

Fuel Facility Stakeholders Meeting

May 17, 2022

Public Meeting With Nuclear Energy Institute
and Members from the Nuclear Fuel Facility Industry

Jonathan Rowley, Project Manager

Division of Fuel Management

Office of Nuclear Material Safety and Safeguards

Email: Jonathan.Rowley@nrc.gov

Phone: 301-415-4053

Meeting Category and Public Participation

This is an Observation Meeting. This is a meeting in which attendees will have an opportunity to observe the NRC performing its regulatory function or discussing regulatory issues. Attendees will have an opportunity to ask questions of the NRC staff or make comments about the issues discussed following the business portion of the meeting; however, the NRC is not actively soliciting comments towards regulatory decisions at this meeting.

Agenda – May 17, 2022

Topic	Time	Speakers
Introduction (Purpose, Rules for Meeting)	9:30 AM	Jonathan Rowley, Project Manager Division of Fuel Management (DFM)
Opening Remarks	9:35 AM	Shana Helton, Director Division of Fuel Management Office of Nuclear Material Safety and Safeguards (NMSS) U.S. Nuclear Regulatory Commission Janet Schlueter Nuclear Energy Institute (NEI)
Status of Action Items from October 2021 Meeting	9:40 AM	Jonathan Rowley, Project Manager, DFM
Integrated Schedule and Supplement Updates	9:45 AM	Jonathan Rowley, Project Manager, DFM
Industry Priorities	10:25 AM	NEI/Industry
Break	10:50 AM	
Fuel Facility Oversight • Introduction and Region II Priorities • Status of Early Implementation of Smarter Inspection Program COVID-19 Public Health Emergency Oversight Activities Assessment	11:00 AM	Anthony Masters, Director DFFI, Region II Leira Cuadrado, Senior Project Manager, Division of Materials Safety, Security, State, and Tribal Programs

Agenda – May 17, 2022 (cont.)

Topic	Time	Speakers
Hybrid Inspection = Pros and Cons	11:25 AM	NEI/Industry
Public Q & A	11:55 AM	
Lunch Break	12:00 PM	
Discussion on Various Regulatory Initiatives: <ul style="list-style-type: none"> • NRC Position on Safety Margin and Forthcoming NRC Letter • Transformation Survey 	1:30 PM	Dylanne Duvigneaud, Fuel Cycle Operations Engineer, DFM Aida Rivera, Executive Technical Assistant, Office Executive Director of Operations
Implementation of the IAEA Additional Protocol in the U.S.	1:50 PM	Santiago Aguilar, International Safeguards Analyst DFM
Break	2:30 PM	
Be Risk Smart Framework	2:40 PM	Mirabelle Shoemaker, International Safeguards Analyst, DFM
Tracking of Enriched Uranium	3:10 PM	Mirabelle Shoemaker, International Safeguards Analyst, DFM
Public Q & A	3:45 AM	
Recap of Action Items for the Day	3:50 PM	Jonathan Rowley, DFM Janet Schlueter, NEI
Closing Remarks and Adjourn	3:55 PM	Shana Helton, DFM Janet Schlueter, NEI

