Connecticut Department of Energy and Environmental Protection

Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION

Harborview Training and Research Facility Cs-137 Release Incident

October 27, 2021
Mike Firsick
Fall Meeting of the
NEHLRWTTF

Connecticut Department of Energy and Environmental Protection

Disclaimer


HAROLD! IT'S TUESDAY ALREADY!
LIONS
DIEHARD MONDAY MORNING QUARTERBACK

Harborview Incident

Why Discuss This Incident Here?

What's the Applicability to the HLRWTTF?

Who Was Involved?

Applicability To NTSF

- Transportation of Radioactive Material
- US DOT
- DOE
- NRC
- State
- City/Town
- Government Contractors

The Incident

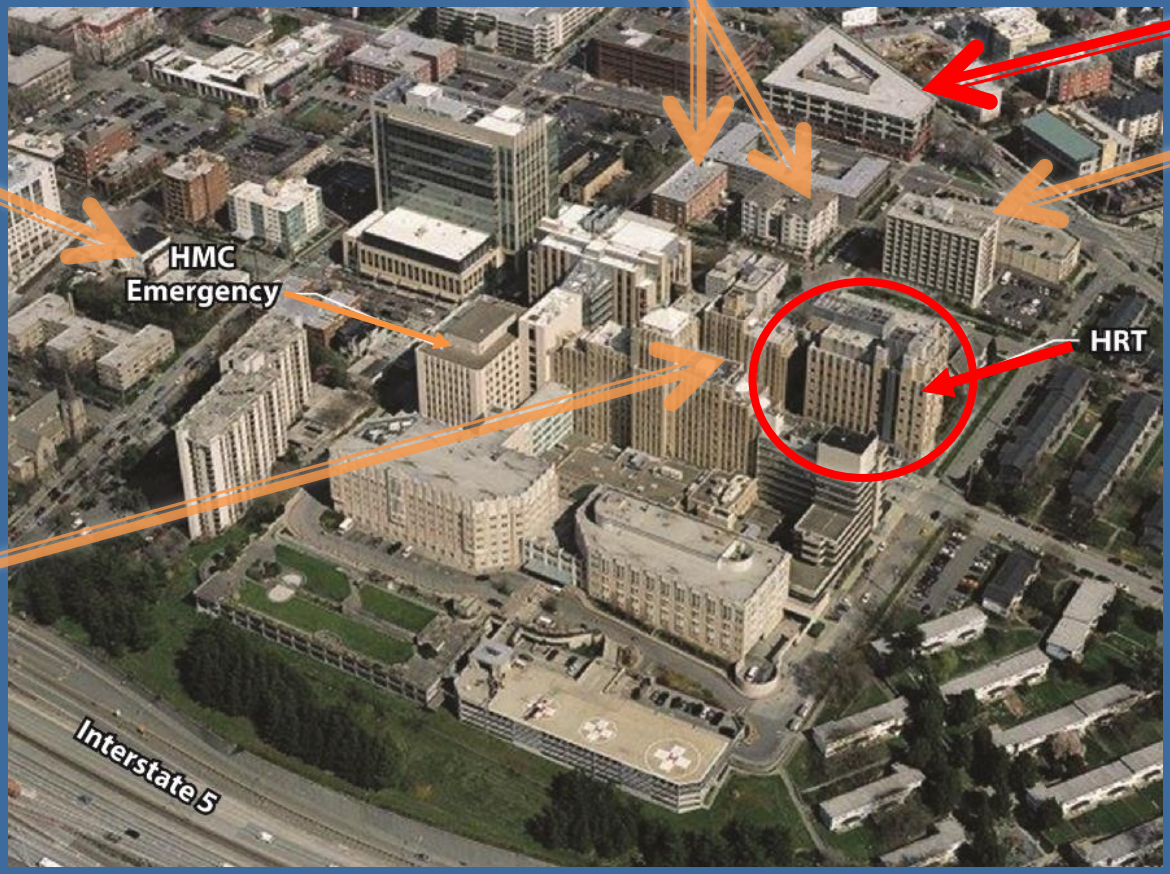
- May 2, 2019
- Part of NNSA's Off-Site Source Recovery Program (OSRP)
- Remove 2900 Curies of Cs-137 from the Harborview Research and Training Facility in Seattle, Wa.
- Required Removal of Source from Source Holder

