Inspection Record – Dutyholder Report			
Nuclear material accountancy compliance inspection (QBS6)			
Inspection ID	IR-53224	**Inspection Date(s)**	18/11/2024 For 2 Days
Dutyholder	Westinghouse Springfields	**Site**	Springfields Works
Inspection Type	Announced Planned	**Site Area / Group**	
ONR Purpose	Safeguards	**Inspection Source**	

Subject (s) of Inspection

Activity	RAG Rating
NSR19 Reg09 - Operation of an accountancy and control plan	GREEN
FSE 6 Measurement Programme and Control	GREEN
NSR19 Reg11 - Accounting records	GREEN
NSR19 Reg12 - Accounting reports	GREEN
NSR19 Reg14 - Inventory change report	GREEN
NSR19 Reg10 - Operating records	GREEN
NSR19 Reg06 - Accountancy and control of qualifying nuclear material	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
Antony Gallagher

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 QBS6 - " Storage Areas for Uranium Hexafluoride" on 20-21 November 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 provide a rating in line with ONR's inspection rating guidance of Springfields Fuels Limited's compliance against the following regulations in NSR19:

NSR19 Regulation 14 – Inventory Change Report
NSR19 Regulation 12 – Accounting Reports
NSR19 Regulation 11 – Accounting Records
NSR19 Regulation 10 – Operating Records
NSR19 Regulation 09 – Operation of an Accountancy and Control Plan (ACP)
NSR19 Regulation 06 – Accountancy and control of Qualifying Nuclear Material

To form effective regulatory judgements on Springfields Fuels Limited'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:

FSE 9 – Material Balance
FSE 8 – Data Processing and Control
FSE 7 – Nuclear Material Tracking
FSE 6 – Measurement Programme and Control
FSE 10 – Quality Assurance and Control for NMACS

1.2 Inspection Scope

This inspection is being targeted at QBS6 due to the quantity and sensitivity of the qualifying nuclear material stored, along with the regular international movements to/from

this area.

ONR will draw an independent and informed regulatory judgement that the nuclear material accountancy and control arrangements within the MBA QBS6 are accurate and implemented in a manner, which is proportionate to, and appropriate for the qualifying nuclear facilities and that the subsequent reports (ICRs, MBR and PIL) are correct.

This will include seeking evidence that accountancy reports provided for the MBA QBS6 to the ONR under regulation 14 are traceable and accurate to the supporting source documentation. As part of this, inspectors will examine the underpinning operating and accounting records for the accountancy sample (which will be provided in due course) as well as perform physical verification for a sample of qualifying nuclear material.

ONR will conduct a plant walkdown and hold discussions with relevant Springfields Fuels Limited personnel who have nuclear material accountancy and control responsibilities.

ONR requests discussions with relevant staff and provision of relevant NMAC&S arrangements prior to the intervention; see the proposed detailed agenda in annex 1.

1.3 Relevant Regulatory Guidance

The following regulatory guidance corresponds with this inspection

Name
SAFEGUARDS TECHNICAL INSPECTION GUIDE
General Inspection Guide
ONR Nuclear Material Accountancy, Control, and Safeguards Assessment Principles (ONMACS)
Nuclear Material Accountancy Technical Assessment Guide Safeguards

2. Summary Statement

ONR nuclear safeguards inspectors conducted a nuclear material accountancy compliance inspection of the Material Balance Area (MBA) QBS6 – Storage Areas for Uranium Hexafluoride on 20-21 November 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 with regulations 3(1)(3), 6(1-4), 9, 10(1), 11(1-4), 12(1-2) and 14 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 Fuels Ltd
[redacted]		
[redacted]		
[redacted]		
[redacted]		

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 Accountancy and Control Plan (ACP) (SSI 945). The intervention focused on the MBA QBS6.