Opening Remarks

Shana Helton, Director

Division of Fuel Management

Office of Nuclear Material Safety and Safeguards

Janet Schlueter, Senior Director

Fuel and Radiation Safety

Nuclear Energy Institute

Action Items - October 2021 Stakeholders Meeting

<p style="text-align: center;">Action Item 1</p> <p>The NRC and NEI/Industry shall exchange any meeting presentation materials at least one week prior to the scheduled meeting date.</p> <p><u>NRC Staff Resolution</u> Division of Fuel Management (DFM) developed new guidance for planning and conducting the bi-annual Fuel Facility Stakeholders Meeting. The guidance will assure that information will be ready to provide NEI at least 7 days prior to the meetings.</p>	<p style="text-align: center;">Action Item 2</p> <p>The NRC staff was requested to place the corrected integrated schedule of regulatory activities chart on the NRC public Web site for the fuel facility stakeholders meeting.</p> <p><u>NRC Staff Resolution</u> The website was updated on November 16, 2021.</p>	<p style="text-align: center;">Action Item 3</p> <p>NEI/Industry suggested that integrated schedule of regulatory activities chart include the draft interim staff guidance (ISG) on security for facilities possessing Category II special nuclear material.</p> <p><u>NRC Staff Resolution</u> The Office of Nuclear Security and Incident Response (NSIR) concluded that the working draft of the ISG did not warrant being on the integrated schedule chart. The document is not associated with a public rulemaking and the document is not publicly available. The document is official use only and has a need-to-know aspect, given the site specific, case-by-case nature of the interaction with applicants/licensees and the site-specific nature of the supplemental security measures.</p>
<p style="text-align: center;">Action Item 4</p> <p>The NRC staff is to inquire how the industry was able to obtain two different versions of draft NUREG-2159.</p> <p><u>NRC Staff Resolution</u> Additional discussion with NEI determined that the industry was reviewing the 2018 version of the draft NUREG. The staff confirmed that the ADAMS accession number was linked to the 2021 version and industry is working with the current version.</p>	<p style="text-align: center;">Action Item 5</p> <p>The NRC staff will consider NEI/Industry suggestion of having a public meeting by the end of 2021 to discuss the tracking of higher enriched material.</p> <p><u>NRC Staff Resolution</u> A public meeting on tracking of higher enriched material was held on December 14, 2021; meeting notice (ML21335A329), presentation (ML21344A149).</p>	<p style="text-align: center;">Action Item 6</p> <p>The NRC will work to make as many licensing division instructions publicly available as possible.</p> <p><u>NRC Staff Resolution</u> The following four division instructions (DIs) should be available by September 2022 after NRC staff has been trained and has implemented the DIs for a couple months: Licensing Overview (LIC-FM-1), Acceptance Reviews (LIC-FM-2), Requests for Additional Information (LIC-FM-3), Safety Evaluation Reports (LIC-FM-4).</p>
<p style="text-align: center;">Action Item 7</p> <p>The NRC and NEI/Industry will work to have the dates for the 2022 Fuel Facility Stakeholders Public Meetings (Spring and Fall) set by the end of January 2022 to help assist all parties with planning and preparation.</p> <p><u>NRC Staff Resolution</u> The Spring 2022 meeting date was set on December 28, 2021, for May 17 and 18, 2022.</p>		

Integrated Schedule Chart and Supplement Updates

Jonathan Rowley

Project Manager

Division of Fuel Management

Office of Nuclear Material Safety and Safeguards

Updates to Integrated Schedule Chart and Supplement

- Updated information
 - Fuel Facility Stakeholders Meeting
 - <https://www.nrc.gov/materials/fuel-cycle-fac/regs-guides-comm.html#cumeffects>
 - Integrated Schedule (Chart)
 - ADAMS Accession Number ML
 - Summary of changes to previously listed activities (October 2021 – April 2022)
 - ADAMS Accession Number ML
 - Integrated Schedule Supplement
 - ADAMS Accession Number ML

INDUSTRY PRIORITIES

NEI/INDUSTRY

Introduction

Region II Priorities

Status of Early Implementation of Smarter Inspection Program

Anthony Masters, Director
Division of Fuel Facility Inspection
Region II

Inspection Lessons during the COVID-19 Pandemic

Office of Nuclear Material Safety and Safeguards

Presented by: Leira Cuadrado, Sr. Project
Manager
Division of Materials Safety, Security, State, and Tribal
Programs
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Leira.Cuadrado@nrc.gov



Phased Approach for this Assessment

Phase A

(August 2020 – April 2021)

- Gather initial internal feedback on the implementation of inspection program **during** the COVID-19 pandemic
- Shared feedback, challenges, and good practices

(Report available at ADAMS Accession No. [ML21158A231](#))