Residential Apartments and Condos

ICP

Children's Facility

Hilltop Retirement Home



Hospital Operating Rooms

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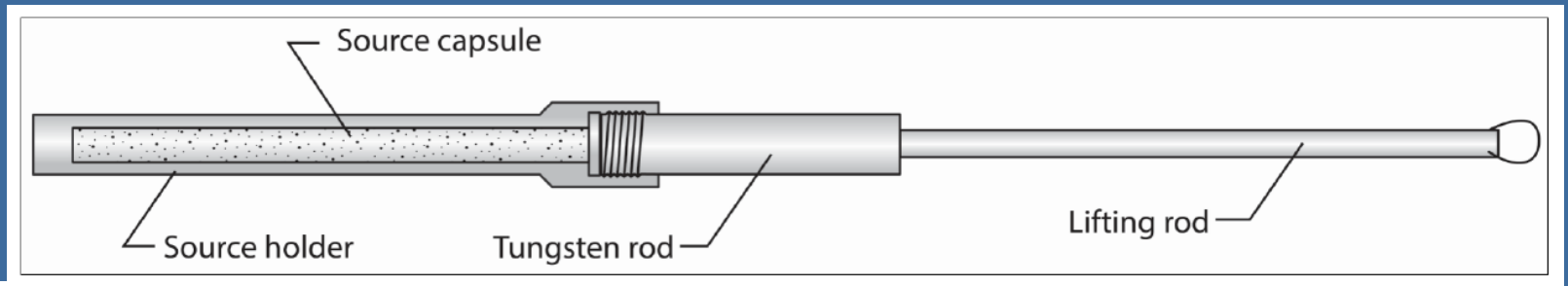
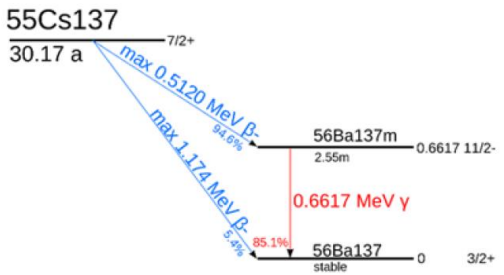
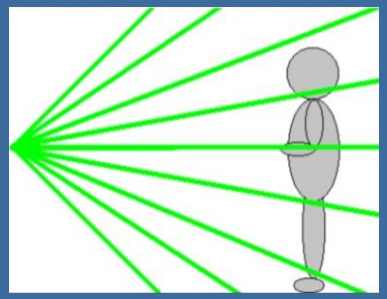




Cesium-137 decay chain

Cesium Chloride



1,000 R/hr @ 1 m from an unshielded 2900 Ci source

- Exceed occupational 5 rem limit in 20 s
- Exceed Emerg 25 rem limit in 1 minute
- Onset of Radiation Sickness (100 rem) in 6 minutes