This inspection was targeted at QBS6 due to the quantity and sensitivity of the qualifying nuclear material stored, along with the regular international movements to/from this area. I sought to draw an independent and informed regulatory judgement that the nuclear material accountancy and control arrangements within the MBA QBS6 are accurate and implemented in a manner, which is proportionate to, and appropriate for the qualifying nuclear facilities and that the subsequent reports (ICRs, MBR and PIL) are correct.

Prior to the inspection, I reviewed the relevant arrangements referenced in the Springfields Fuels Ltd's QBS6 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 QBS6, Storage Areas for Uranium Hexafluoride. For the purpose of the intervention, I exclusively sampled from the Hex storage areas as the MBAs purpose and type is storage of Uranium Hexafluoride (UF6) in full, partially full cylinders and as heels.

UF6 is stored for a number of purposes. I identified that the key QNM flows in QBS6 are:

Natural / Enriched Hex stored awaiting transfer to the on site conversion plant for fuel manufacture (QBSP).
Tails Hex is stored long-term on site or stored awaiting shipment off site.
Hex Cylinder Heels are stored awaiting transfer to one of the site cylinder wash facilities.

I identified good practice when the Plant Manager (PM) for QBS6 confirmed the plant staff conduct weekly cylinder condition checks to ensure that any issues requiring maintenance can be identified early.
The Material Custodian (MC) for QBS6 took me through the process of receipt, processing and tracking of where the arrangements in place were clearly articulated. The process for receipt and dispatch of cylinders is as follows:

Receive Cylinder(s)
Offload (Transmittal note used)
Check weigh (Commercial weigh scale)
NUMIS updated
Oxide Fuels Complex (OFC), QBS3, request cylinders (Shop Delivery Note used)
Dispatch to OFC

Check weigh (Accountancy weigh scale)

I observed regulatory good practice where the plant staff at QBS6 use an ‘operations board’ system for Receipt, Delivery and Dispatch to anticipate shipments or receipt four weeks in advance through to the day they takes place. Alongside this, I observed a handling equipment board which outlined when maintenance for each piece of equipment was required – accompanied by a seal with the date printed on to ensure this could not be changed.

OBSERVATION– ONR observed regulatory good practice for the use of an Operations Boards at QBS6 to track and monitor the receipt, delivery and dispatch of cylinders to/from the MBA, which supports good nuclear material accountancy.

OBSERVATION– ONR observed regulatory good practice for the use of a Handling Equipment Board at QBS6, which identified the maintenance of systems to maintain accurate records.

The Plant Manager evidenced multiple layers of control of the Hex Cylinders, by providing a receipt sheet, cylinder wash authorisation note and cylinder driver schedule.

I sampled the evidence of a weigh scales ST5476 (3000KG), ST5433 (5000KG) and ST5560 (5000KG). All three scales are calibrated annually, with a note for them to be replaced on a 5-year rotation, which I judged to be adequate.

I was taken to Hex Storage Area rafts [redacted] where I noted the serial numbers for each type of cylinder to cross reference as part of the Accountancy Verification session, in order to gain assurance that Springfields Fuels Ltd’s Nuclear Material Information System (NUMIS), reflected the physical reality on plant.

As part of the walkdown at the [redacted] raft, I noticed that a lot of older Heels Cylinders were stored which contained a four-digit serial number which was engraved in small print making it difficult to read. I fed back to the Plant Manager that this could raise the risk of human error as part of a Physical Inventory Verification (PIV).

OBSERVATION– ONR observed multiple serial numbers on cylinders at the [redacted] Hex cylinder storage raft were difficult to read.

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 – Hexafluoride Storage Raft Cylinder Serial Numbers

I cross-referenced the following serial numbers for cylinders at each storage raft to gain assurance that the physical reality on plant, cross referenced with NUMIS:

[redacted]:
Heels – SEA3558K / SEA3102T
Full – RWE470 / SET3330B / 11270276

[redacted]
Full – 11221450 / 11220685 / 11220060
Empty – 11223252 / 11221684 / 11223427

[redacted]:
Full – 2857614 / KA1194 / KA1196

Each reference was individually confirmed and I am satisfied that the sample I took provides assurance of adequate levels of nuclear material tracking on plant.