Phase B

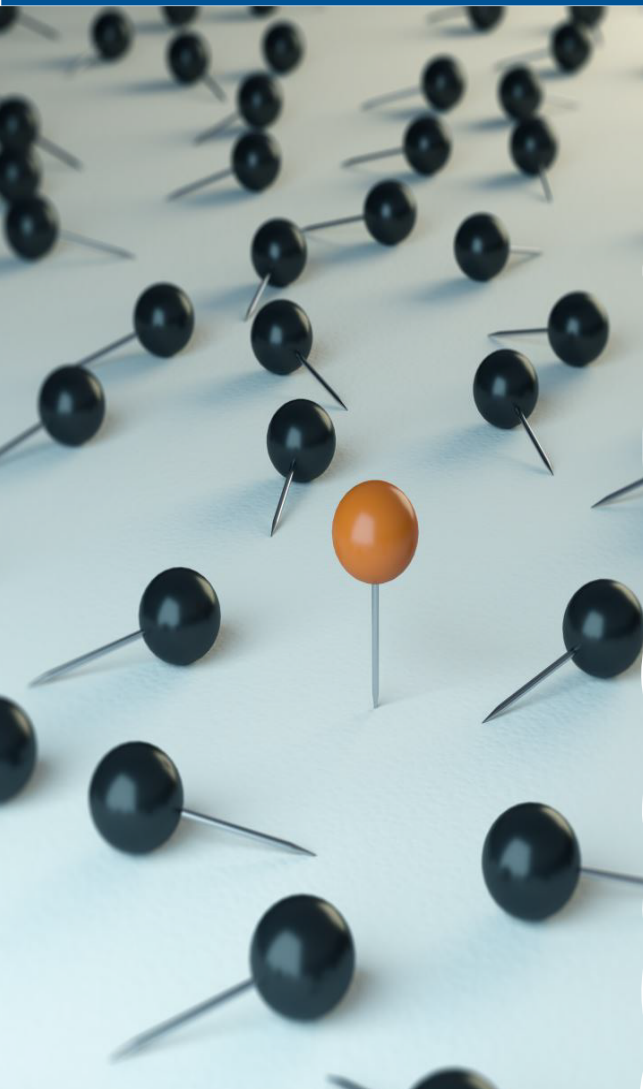
(April 2021 – November 2021)

- Gather additional feedback internally and externally
- Expanded on best practices and challenges
- Developed recommendations for the routine implementation of inspection programs

Feedback Mechanisms

- Internal **survey(s)** to inspection staff and program office staff
- **Interviews** to inspection staff and management (Branch Chiefs, Division Directors, and Regional Administrators/Office Directors)
- **Public meetings** to obtain external feedback in July and August 2021
- **Government to Government Meeting** in October 2021

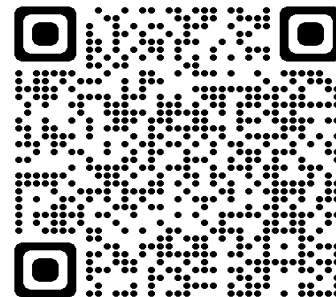
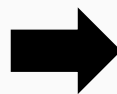




Assessment Key Messages:

- On-site inspections continue to be the most effective and preferred method of inspection
- Keep the option to employ flexibilities (i.e. remote, hybrid, in-office reviews of records), when appropriate
- Specific inspection guidance is warranted for pandemic preparedness

Report is available here



Upcoming Activities



Each inspection program will evaluate their current guidance to identify needed revisions. The agency will ensure consistency in the development of inspection guidance for pandemic preparedness.



NRR is undergoing a similar lessons learned effort and the offices are collaborating.

Hybrid Inspections Pros and Cons

Janet Schlueter, NEI

Public Participation

At this time, the public is afforded an opportunity to ask questions and/or provide comments on the following topics:

- Status of Action Items from October 2021 Meeting
- Integrated Schedule and Supplement Updates
- Industry Priorities
- Fuel Facility Oversight
- Hybrid Inspection – Pros and Cons

Status of NRC Letter on Safety Margin

DyLanne Duvigneaud

Inspection and Oversight Branch

Division of Fuel Management

Office of Nuclear Material Safety and Safeguards

Status of NRC Letter on Safety Margin

- In two letters, submitted by NEI, dated July 24, 2020 (ML20211L714) and April 20, 2021 (ML21236A302), the industry discussed their position on safety margin and suggested edits to Inspection Manual Chapter 0616
- By letter dated December 29, 2021 (ML21336A763), the NRC staff stated that it will perform a backfit assessment of changes to IMC 0616, as identified in NEI's July 24, 2020, letter.
- The staff is developing a response letter providing the backfit assessment outcome
 - Deferred due to staffing and other priorities
 - Letter and update to IMC 0616 expected by end of FY 2022

Transformation Survey Update

Aida Rivera

Executive Technical Assistant

Office of the Executive Director for Operations

Implementation of the IAEA Additional Protocol in the U.S.

