PermaFix®
environmental services
A Nuclear Services and Waste Management Company

Perma-Fix Northwest Richland Inc.
Limited Part 70 License

Physical Protection

nuclear technical waste

PFNW Attendees

Richard Grondin
Executive Vice President Waste Treatment Operations

Curt Cannon
Vice President & General Manager

Dakin Utley
Radiation Safety Officer

Enercon Talisman Division SMEs

Agenda

- Purpose
- Background
- Introduce PFNW Facility
- Part 70 License
- Regulatory Strategy on Physical Protection

Purpose

- Discuss PermaFix Northwest (PFNW) approach and regulatory strategy regarding the physical protection of SNM of moderate strategic significance

Background

PermaFix Environmental Services

- $100M nuclear services company
- Leading provider of waste management services with over 30 years of experience
- Addressing problematic waste streams with no existing pathway for disposition
- Long-standing relationships with government agencies including DOE, NRC, and NNSA

PFNW Complex Overview

- Purchased by PermaFix in 2007
- Operating for over 20 years under a radioactive materials license issued by the Washington Department of Health
- >500k work hours without OSHA reportable accident
- Processes Mixed Waste from DOE and commercial facilities
- PFNW manages and treats both low level and mixed low level radioactive wastes in two separately licensed facilities

PFNW Facility Aerial View

- Owner Controlled Area
- Low Level Waste Facility
- Mixed Waste Facility
- Gate Location