@ 1 ft onset of radiation sickness in ½ minute

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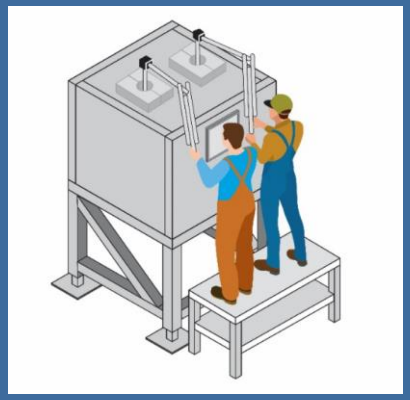
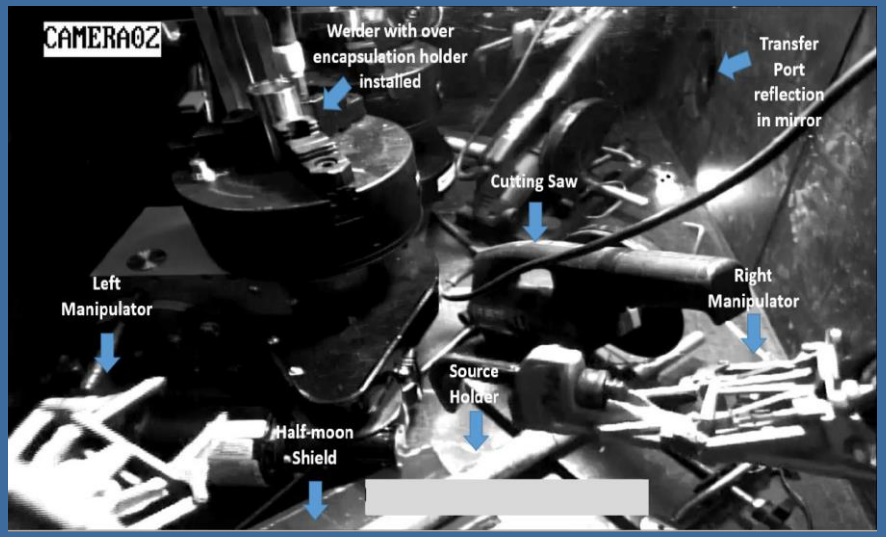
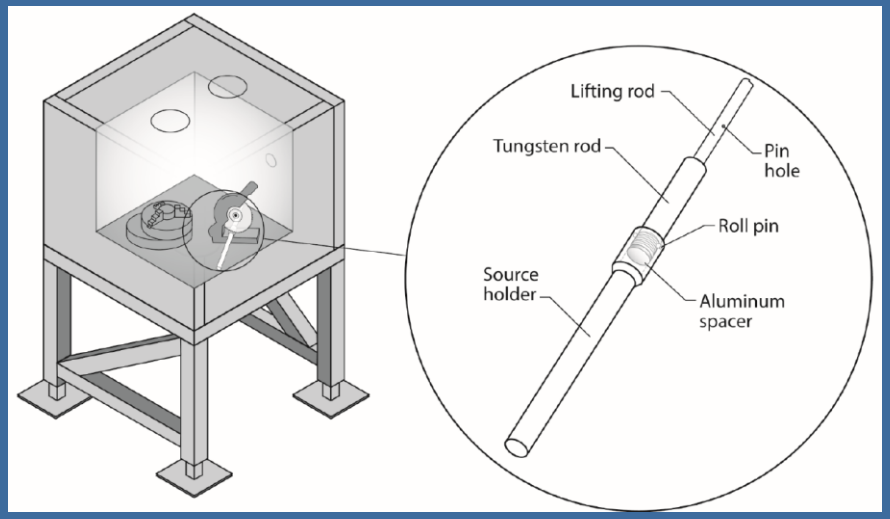
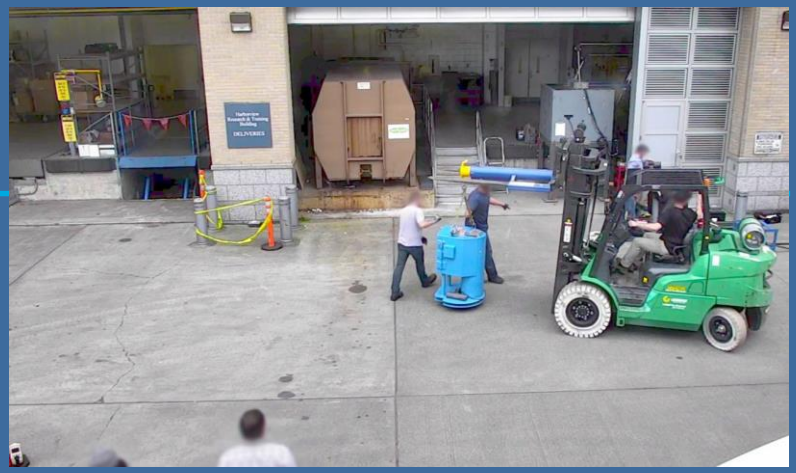
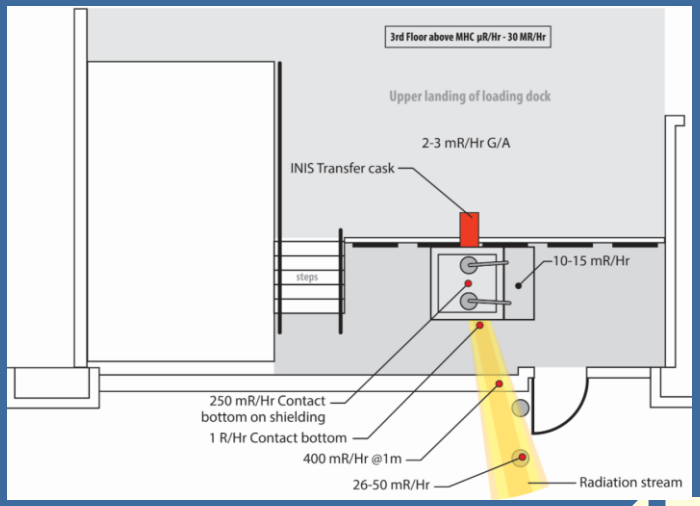