Santiago Aguilar

Material Control and Accounting Branch

Division of Fuel Management

Office of Nuclear Material Safety and Safeguards

Background of the Additional Protocol

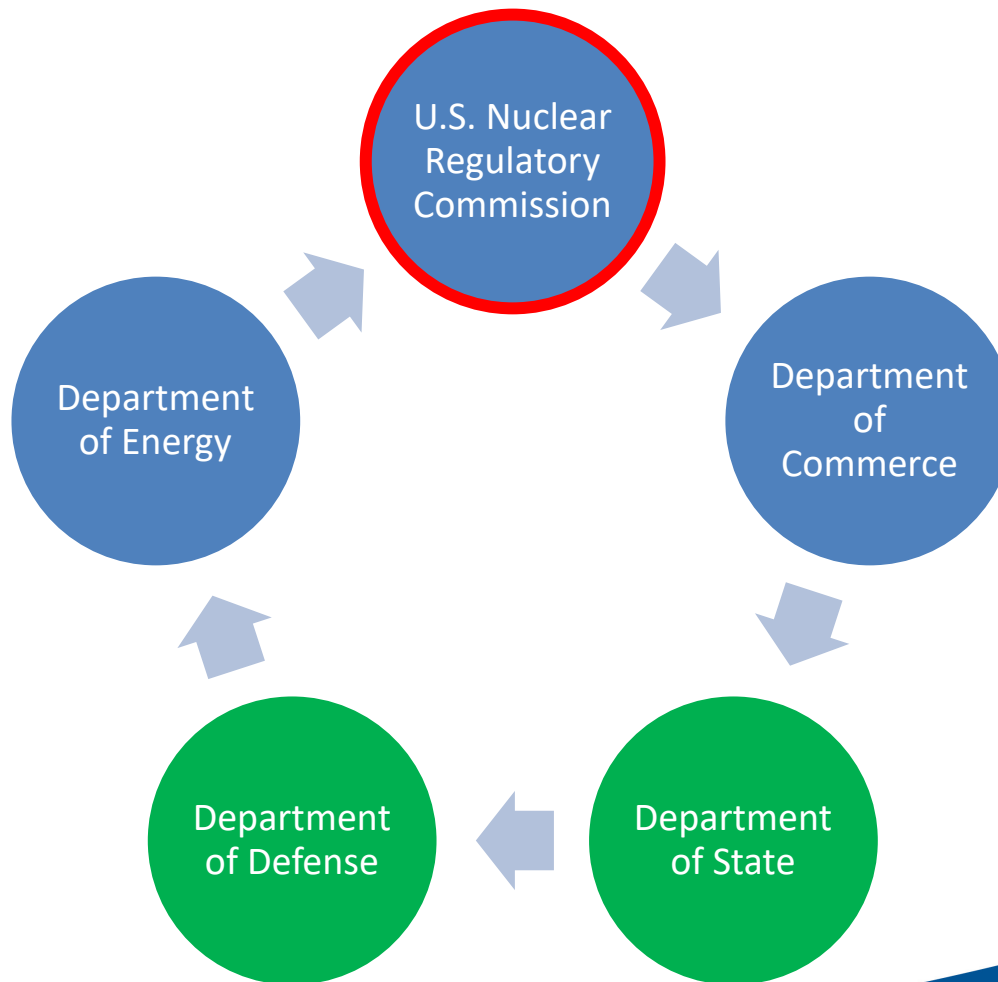
- **The IAEA applies safeguards around the world pursuant to comprehensive safeguards agreements (CSA)**
 - United States: “*INFCIRC/288*” or “*Voluntary Offer Agreement*” (1977)
- **After the 1st Gulf War, discoveries in Iraq highlighted the limitations of traditional IAEA safeguards**
 - International community recognized the need for strengthened safeguards
- **Model Additional Protocol (INFCIRC/540)**
 - Focuses on materials and activities, related to the nuclear fuel cycle, that were not previously covered by comprehensive safeguard agreements



