Inspection Record – Dutyholder Report			
Nuclear material accountancy compliance inspection (QBSS)			
Inspection ID	IR-53223	**Inspection Date(s)**	09/07/2024 For 2 Days
Dutyholder	Westinghouse Springfields	**Site**	Springfields Works
Inspection Type	Announced Planned	**Site Area / Group**	
ONR Purpose	Safeguards	**Inspection Source**	IIS for FY2024/2025

Subject (s) of Inspection

Activity	RAG Rating
NSR19 Reg06 - Accountancy and control of qualifying nuclear material	GREEN
NSR19 Reg09 - Operation of an accountancy and control plan	GREEN
NSR19 Reg10 - Operating records	GREEN
NSR19 Reg11 - Accounting records	GREEN
NSR19 Reg12 - Accounting reports	GREEN
NSR19 Reg14 - Inventory change report	GREEN
FSE 6 Measurement Programme and Control	GREEN
FSE 7 Nuclear Material Tracking	GREEN
FSE 8 Data Processing and Control	GREEN
FSE 9 Material Balance	GREEN
FSE 10 Quality Assurance and Control for NMACS	GREEN

System (s) – where applicable

Inspector(s) taking part in Inspection

Lead Inspector

[redacted]

Attending

[redacted]	[redacted]	Office for Nuclear Regulation
[redacted]	[redacted]	Office for Nuclear Regulation

This report is an automated extract of data from the ONR WIReD Inspection database.

1. Scope

1.1 Aim of Inspection

ONR nuclear safeguards inspectors conducted a nuclear material accountancy focusedcompliance inspection of the Material Balance Area QBSS (MBA QBSS) National Nuclear Laboratory (Preston Laboratory) and the Springfields site Chemical and Metallurgical Services Department (C&MSD) on the 09 and 10 July 2024.

The purpose of this inspection was to seek evidence in support of Springfields Fuels Limited's compliance with the Nuclear Safeguards (EU Exit) Regulations 2019 (NSR19). ONR formed regulatory judgements and provided a rating in line with ONR's inspection rating guidance of Springfields Fuels Limited's compliance against the following regulations in NSR19 regulation 6 (1-4),9, 10(1), 11(1-4), 12(1-2) and 14.
To form an effective regulatory judgement on Springfields Fuels Ltd.'s compliance with the NSR19 regulations listed above, inspectors considered the ONR guidance for the assessment of Nuclear Material Accountancy, Control and Safeguards (ONMACS) and the expectations within. There was a particular focus on FSEs 6, 7, 8, 9 and 10.

1.2 Inspection Scope

ONR sought to draw an independent and informed regulatory judgement that the nuclear material accountancy and control arrangements within the MBA QBSS are accurate and implemented in a manner, which is proportionate to, and appropriate for the qualifying nuclear facilities. This included:Seeking evidence that accountancy reports provided for the MBA QBSS to the ONR under regulation 14 are traceable and accurate to the supporting source documentation. As part of this inspectors examined the underpinning operating and accounting records for the accountancy sample as well as perform physical verification for a sample of qualifying nuclear material.As part of this ONR conducted a plant walkdown and hold discussions with relevant Springfields Fuels Limited personnel who have nuclear material accountancy and control responsibilities.
ONR requested discussions with relevant staff and provision of relevant NMAC&S arrangements prior to the intervention.

See scope attached in documents section.

1.3 Relevant Regulatory Guidance

The following regulatory guidance corresponds with this inspection

Name

2. Summary Statement

ONR nuclear safeguards inspectors conducted a nuclear material accountancy compliance inspection of the Material Balance Area QBSS - National Nuclear Laboratory (Preston Laboratory) and the Springfields Site Chemical and Metallurgical Services Department (C&MSD) on 09-10 July 2024.

The purpose of this inspection was to seek evidence in support of Springfields Fuels Limited's compliance with The Nuclear Safeguards (EU Exit) Regulations 2019 (NSR19).

The inspection comprised of discussions with Springfields Fuels Ltd personnel, sampling of documentation, review of implementation arrangements and a plant walkdown.

ONR formed regulatory judgements and provided a rating in line with ONR's inspection rating guidance of Springfields Fuels Ltd.'s compliance against NSR19 regulations 3(1)(3), 6(1-4), 9, 10(1), 11(1-4), 12(1-2) and 14.
To form effective regulatory judgements on Springfields Fuels Ltd.'s compliance with the NSR19 regulations listed in the scope of the inspection, inspectors considered the ONR guidance for the assessment of Nuclear Material Accountancy, Control and Safeguards (ONMACS) and the expectations within. There was a particular focus on FSEs 6, 7, 8, 9 and 10.

Based on the evidence sampled, I judge that Springfields Fuels Limited is implementing adequate arrangements to provide measurement programme and control in line with FSE 6, nuclear material tracking in line with FSE 7, data processing and control in line with FSE 8, material balance within FSE 9 and quality assurance and control for NMACS in line with FSE 10.I also judged that Springfields Fuels Limited is compliant withregulations3(1)(3),6(1-4),9,10(1),11(1-4),12(1-2) and14 in NSR19.