CAMERA02
Welder with over encapsulation holder installed
Transfer Port reflection in mirror
Cutting Saw
Left Manipulator
Right Manipulator
Source Holder
Half-moon Shield


Lifting rod
Tungsten rod
Pin hole
Roll pin
Source holder
Aluminum spacer





1600 Source moved from basement to loading dock

- Irradiator to MHC misaligned
- No donut shield
- Source holder modified with hacksaw (not in procedure)

1830 Prejob Brief

- 3 untrained techs getting OJT
- Observers from DOH and FBI not present and no dosimetry
- No rad access restrictions
- Higher than expected radiation

1900 Start cutting

- No swipe surveys
- No air samples
- No rad barriers
- Doors not closed

1930 Extra cuts to free source

- Fewer sparks
- Camera bright sparks
- Source most likely breached

2100 Changing Roles

- DOH and FBI leave
- RCT goes to buy batteries
- Rigger taking dose rates

2127 "Source may have been breached"

- Falls apart in MHC
- Frisker pegged >500,000 cpm
- RSO notified
- NRC HOO called 2200

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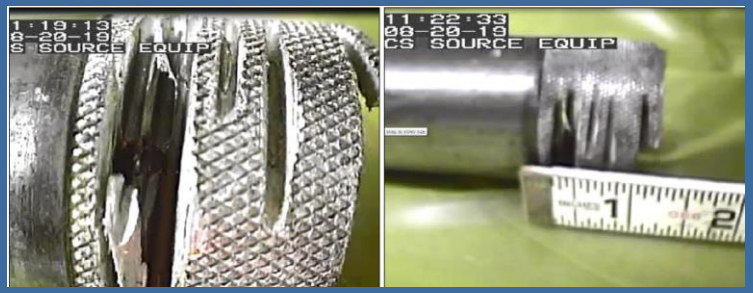
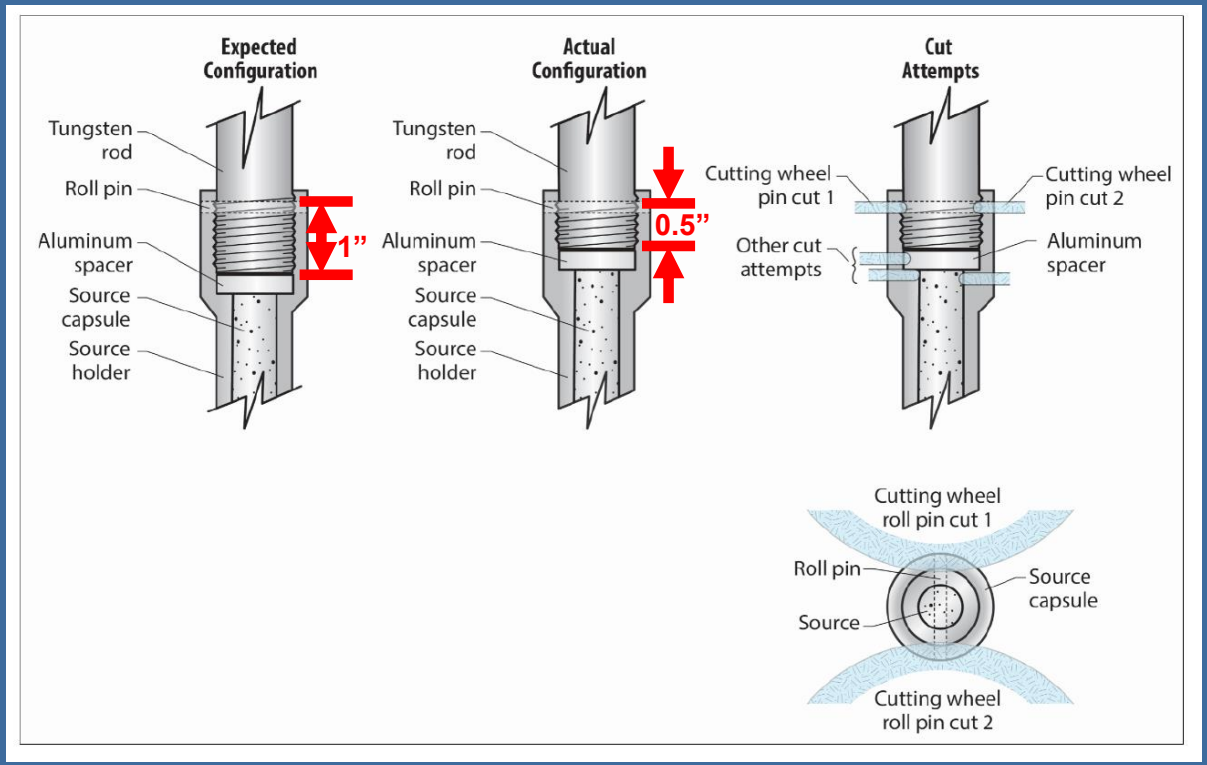
27 Cuts Later…