History of the U.S. Additional Protocol

- **U.S. Additional Protocol**
 - Signed by the U.S. on June 12, 1998
 - Entered into force on January 6, 2009
 - Initial declaration submitted in 2009
- **Two primary impacts of the U.S. Additional Protocol**
 - Broader reporting requirements including additional aspects of the nuclear fuel cycle and related activities
 - Includes initial declaration, annual updates, and quarterly export reports
 - Complementary Access (CA) to facilities

U.S. Safeguards Implementation



Complementary Access (CA)

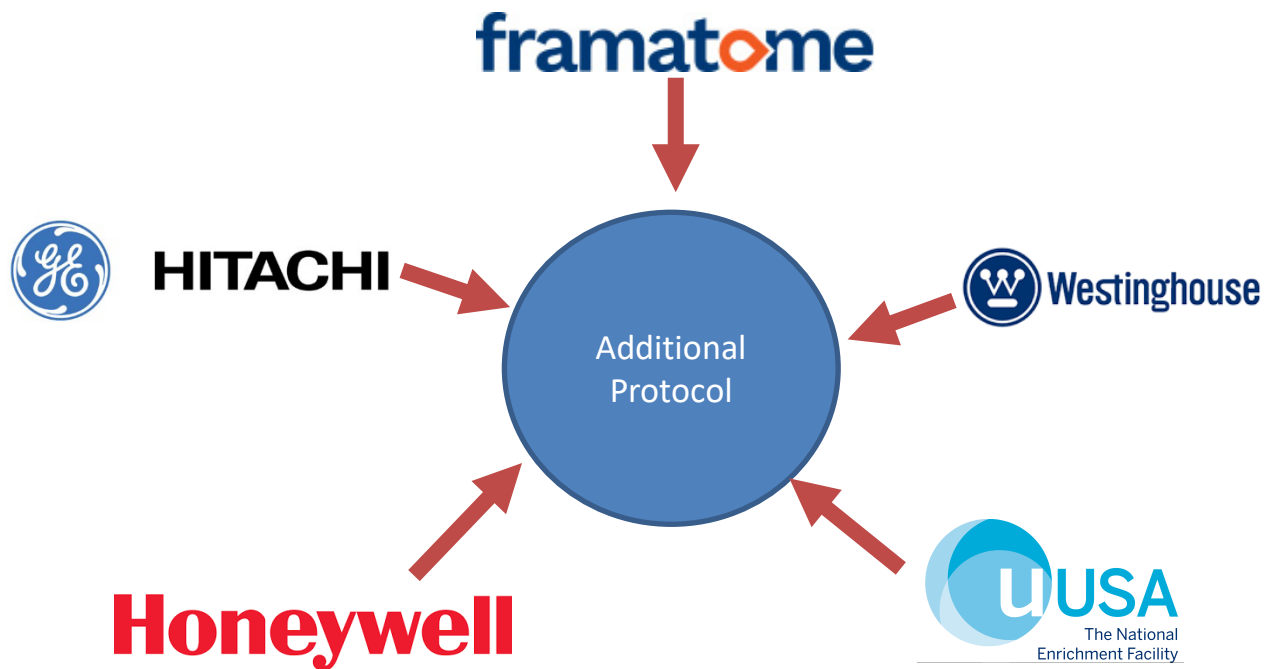
- **Complementary Access is an essential aspect of the IAEA's expanded authorities**
- **Complementary Access allows the IAEA to:**
 - Verify the absence of undeclared nuclear materials and activities
 - Resolve a question or inconsistency
- **Access for IAEA with 24 hours advance notice**
 - 2 hours if IAEA is already onsite
- **CAs are rare in the U.S.**
- **Only 2 CAs have been conducted in the U.S. (2010)**
 - Framatome Inc., Fuel Fabrication Facility (Lynchburg, VA)
 - Global Advanced Metals (Boyertown, PA)