3. Record & Judgement

3.1 Staff seen as part of Inspection

The following principal staff were seen as part of this inspection

Name	Role	Company
[redacted]	[redacted]	Springfields
[redacted]	[redacted]	Springfields
[redacted]	[redacted]	Springfields
[redacted]	[redacted]	Springfields

3.2 Record

Evidence

This intervention focused on the Nuclear Material Accountancy and Control (NMAC) arrangements as described by Springfields Fuels Ltd in their revised ACP (SSI 945). The intervention focused on the MBA QBSS, specifically C&MSD because some shortfalls were identified in the past, related to the identification and tracking of samples of qualifying nuclear material (QNM) sent to C&MSD for analysis.

Prior to the inspection, I reviewed the relevant arrangements referenced in the Springfields Fuels Ltd's QBSP BTC and ACP relating to FSE 6, 7, 9, 10 and NSR19 Regulation 3(1)(3), 6(1-4), 9, 10(1), 11(1-4), 12(1-2) and 14.

Plant Walkdown
I conducted a plant walkdown of the MBA QBSS, the Springfields site Chemical and Metallurgical Services Department (C&MSD) and the UK's National Nuclear Laboratory (Preston laboratory, NNL). For the purpose of the intervention, I sampled C&MSD at QBSS which provides analytical and metallurgical services almost exclusively to Springfields Fuels Ltd.

Samples vary with the type of analysis required but are generally [redacted]. Most of the samples are received and/or issued to another on-site MBA (mainly from the Oxide Fuels Complex (OFC, MBA QBSP) and the Enriched Uranium Residues Recovery Plant (EURRP, MBA QBS3)), but they can be received from and/or sent to an off-site MBA.

I identified that the key QNM flows in QBSS are:

All the samples are accepted in the receipts laboratory or the shift laboratory.

Samples are dispatched as required to the appropriate laboratory within C&MSD for analysis.

Some samples are retained for reference in storage areas throughout the building.

Analytical residues and surplus residues samples are returned to the plant of origin or the appropriate recovery plant via the storage compounds.

The Material Custodian (MC) for C&MSD took me through the process of receipt, processing, analysis and tracking of where the arrangements in place were clearly articulated. The measurement techniques and analysis procedures are made available in printed version in each laboratory at C&MSD, to assure they are properly implemented.

Weigh scales are checked daily by the laboratory staff, with analysis reviewed by a supervisor who approves data into their Laboratory Information Management System (LIMS) which feeds relevant information into Nuclear Material Information System (NUMIS) which is used to develop NMA reports.

C&MSD provided evidence of different types of requests for analysis carried out recently within the MBA. I found that the records of measurement of QNM, the analysis reports, the logs of analysis checks and approvals by the laboratory supervisors into LIMS prior to the data transfer to NUMIS to demonstrate an accurate implementation of the arrangements signposted in the BTC.

I sampled the evidence of a weigh scale (CPA52D1) and was provided with the corresponding accuracy calibration certificate which is attached to the asset sheet in the Computerised Maintenance Management System (CMMS-MAXIMO). I did observe that there was no ‘control chart’ against the weigh scale to identify any variance (systematic bias) in measurements upon testing.

OBSERVATION – ONR observed that the weigh scales did not have any control charts to monitor any differences in performance of scale across a period of time.

Process guides for plant staff are recorded as Safeguards Site Instructions (SSI) and stored locally. The learning instructions are signposted on the Process, Records & Information Management Environment (PRIME) system.

RECOMMENDATION – ONR recommended that the references for SSI’s are referenced in the Springfields Fuels Ltd Accountancy and Control Plan.

I was walked through step by step the process of receipt of samples from other MBAs and how they would be check weighed, reconciled and initially logged onto the LIMS system. Further assurance of accountancy and control was provided that a supplementary paper version of the online record would be maintained by plant staff to track the flow of material from receipt, transfer and dispatch.

The MC took me through the process of a sample being logged onto the LIMS system, where I followed one from origin. For the sample selected (Item reference - L0003389853). I observed the process of a uranic sample being accepted into the Receipts Laboratory, and how it was circulated to the appropriate laboratory for analysis. This was logged onto the LIMS system with an overview provided of what information appears on NUMIS. Finally, I was shown how analytical residues and surplus samples are then returned to the plant of origin and/or the appropriate plant via the storage compounds.A clear line of communication between plant and NMA staff was displayed through reconciliation of figures between NUMIS and LIMS before generation of the monthly ICR, whereby, any differences in balances are queried and investigated.

Based on the arrangements and the evidence sampled as part of this intervention and using regulatory intelligence, I am satisfied that Springfields Fuels Ltd implements adequate arrangements to provide measurement programme and control in line with FSE 6, nuclear material tracking in line with FSE 7, data processing and control in line with FSE 8, material balance within FSE 9 and quality assurance and control for NMACS in line with FSE 10.

Based on the evidence sampled, I am also content that NSR19 regulations 10(1), 11(1-4), 12(1-2) and 14 were adequately complied with.