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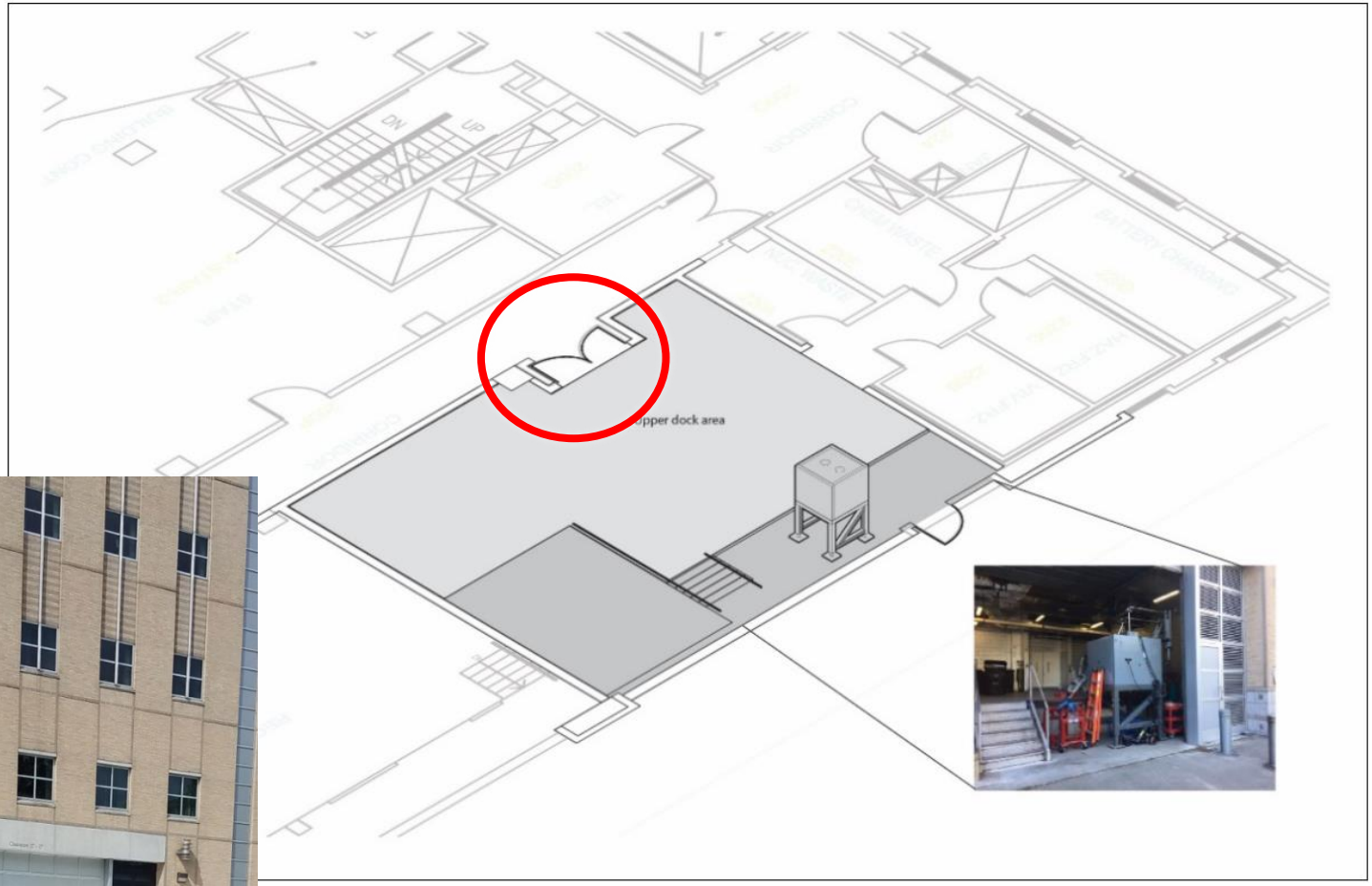