Reporting Requirements

- **Annual reporting requirements (10 CFR Part 75.6)**
 - (2.a.i) Nuclear fuel cycle research and development
 - Approximately 75% of the total number of U.S. declarations are 2.a.i. declarations
 - (2.a.iii) Site declaration including description of activities
 - Only relevant for facilities that are currently or have previously been selected for IAEA safeguards
 - Not applicable to a vast majority of the industry
 - (2.a.iv) Nuclear fuel cycle related manufacturing and assembly
 - Annex I items from the U.S. Additional Protocol
 - (2.a.v) Uranium and thorium mines, mills, and concentration plants
 - (2.a.vi) Possession of large quantities of impure source material
 - Source material that is not yet suitable for fuel fabrication or enrichment
 - (2.a.x) Ten-year plan
 - Input is not requested from the industry
- **Quarterly reporting requirements [10 CFR Part 110.54(a)(1)]**
 - (2.a.ix) Exports of Annex II items

Snapshot of Licensees Who Report Under the U.S. AP...and many more!



Snapshot of Licensees Who Report Under the U.S. AP... Agreement States!



Quarterly Export Reports Explained (2.a.ix)

- For licensees using NRC general or specific license authorizations for exports of **specified equipment and non-nuclear material as listed in Annex II of the Additional Protocol**.
 - This reporting requirement is also reflected in 10 CFR Part 110.54(a)(1) for Agreement State licensees.
- Most NRC licensees should report as a “location” using AP-13 form found on www.AP.gov. Report directly to Department of Commerce (DOC), Bureau of Industry and Security (BIS) every quarter (forms are joint DOC/NRC forms).
- Quarterly deadlines to BIS are January 15, April 15, July 15, and October 15 of each year.
- **Exporters should check if any of the items exported under Part 110.26 – exports of components under General License - may also need to be reported under the AP (Part 110.54(c)).**

Additional Protocol-Annex II

- **Examples of equipment to be reported under 10 CFR 110.54(a)(1)**
 - Reactor Control Rods (Annex II, 1.4)
 - Zirconium tubes (Annex II, 1.6)
 - Reactor Primary Coolant Pump (Annex II, 1.7)



Additional Protocol Reporting Process

- Information is sent to DOC by Jan 31st
 - Can be sent via facsimile, mail, or email
- NRC receives licensee's declarations from DOC and performs a review
- NRC compiles data and submits a report to DOC for inclusion in the overall U.S. Government declaration
- U.S. declaration must sit before Congress for a 60-day review period (for annual report only)



IAEA
International Atomic Energy Agency

Additional Protocol Webpage

- **The Department of Commerce manages a webpage that contains the handbooks and forms for the U.S. Additional Protocol**
 - Handbooks and forms are joint use for both DOC and NRC
 - The majority of companies use the “Report Handbook for Locations.”

<http://www.AP.gov>

Additional Protocol Webpage

Bureau of Industry and Security
U.S. Department of Commerce
Where Industry and Security Intersect

Search... Search

Home About BIS ▾ Regulations ▾ Licensing ▾ Enforcement ▾ Compliance & Training ▾ Policy Guidance ▾ Add'l Programs ▾ Reform ▾

Additional Protocol (AP)

- Additional Protocol (AP)
- Report Handbook for Locations
- Report Handbook for Sites
- Outreach Events
- Informational Publications
- Press Releases

Additional Protocol Links

[Department of Energy \(DOE\)](#)

[Nuclear Regulatory Commission \(NRC\)](#)

Additional Protocol (AP) | Print |

U.S. Additional Protocol

Welcome to the U.S. Additional Protocol (AP) Homepage. This page provides resources and educational tools to assist locations engaged in nuclear fuel cycle-related activities to comply with the Bureau of Industry and Security's (BIS) Additional Protocol Regulations (APR).

All entities subject to the reporting requirements of the APR must submit to BIS, by January 31, a Report of nuclear fuel cycle-related activity carried out during the previous year.