Accountancy Verification – Inventory Change Reports

I sampled ten (10) unique accountancy lines from the August, September and October 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 re-batching (RB), shipment domestic (SD), receipt domestic (RD), receipt foreign (RF) or due to an identified query surrounding a Shipper-Receiver Difference (DI) line).

Springfields Fuels Ltd provided the source documents during the inspection, I reviewed them to ensure that the key data elements reconciled with the respective ICRs. However, some samples provided required further engagement with Springfields Fuels Ltd to gain an adequate level of understanding:

Shipper-Receiver Difference (DI - $8572263)
I provided Springfields Fuels Ltd with an ICR line reporting a DI for the September 2024 reporting period. For an MBA that routinely receives material domestically and internationally, it would be unusual for differences in what the consignor reported compared to what Springfields Fuels Ltd reported.

The Senior Nuclear Material Accountant (NMA) explained that this was a shipment from Germany that was reported as a Heel delivery with the purpose of cylinder wash but it was actually empty. I queried if this was a regular occurrence and it was confirmed that it was a one-off. I was satisfied with the explanation given and noted that ONR would monitor this over the coming months.

Re-batch ($8572922)
I requested explanation from Springfields Fuels Ltd on the process of how they report re-batches at QBS6. It was explained that Hex Cylinders will be received and reported as a Receipt Domestic (RD) or Receipt Foreign (RF), depending on the origin of shipper with their own Batch ID. Springfields Fuels Ltd will then re-batch this to change the Batch ID to one corresponding with their accountancy system.I judged that this process was reflective of the ICR lines ONR received and was assured that this was being reported correctly.

Delete-Add Pairs (RD – UREU1039)
I queried the usage of Delete-Add pairs of Receipt Domestic (RD) lines displaying no changes in weight, element or obligation across multiple ICR lines. Upon further investigation and discussion, it was explained this was done in error and due to a technicality in the NUMIS software whereby the system updates every 24 hours, it was reflected in the ICR.

Independent Nuclear Assurance
I held a discussion with the Springfields Fuels Ltd Independent Nuclear Assurance (INA) Technical Leader and Analyst to get an understanding of how the INA operatesand provide assurance that the Safeguards function is operating correctly.

The Technical Leader noted given the changes in INA that have occurred since 2022 at Springfields Fuels Ltd, with extra resource assigned, it was deemed valuable to establish a baseline assessment for the deployment of FSEs along with an evaluation of the maturity of the implementation. Evidence was provided of an executive summary of the assessment of FSE 7, Nuclear Material Tracking.

The intent of the INA is to conduct further assessments on the remaining FSEs and where applicable, conduct a corrective action process on any identified shortfalls. ONR will continue to engage with Springfields Fuels Ltd on the progress of this work through routine Level 4 engagement meetings and support the approach that INA is undertaking on behalf of the SFL Board.

Judgement

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 with NSR19 regulations 3(1)(3), 6(1-4), 9, 10(1), 11(1-4),12(1-2) and14 .

On this basis the overall rating of this accountancy compliance inspection is rated as

GREEN (no formal action).

Observations / Advice

OBSERVATION– ONR observed regulatory good practice for the use of an Operations Boards at QBS6 to track and monitor the receipt, delivery and dispatch of cylinders to/from the MBA, which supports good nuclear material accountancy.OBSERVATION– ONR observed regulatory good practice for the use of a Handling Equipment Board at QBS6, which identified the maintenance of systems to maintain accurate records. OBSERVATION– ONR observed multiple serial numbers on cylinders at the [redacted] Hex cylinder storage raft were difficult to read.

3.3 Regulatory Issues

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

Issue	Title