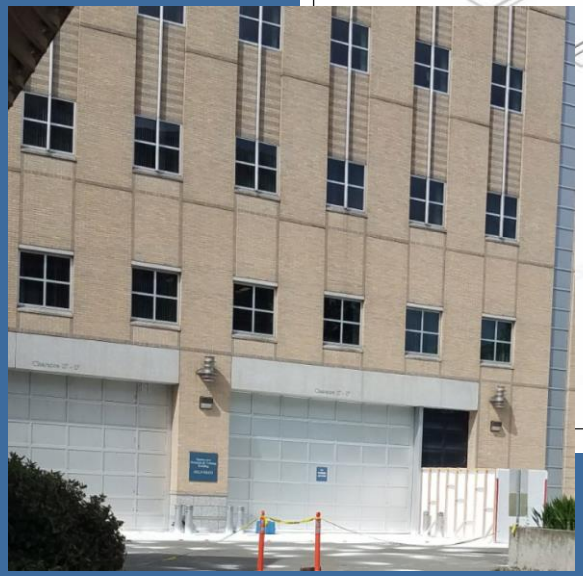

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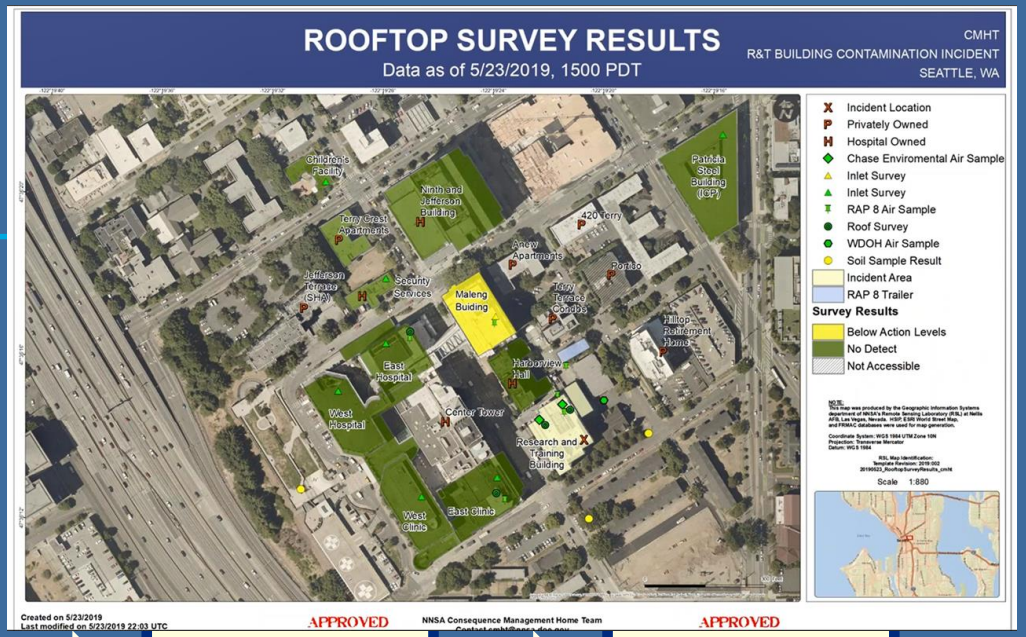

Immediate Response May 2-3

- SFD HAZMAT
- WA DOH
- UW
- CST
- REAC/TS

Post Event Response May 3-5

- UW
- DOE RAP

Post Event Recovery May 6-12

- UW
- Chase Environmental

Unified Command May 13

- UW
- DOE
- NIT

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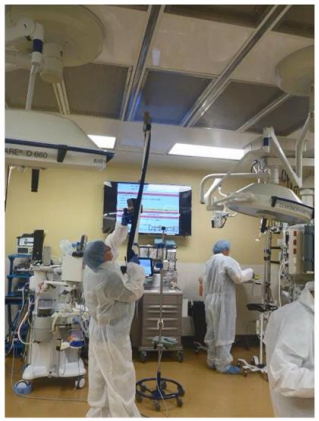