- If you started a new nuclear fuel-related activity during the previous calendar year and your location has not previously been reported to BIS, you must submit an Initial Report.
- If you previously submitted an Initial Report to BIS for your location, you must submit an Annual Update Report or a No Change Report.
 - Any new nuclear fuel-related activity started during the previous year at a location previously reported to BIS can be included in an Annual Update Report.
 - Any nuclear fuel-related activity that ceased during the previously year at a location previously reported to BIS must be included in the Annual Update Report.

For additional information on APR reporting requirements, contact BIS's Treaty Compliance Division at 202-482-1001.

The APR applies to all persons and locations in the United States, except:

1. Locations that are subject to the regulatory authority of the Nuclear Regulatory Commission or one of their Agreement States.

Additional Protocol Related Documents

- Additional Protocol Treaty
- Legislation 109-721
- Executive Order 13458
- Final AP Rule
- Report Handbook for Locations
- Report Handbook for Sites

Questions

- **Please ask questions early and often!**
 - NRC - Office of Nuclear Material Safety and Safeguards (NMSS); Material Control and Accounting Branch (MCAB)
 - Santiago Aguilar Santiago.Aguilar@nrc.gov
 - Eduardo Sastre Eduardo.Sastre@nrc.gov
 - Department of Commerce, Treaty Compliance Division, Bureau of Industry and Security, U.S. Department of Commerce
 - Hung Ly Hung.Ly@bis.doc.gov
- **Additional resource:**
 - <http://www.nrc.gov/about-nrc/ip/intl-safeguards.html>

Be riskSMART



Mirabelle Shoemaker, International Safeguards Analyst
Material Control and Accounting Branch
Division of Security Operations
Office of Nuclear Security and Incident Response

Be... clear about the problem



S

SPOT

...what can go right or wrong?

...what are the consequences?

...how likely is it?



M

MANAGE

...what you can



A

ACT

...on a decision



R

REALIZE

...the result



T

TEACH

...others what you learned

Be riskSMART



Benefits of Be riskSMART Framework

- Allows NRC to make decisions in the presence of uncertainty
- Using all available information to make a decision
- Reveals the entire toolbox for risk assessment and risk management

Benefits of Be riskSMART Framework (cont.)

- Facilitates early alignment on risks
- Enables the adoption of new technology
- Refines processes & allows NRC to select the best option

Be ... clear about the problem

Can the NRC conduct an on-site inspection of Prairie Island Independent Spent Fuel Storage Installation (ISFSI) operations during the spent fuel loading campaign?

Additional background about the problem statement

- This evolution is performed ~2 years and was due within a year at the time the problem statement was identified.
- If the inspection were postponed, NRC would miss its only opportunity to evaluate license performance during cask loading operations (most risk significant activity at an ISFSI) prior to the inspection due date.

What could happen? (right/wrong)



S

SPOT

...what can go right or wrong?

...what are the consequences?

...how likely is it?

What could go right?

- NRC conducts remote inspection or an on-site inspection adhering to CDC guidelines.
- In either case, an inspection is completed by the due date and in compliance with CDC guidelines.

What could go wrong?

- The inspection is postponed or delayed and the NRC misses the only opportunity to directly inspect dry cask operations for 2 years.
- A remote inspection may fail to identify safety issue.
- An onsite inspection greatly increases the risk of all involved personnel contracting COVID-19.



S

SPOT

...what can go
right or wrong?

...what are the
consequences?

...how likely is it?

What could happen? (consequences)

What are the consequences?

- NRC can't complete the remote inspection and provide reasonable assurance that operations were conducted safely, potentially resulting in fuel damage, inadvertent release of radioactive material, unexpected exposure to workers/public, injury;
- NRC cannot conclude whether operations were conducted safely/within regulatory requirements through remote inspection; or,
- NRC can conclude that operations were conducted safely and no personnel contract COVID-19 through onsite inspection



S

SPOT

...what can go right or wrong?

...what are the consequences?

...how likely is it?

What could happen? (likelihood)

How likely is it?

- That NRC conducts inspection remotely to meet at least minimum sampling- LIKELY;
- That a significant safety issue missed during a remote inspection- UNLIKELY, two previous dry cask campaigns using same vendor were successful;
- That no personnel contract COVID-19- UNLIKELY, given the increasing infection rate; and
- That all personnel contract COVID-19 if following CDC guidelines- UNLIKELY



M

MANAGE

...what you can

What can I manage?