Accountancy Verification

I sampled fifteen (15) unique Batch IDs from the March, April and May 2024 reporting periods Inventory Changes Reports (ICR) and requested operating records (source documents) for these. The lines were sampled based on their Inventory Change (IC) codes considered of interest (such as change in particular obligation, category change, new measurement or isotope adjustment or due to an identified issue surrounding Material Unaccounted For (MUF) MF lines. Springfields Fuels Ltd provided the source documents during the inspection, I reviewed them, with the support of ONR Specialist Accountancy Inspector to ensure that key data elements reconciled with the respective ICRs. However, samples provided required further engagement with Springfields Fuels Ltd to gain an adequate level of understanding:

Delete-Add Pairs (RD - $8579890)
I queried the usage of Delete-Add pairs of Receipt Domestic (RD) displaying significant

changes in weight across several ICR lines. Upon further investigation and discussion, it was explained that this is due to a limitation in the LIMS software system which does not have the capability to report an ‘end cap’ of a fuel pin, causing a correction to be made to the accounts to retrospectively report this. Springfields Fuels Ltd noted that this is a known issue and meetings are scheduled with the EURRP plant management to address. ONR provided advice that an improvement to the software following scheduled internal engagements should be made. I agreed to receive an update on Springfields Fuels Ltd’s proposal for resolution at a routine Level 4 engagement meeting scheduled for August 2024.

REGULATORY ADVICE – ONR suggested that improvements to the LIMS software and its interactions with other systems is made or changes made to the dispatch process to allow plant staff to correctly report end caps and full fuel pins separately prior to any movement.

Material Unaccounted For (MF - $8582012 / $8582014 / $8582013)

I provided Springfields Fuels Ltd with three ICR lines reporting MUF for the reporting period March 2023. It would be unusual for MUF to be reported in the MBA QBSS due to no throughput and at a period outside of the annual PIV schedule usually conducted in October each year. Springfields Fuels Ltd confirmed that this was done in error and would be corrected in the July 2024 ICR as a New Measurement (NM). I was satisfied with the explanation given, proposed rectification and recorded the action to follow up at the next routine Level 4 engagement meeting.

Receipt Foreign (RF - 30042024 – 32569, 32570, 32571)

I held a discussion on RF lines sampled for Chinese obligated material to gain an understanding of the frequency Springfields Fuels Ltd anticipated to enhance our regulatory intelligence for future accountancy reports submitted in future. Springfields Fuels Ltd explained that they did not anticipate large quantities of Chinese material to be received.

Shipment Domestic (SD - $8581880) / Category Change (CB - $8580440) (CC - $8579576)
Source documentation and evidence was provided to verify the movement on plant to the ICR lines provided.
For all samples, I judged that the ICR lines reflect the physical reality captured within the operating records provided and that the nuclear material accounting performed is adequate, and that the arrangements and evidence seen were in line with the expectations of NSR19. I judge that for FSE 8 and 10 Springfields Fuels Ltd provided sufficient evidence to give assurance that the accountancy samples provided prior to the

intervention lined up with ONR expectations and NSR19.

Further assurance was provided through discussion with the respective Springfields Fuels Ltd NMA for QBSS, where elements of good practice are displayed through the team having a process of taking a ‘monthly audit’ against a balance sheet to reconcile accounts against physical reality. ONR observed that this is not reflected in the local arrangements and should be formally documented.

OBSERVATION – Elements of good practice of accountancy and control by taking a ‘monthly PIV’.

RECOMMENDATION – ONR recommended that the monthly audit conducted by NMA and plant staff should be formally documented in local arrangements.

Judgement

Overall, I did not identify any major shortfalls against NSR19, or fundamental safeguards expectations as described by the ONMACS.Based on the evidence sampled, I judge that Springfields Fuels Ltd implements adequate arrangements to provide measurement programme and control in line with FSE 6, nuclear material tracking in line with FSE 7, data processing and control in line with FSE 8, material balance within FSE 9 and quality assurance and control for NMACS in line with FSE 10. I also judged that Springfields Fuels Limited is compliant withregulations3(1)(3),6(1-4),9,10(1),11(1-4),12(1-2) and14 in NSR19.

The overall rating of the Nuclear Material Accountancy compliance inspection is rated asGREEN.

Observations / Advice

OBSERVATION – ONR observed that the weigh scales did not have any control charts to monitor any differences in performance of scale across a period of time.
RECOMMENDATION – ONR recommended that the references for SSI’s are referenced in the Springfields Fuels Ltd Accountancy and Control Plan.
REGULATORY ADVICE – ONR suggested that improvements to the LIMS software is made to allow plant staff to correctly report end caps and full fuel pins separately prior to any movement.
OBSERVATION – Elements of good practice of accountancy and control by taking a

‘monthly PIV’.
RECOMMENDATION – ONR recommended that the monthly audit conducted by NMA and plant staff should be formally documented in local arrangements.

3.3 Regulatory Issues

The following regulatory issues were raised, reviewed or closed as a result of this inspection.

Issue	Title