US NRC
PREDECISIONAL ENFORCEMENT CONFERENCE

WITH

BWXT – NUCLEAR OPERATIONS GROUP, INC. - LYNCHBURG

September 22, 2022

NRC One White Flint North,
Commission Hearing Room
11555 Rockville Pike
Rockville, MD

MEETING AGENDA

OPEN PORTION

- ✓ Opening Remarks and Introductions
- ✓ NRC Enforcement Policy
- ✓ Statement of the Apparent Violations
- ✓ Licensee Presentation
- ✓ NRC Caucus and Follow-up Questions
- ✓ Opportunity for Public Questions and Comments
- ✓ Closing Remarks

CLOSED PORTION

- ✓ Licensee Additional Information (i.e., Personnel Failures)
- ✓ NRC Caucus and Follow-up Questions
- ✓ Closing Remarks

Meeting Etiquette

- Please mute yourself during the meeting.
- When talking please say your name and organization, turn on the camera if you can.
- Public will have an oportunity to ask questions about the enforcement process at the end of the open portion of the meeting.
- A recent change was made to include an NRC caucus in the open portion of the meeting. We will also have an NRC caucus during the close portion of the meeting.

Opening Remarks & Introductions

Meeting Purpose

Discuss the circumstances surrounding five apparent violations* of NRC requirements that were identified following the fire in the supercompactor facility that occurred on June 19, 2020, which resulted in the loss of life of a BWXT employee.

This is a Partially Closed meeting.

The NRC is transcribing this meeting.

*The associated inspection report can be found at the NRC's Agencywide Document Access and Management System (ADAMS) Accession No. ML22123A050.

ENFORCEMENT POLICY - SIGNIFICANCE

SEVERITY LEVEL – I
(most significant regulatory concern)

SEVERITY LEVEL – II
(very significant regulatory concern)

SEVERITY LEVEL – III
(significant regulatory concern)

(Non-Escalated Enforcement)

SEVERITY LEVEL – IV
(less significant concern, but more than minor)

Possible Enforcement Actions

- Notice of Violation without Civil Penalty
- Notice of Violation with Civil Penalty
- Orders

Factors Affecting Assessment of Violations

- Resulted in actual safety or security consequences
- Had potential safety or security consequences
- Impacted the ability of the NRC to perform its regulatory oversight function
- Involved willfulness

For Today's Meeting

No Final Decision on safety significance or enforcement action will be made today.

NRC Inspection Report provided our current understanding of the issues.

We Want **BWXT NOG-L Perspective on:**

- Facts, root causes, and missed opportunities associated with the apparent violations
- Whether the violations occurred
- Corrective actions taken or planned
- Perceived significance of the issues and the need for lasting comprehensive corrective action
- Any additional details NRC should consider

Apparent Violations

These apparent violations are discussed in:
NRC Inspection Report No. 07000027/2021006, dated June 6, 2022 (ML22123A050)

The following is a summary of the violations documented in the report

Note: *The Apparent Violations are subject to further review and are subject to change prior to any resulting enforcement action.*

Apparent Violation #1

**The apparent violations discussed in this conference are subject to further review and are subject to change prior to any resulting enforcement action.*

Failure to Implement Established Fire Protection Program and Work Area Spill Response Requirements to Control Flammable Liquids

Safety Condition S-1 of the License requires that material be used in accordance with the statements, representations, and conditions in the application.

Section 7.1.2, "Procedures," of the License Application states, in part, that the Fire Protection Program "shall be implemented through the Industrial Health and Safety Manual …Procedures will be implemented which establish fire prevention requirements designed to prevent fires from occurring. Specifically, programs will be implemented for …control of flammable liquids and control and permitting of ignition sources."

Section 6.4 of IH&S manual procedure HS-10-12, "Work Area Spill Response," Rev. 3, states that any spill with the potential to harm personnel or adversely affect the environment, equipment or other property shall be addressed by the Emergency Team.

On June 19, 2020, an estimated 25 gallons of isopropyl alcohol, a highly flammable liquid that has the potential to harm personnel or adversely affect the environment, was allowed to spill, accumulate, and overflow a trough located in the licensee's supercompactor hot cell following the compaction of drums containing rags containing alcohol and trace amounts of special nuclear material. The spill was not addressed by the Emergency Team. As a result, the spill and accumulation of isopropyl alcohol created a hazardous explosive atmosphere that led to a flash fire and loss of life on June 19, 2020.

Apparent Violation #2

**The apparent violations discussed in this conference are subject to further review and are subject to change prior to any resulting enforcement action.*

Failure to Minimize the Amount of Alcohol Used

Safety Condition S-1 of the License requires that material be used in accordance with the statements, representations, and conditions in the application.