What can NRC do?

- Discuss remote inspection capability and experience with peers/other regions.
- Discuss opportunity to do a follow-on onsite portion of the inspection when conditions improve under PHE.
- Assess capabilities/limitations using cameras for remote inspection.
- Assess close-contact risks encountered during inspection to reduce chances of contracting COVID-19.
- Review changes to PI dry cask storage program to weigh the risk of the changes resulting in a potential safety issue.



A

ACT

...on a decision

What actions will I take?

What will NRC do?

- NRC decides to conduct a remote inspection with onsite follow-up because:
 - NRC confirmed the ability to: remotely monitor ISFSI operations using a camera system; relay real-time (2 second delay) camera observations to the licensee; review other videotaped footage; and conduct daily discussions with the licensee.
 - When the PHE conditions allow, NRC will be able to conduct onsite inspection of material and radiological conditions.
- Considerations that led to this action included that:
 - The site had no findings of significance during last ISFSI inspection in 2018;
 - The site had no process changes since previous ISFSI campaigns; and
 - Onsite inspection addresses public perception of risk and lack of NRC oversight.



R

REALIZE

...the result

What happened when I acted?

What were the results of NRC's decision to conduct a remote inspection?

- As a result of NRC's decision to conduct a remote inspection with onsite inspection follow-up, the Biennial Prairie Island ISFSI Cask Loading Campaign Inspection was conducted in a timely manner.
- Conducting a remote inspection yielded a secondary benefit where multiple simultaneously occurring activities could be observed for longer periods of time, with reduced exposure to the inspector.



T

TEACH

...others what
you learned

How can I teach others?

Following the inspection:

- Staff planned to share lessons learned from the remote inspection with other inspectors;
- Staff suggested using public meetings to discuss use of remoted inspections in NRC oversight during the Covid-19 Public Health Emergency; and,
- The example was highlighted as a success story during the 2022 RIC Session for Be riskSMART: Real Examples and Real Impacts.

**Tracking of Enriched Uranium:
NRC update on the industry's request related to
tracking foreign obligations of uranium enriched <10%**

Mirabelle Shoemaker, International Safeguards Analyst

Material Control and Accounting Branch

Division of Security Operations

Office of Nuclear Security and Incident Response

Engagement with Industry on Reporting Foreign Obligations on LEU enriched <10%

- Industry has requested that the NRC expand the definition of E1 material to less than 10%, to match the special nuclear material description of Cat III material.
- Under this change, licensees would be able to manage foreign obligations on uranium up to 10% enrichment without the need for prior approval, in the same manner as they currently manage obligations on uranium up to 5% enrichment.

Engagement with Industry on Reporting Foreign Obligations on LEU enriched <10% (cont.)

- NRC conferred with Interagency Partners and presented a solution at public meeting in December 2021. The Interagency proposed that fuel facilities submit a one-time request for prior approval of obligation reassignment for their licensed blending operations.
- NRC and the interagency will consider each request as received and will have the ability to grant prior approval for obligation reassignments between E1 and E2 material.

Continued Pathway to Resolution

- Following the December 2021 public meeting, NRC continued dialogue with POCs at fuel facilities responsible for NMMSS reporting.
- NRC also conferred with NMMSS to identify potential impacts to other licensees.
- A public meeting is scheduled for **June 22, 11am ET – 2pm**, to provide details about reporting E1 material.

Public Participation

At this time, the public is afforded an opportunity to ask questions and/or provide comments on the following topics:

- Safety Margin Letter
- Transformation Survey Status
- Operational Event program
- Filing System for Additional Protocol
- VLSSIR
- Be riskSmart
- Tracking of Enriched Uranium

Recap of Action Items – Day 1

Jonathan Rowley, Project Manager

Division of Fuel Management

Office of Nuclear Material Safety and Safeguards

Closing Remarks – Day 1

Shana Helton, Director

Division of Fuel Management

Office of Nuclear Material Safety and Safeguards

Janet Schlueter, Senior Director

Fuel and Radiation Safety

Nuclear Energy Institute