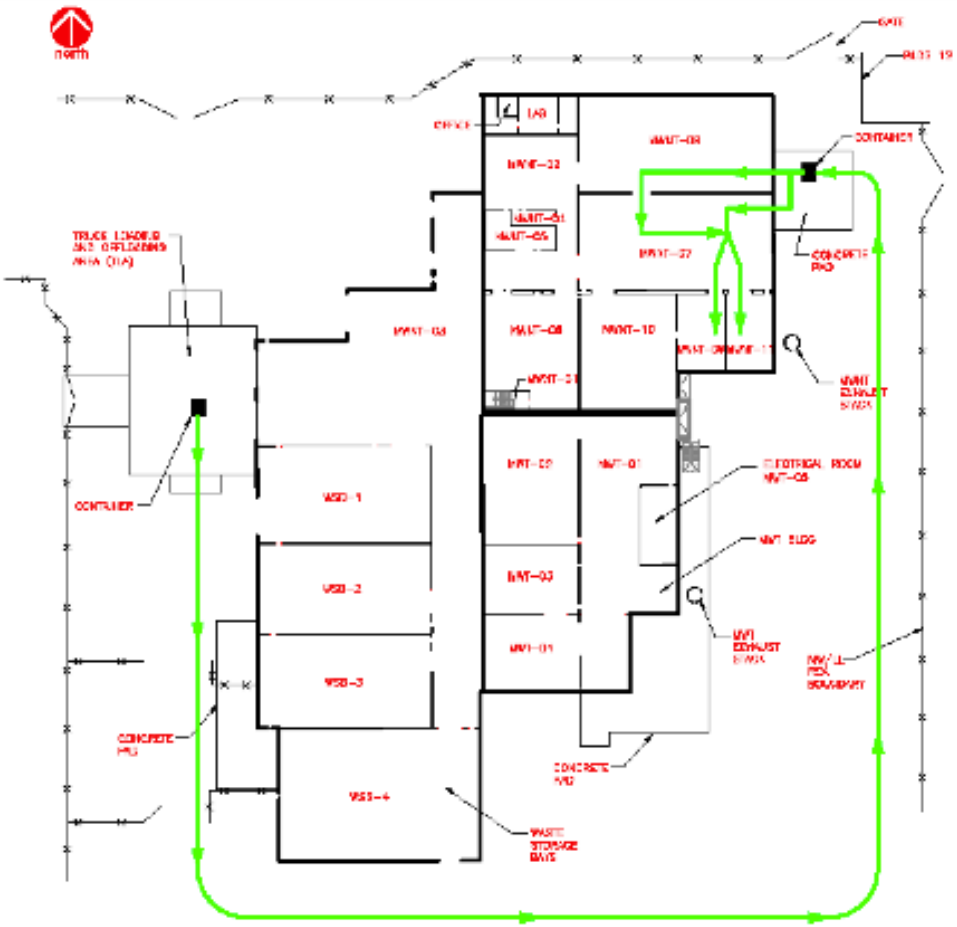
Mixed Waste Facility

Process Area – 450g Pu Equiv Limit

Storage Area – 600g Pu Equiv Limit

Process Area – 200g Pu Equiv Limit

Mixed Waste Handling



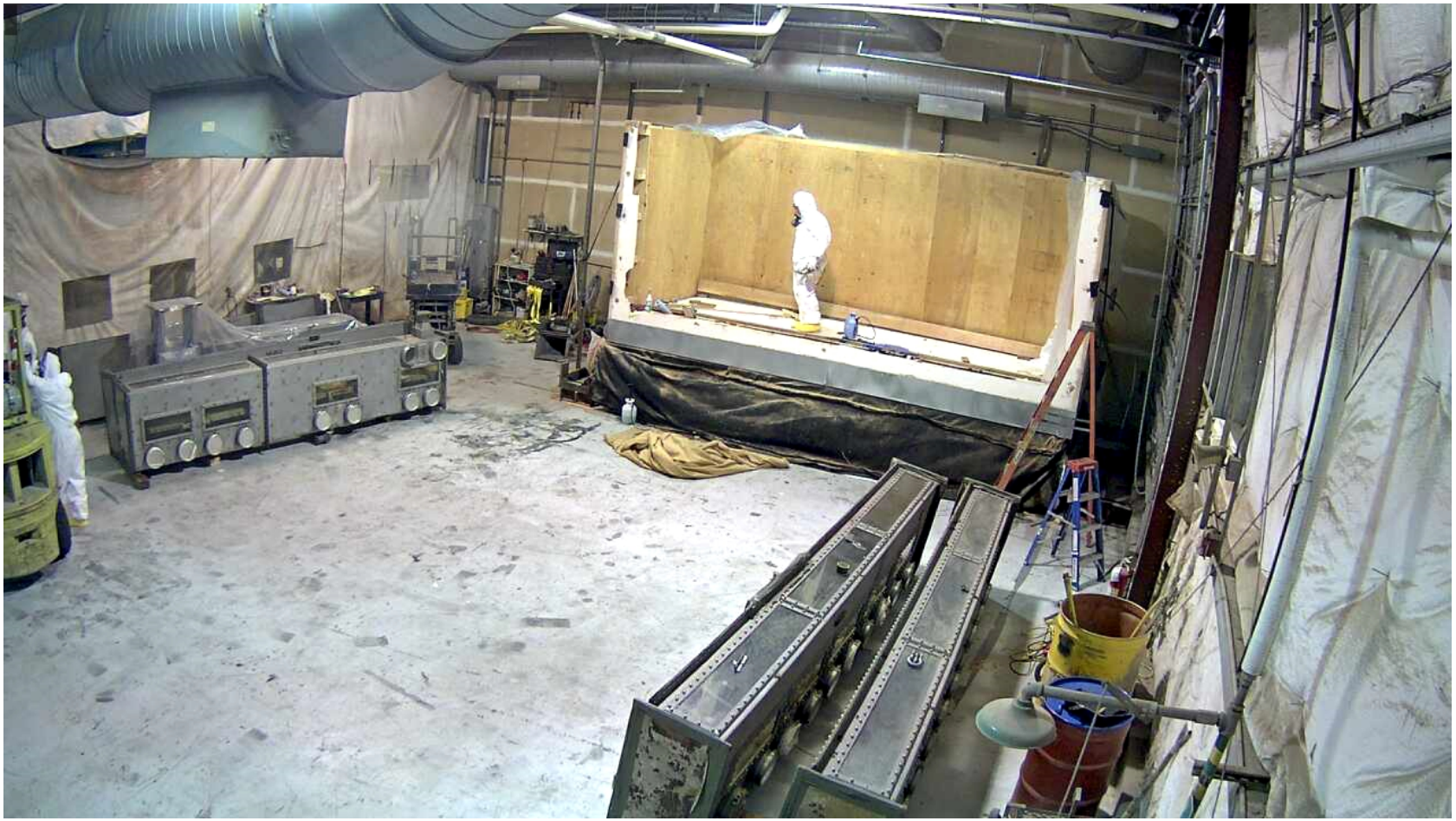
- Waste received and inspected
- Waste segmented, resized and repackaged
- Non-conforming items removed
- Stabilization of small quantities of incidental liquids and solids
- No chemical conversions or thermal treatment
- Batch processing only
- Processed waste returned to generator

Typical Transport Path for Large Packages

Incoming Conveyance

Open Overpack

Staged for Volume Reduction



Volume Reduction

Volume Reduction

Contamination Control

Outgoing SWBs

PFNW Part 70 License

- WDOH radioactive materials license limits SNM possession to 200 Pu-239 equivalent grams
- PFNW to process similar DOE wastes with higher levels of SNM contamination
  - Proposed 600-gram Pu-equivalent SNM possession limit / 450-gram process area limit
  - SNM not in pure bulk form – dispersed throughout waste with other radioactive materials
- No change or modification to existing physical processes