License Application Section 11.4, "Procedures," states that "Activities involving licensed material shall be conducted in accordance with written and approved procedures."

Procedure M11-FAWM-011, "Waste Handling Requirements for Combustible and Non-Combustible Materials," Rev. 7, requires operators to use the minimum amount of alcohol necessary to dampen rags in order to minimize the amount of free liquids in the drums.

On June 19, 2020, significant excess quantities (up to an estimated 25 gallons) of isopropyl alcohol, a highly flammable liquid, was present during compacting operations. As a result, the accumulation of excess quantities of this chemical created a hazardous explosive atmosphere that led to a flash fire and loss of life.

Apparent Violation #3

**The apparent violations discussed in this conference are subject to further review and are subject to change prior to any resulting enforcement action.*

Failure to Control Ignition Sources and Prevent the Ignition of Flammable Vapors

Safety Condition S-1 of the License requires that material be used in accordance with the statements, representations, and conditions in the application.

License Application Section 7.1.2 states that the Fire Protection Program shall be implemented through the IH&S Manual. IH&S Manual Section 5.1 requires that the storage, handling, and use of combustible and flammable liquids in the facility shall follow the requirements set forth by National Fire Protection Association "Flammable and Combustible Liquids Code."

Section 6.5, "Control of Ignition Sources," subsection 6.5.1, "General," of the 2018 National Fire Protection Association Code states, in part, that "precautions shall be taken to prevent the ignition of flammable vapors by sources such as the following: open flames…spontaneous ignition…electrical sparks, stray currents." Also, **subsection 6.5.5, titled "Electrical Systems,"** states, in part, that "electrical utilization equipment shall meet the requirements of **Chapter 7, Electrical Systems." Subsection 7.3.1, "General Requirements,"** states, that the "electrical utilization equipment and wiring shall not constitute a source of ignition for any ignitable vapor that might be present under normal operation or because of a spill."

On June 19, 2020, an energized, bare wire associated with the supercompactor instrumentation circuit served as an uncontrolled ignition source for an ignitable vapor that was present. As a result, the failure to control ignition sources associated with the waste compaction process contributed to a fire and loss of life.

APPARENT VIOLATION #4

**The apparent violations discussed in this conference are subject to further review and are subject to change prior to any resulting enforcement action.*

Enclosure 2 - NRC Presentation

Failure to Maintain Complete and Accurate Process Safety Information in the Integrated Safety Analysis (ISA)

10 CFR 70.9 states, in part, "that information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the licensee shall be complete and accurate in all material respects."

10 CFR 70.62(b) states, in part, "that each licensee shall maintain process safety information to enable the performance and maintenance of an ISA. This process safety information must include information pertaining to the hazards of the materials used or produced in the process, information pertaining to the technology of the process, and information pertaining to the equipment in the process."

Section 7.4, "Process Fire Safety," of the License Application, states, in part, that "specific materials and their fire/explosion hazards are described for each process area in the ISA Summary," and that "a Fire Safety Analysis has been performed to assess the potential for fire consequences in areas where those materials are present."

The licensee failed to maintain process safety information in the ISA that was complete and accurate in all material respects. The Fire Safety Analysis described in the Safety Analysis Report 15.21, "Low Level Radioactive Waste Processes," Rev. 79 (i.e., ISA Summary) for the supercompactor did not identify the fire/explosion hazards associated with the generation and accumulation of flammable liquids and resulting vapors during the compaction of solvent rag drums.

APPARENT VIOLATION #5

**The apparent violations discussed in this conference are subject to further review and are subject to change prior to any resulting enforcement action.*

Enclosure 2 - NRC Presentation

Failure to Adequately Evaluate a Process Change Related to Compacting Waste Drums Containing Alcohol

10 CFR 70.72(a) requires, in part, that the licensee "shall establish a configuration management system to evaluate, implement, and track each change to the site, structures, processes, systems, equipment, components, computer programs, and activities of personnel." That system must assure that all 6 items in the regulations are addressed prior to implementing any change.

10 CFR 70.62(c)(1)(iii) requires, in part, that the licensee "maintain an integrated safety analysis . . . that identifies . . . Facility hazards that could affect the safety of licensed materials and thus present an increased radiological risk."

On July 19, 2012, the licensee approved a change request through its configuration management system to compact waste drums containing alcohol that did not adequately address all 6 items in the regulations prior to the change. As a result, the licensee failed to maintain an integrated safety analysis that identified the presence of isopropyl alcohol as a hazard that could affect the safety of licensed materials and thus present an increased radiological risk.