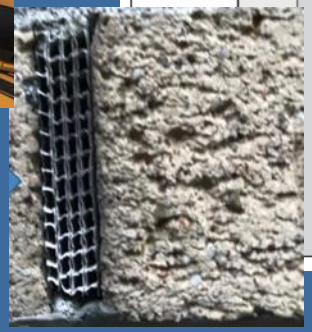

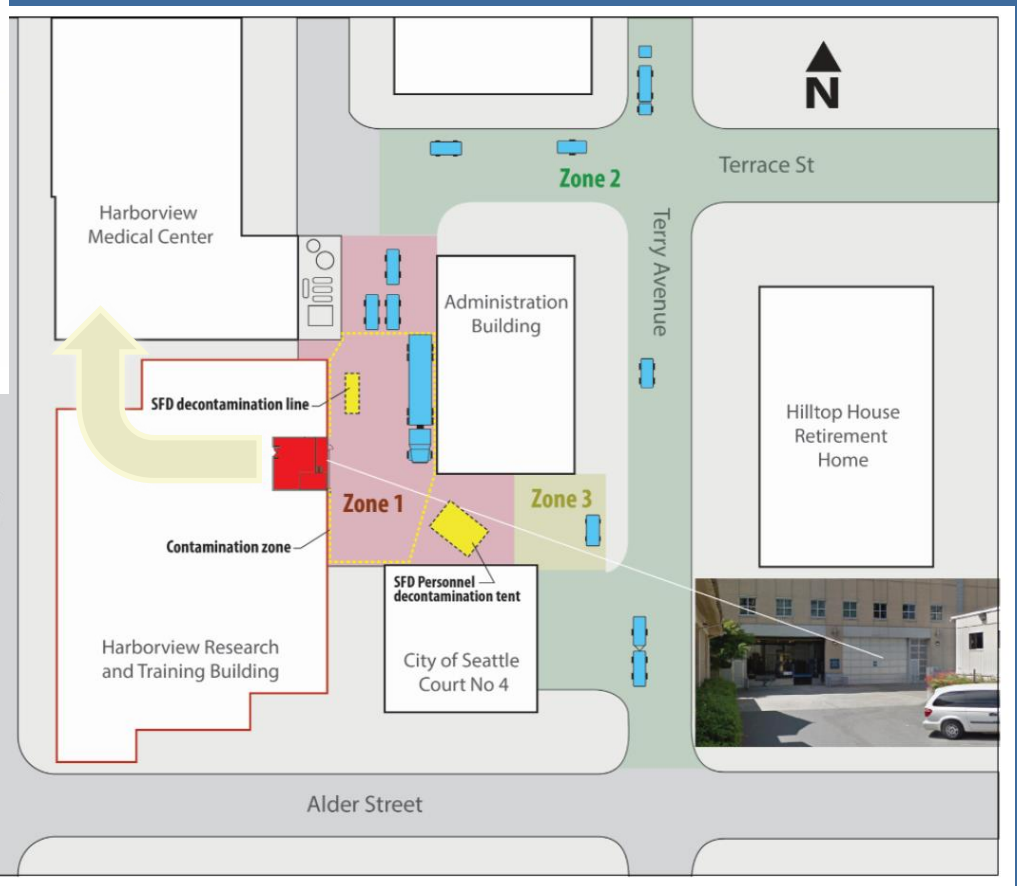

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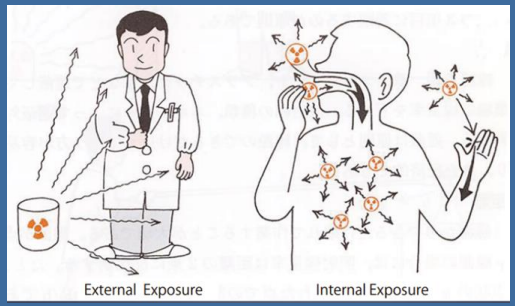

Health | Local News | Nation | Northwest

13 exposed to radioactive material at UW research site near Seattle's Harborview Medical Center

May 3, 2019 at 7:12 am | *Updated May 3, 2019 at 6:38 pm*

By Ryan Blethen
Seattle Times staff reporter

The spill of a radioactive substance at a loading dock of a University of Washington Medicine research building on First Hill left 13 people exposed to

