation of our new leadership structure. Mark Foy is now our combined Chief Executive and Chief Nuclear Inspector. He is supported by Sarah High as Deputy Chief Executive, and Donald Urquhart as Executive Director of Operations.
- In June, we published our new [Corporate Plan for 2021/22](#), which sets out our key priorities to protect the public by securing safe nuclear operations.
- In July, our project to become the UK's domestic safeguards regulator was named the public sector's [Project of the Year at the National Project Awards](#).
- In September we invited stakeholders to submit comments on our updated reference papers for Coastal Flood Hazards and Meteorological Hazards for Nuclear Sites. Although supplementary to our normal governance process, we are doing this due to stakeholder interest in these topics and our commitment to being an open and transparent regulator.

The reference papers provide additional detail on the analysis of the external hazards for nuclear sites and have been produced by our [Expert Panel on Natural Hazards](#), a group of academic and industry technical specialists working under contract to provide us with independent expert advice. You can find out more about how to get involved and comment on these papers on our [website](#).

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