BWXT NOG-L

PRESENTATION

NRC Caucus and Short Break

NRC Q&As Session

PUBLIC QUESTIONS ON ENFORCEMENT PROCESS

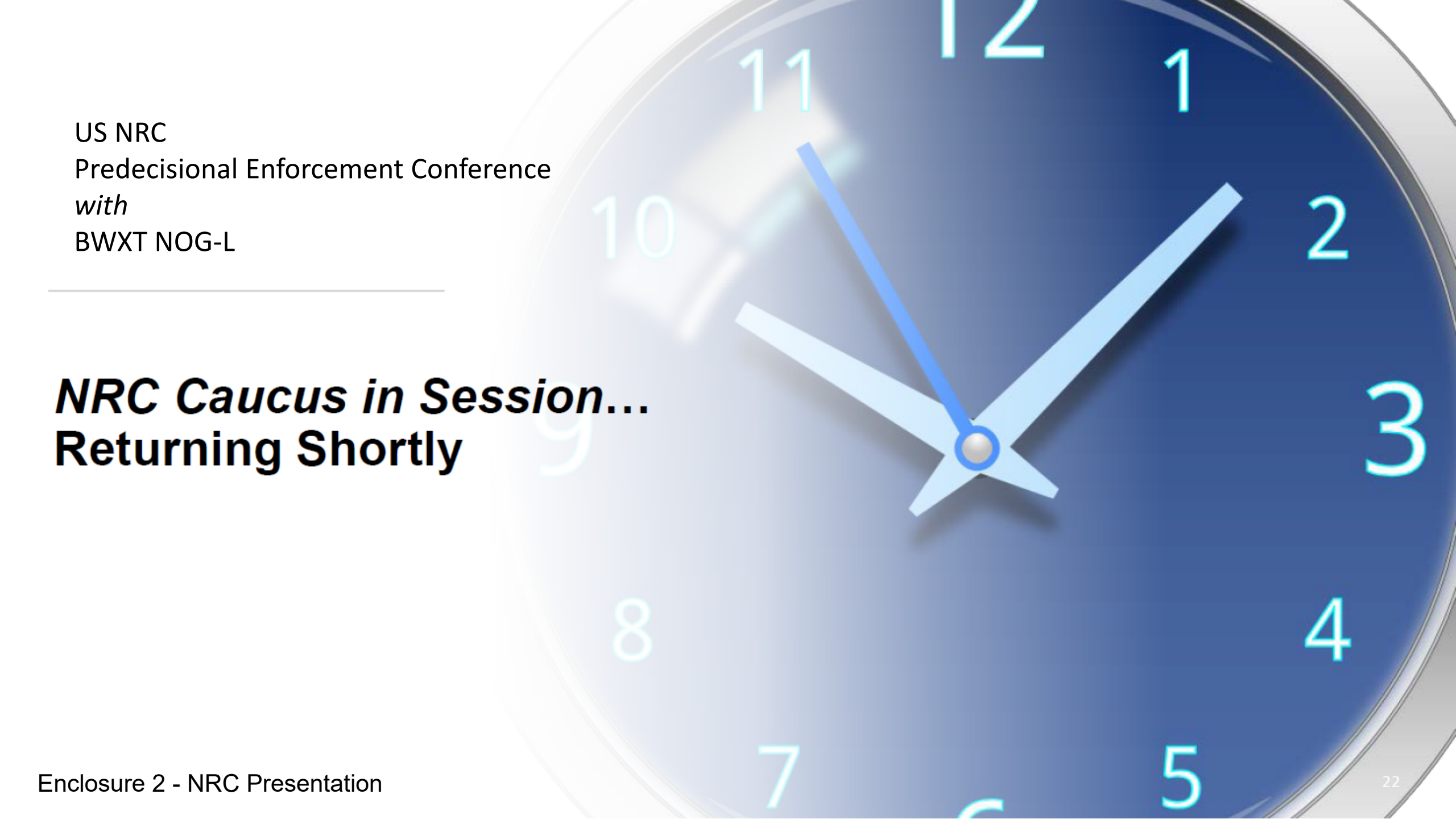
CLOSING REMARKS
FOR OPEN PORTION

BREAK

TRANSITION TO *CLOSED* PORTION

BWXT NOG-L *CLOSED* MEETING PORTION

US NRC
Predecisional Enforcement Conference
with
BWXT NOG-L



NRC Caucus in Session…
Returning Shortly

NRC Q&As
Closed Meeting

CLOSING REMARKS