PFNW Part 70 License

- A limited Part 70 license is necessary due to the Part 150 constraints on Agreement State licensing of SNM
- 600 Pu-equivalent gram limit is applicable to the Mixed Waste Facility in total
  - 600 Pu-equivalent gram limit is applicable to packaged material in storage and material in process systems
  - 450 Pu-equivalent grams operational limit applies to the large component segmentation and packaging shop
  - Existing 200-gram operational limit applies to other process rooms in facility

PFNW Part 70 Application

- Application based on guidance provided in NUREG-1520 Rev. 2, SRP for Fuel Cycle Facilities License Applications
- Based on nature of work and characterization of the waste, three exemptions are being considered:
  - 10 CFR Part 70 Subpart H - Criticality Safety Evaluation will demonstrate the conservatism of the 600-gram Pu-equivalent SNM possession limit, and the 450-gram process area limit (previously discussed)
  - 10 CFR 74 Subpart D (portions) - PFNW's MC&A program will be management and control of the waste, from receipt to return to the DOE generator (previously discussed)
  - 10 CFR 73.67 – Physical Protection

Physical Protection
10 CFR 73

Regulatory Requirements

- The SNM possession authorization to be requested will result in the facility being classified as possessing SNM of moderate strategic significance
- § 73.67(d), (e), (f), and (g) provide the physical security requirements for SNM of low and moderate strategic significance (NUREG-1520, Section 13.4.2)
- § 73.67(e) in-transit requirements do not apply since DOE will be responsible for transportation of the waste packages
- § 73.67(f) and (g) address requirements for SNM of low strategic significance, and do not apply

Proposed § 73.67(d) Exemption

- § 73.67(d) provides requirements for a Controlled Access Area (CAA) with physical security features and associated security processes and organization
- PFNW will propose an exemption to certain § 73.67(d) requirements related to preventing theft of the SNM
- SNM cannot be separated or extracted from the wastes to be processed due to:
  - variable waste densities
  - heterogenous SNM distribution
  - low concentrations of SNM within the waste
- These physical characteristics of the waste stream make loss, theft, or diversion of SNM essentially impossible.

Proposed § 73.67(d) Exemption

Exemption would eliminate the need for implementing additional security requirements related to:

- illumination,
- screening badged personnel,
- exit search of vehicles and packages, and
- response procedures dealing with theft

Non-Applicable Regulatory Requirements

- § 73.1 describes the design basis threat (DBT)
  - § 73.1(a) specifically states that the DBT applies only "where referenced in the ensuing sections of this part."
  - The DBT is not mentioned in § 73.67 and therefore does not apply
- § 73.21 through 73.23 refer to information protection requirements for sensitive Safeguards Information. These requirements do not apply to the PFNW license application

Non-Applicable Regulatory Requirements

- § 73.26 applies to transportation of material
  - DOE will be responsible for transportation of the waste packages to and from the PFNW facility.
- § 73.57 refers to access to nuclear power plants, non-power reactors, and Safeguards Information
- § 73.60 refers to non-power reactors

Security Plan Features

1. Controlled Access Area: The application will define a Controlled Access Area.
   - As previously noted, exemption from the § 73.67(d) requirements for illumination will be sought.
2. Screening prior to access: As previously noted, exemption from the § 73.67(d) requirements for screening of badged personnel will be sought.
   - PFNW uses industry best practice for background checks and requires drug testing for badged personnel

Security Plan Features

3. Visitor control: The current PFNW security plan will be modified to clarify the process for controlling access for visitors and for constant escort of these individuals once inside the CAA.
4. Security organization: The current PFNW security plan commits to a single watchperson which satisfies the requirements in § 73.67(d)
5. Communications: Communication with response organization will be incorporated into the PFNW security plan

Security Plan Features

6. Random exit search of vehicle and packages: As previously noted, exemption from the § 73.67(d) requirements for random exit search of vehicles and packages will be sought.
7. Written response procedures: Written response procedures are not separate documents but appear in various sections of the existing PFNW security plan. PFNW will consider developing stand-alone procedures, as applicable.

Application Summary - Security

- PFNW will submit an exemption request to certain portions of § 73.67(d)
- PFNW application will provide a physical protection plan which
  - meets the remaining requirements of § 73.67, and
  - which provides reasonable assurance that PFNW will provide adequate protection of the MSNM at its facility during the term of the license.

Questions?