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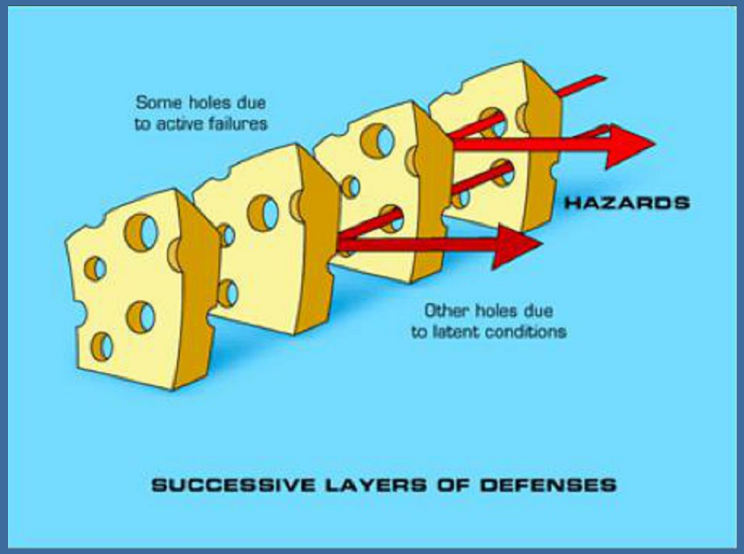
- Failure to perform a radiological risk assessment or develop an adequate plan with contingencies
  - Removing a source from a sealed source holder with high speed cutting tools without positive contamination controls should never have been performed
  - Multiple missed Stop Work opportunities
  - First time evolution with trainees
- Overreliance on Appeal to Authority
  - Unclear roles and responsibilities



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- Stop the release
  - No JHA or contingency plan
  - Encapsulation without oversight
- Warn Others
  - SFD not aware of the evolution
  - Believe your meters
- Isolate the Area
  - Ventilation not shutdown or understood
  - Doors remained open
  - No radiation or contamination postings
  - Observers had unencumbered access
- Minimize the spread of contamination
  - MHC did not provide positive confinement
  - No contingency plan
  - People allowed in contaminated areas
  - No swipe or air samples
  - Techs remained in contaminated area after breach
- Survey and Cleanup
  - Need for Radiological expertise in response and recovery – ROSS
  - Underestimated spread
  - Prompt assessment of internal contamination

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HHCC Source Removal

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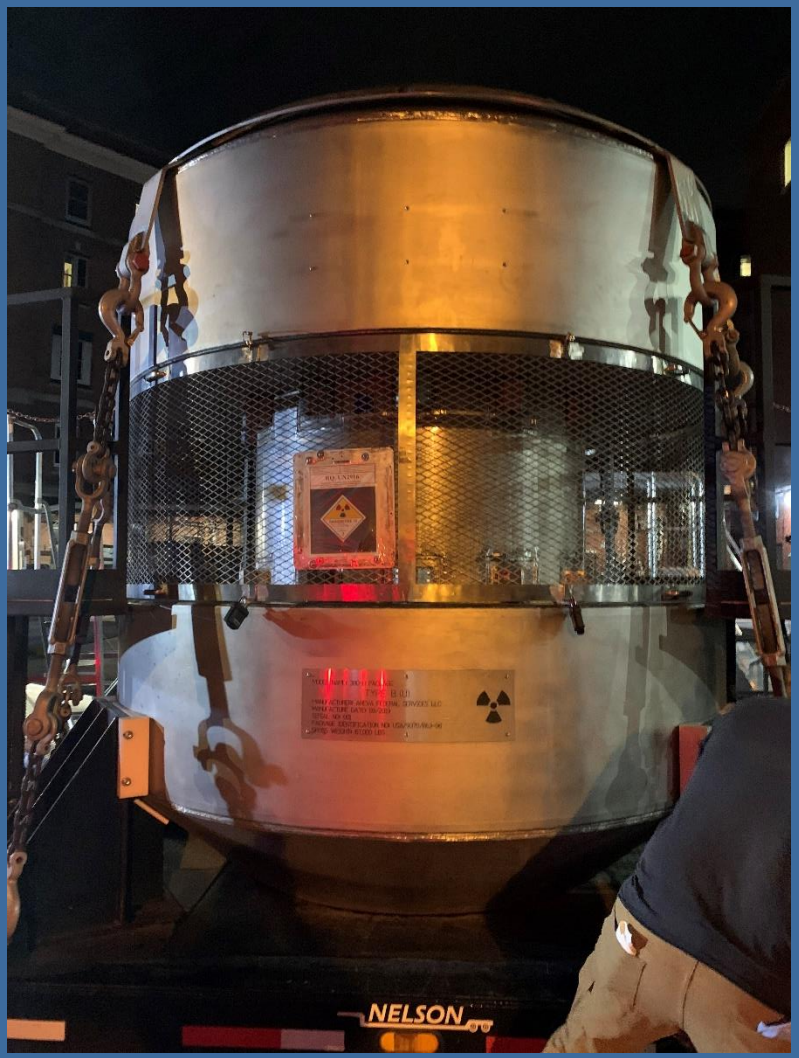

HHCC Source Removal

Questions?

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