

Hanford Advisory Board
Health, Safety And Environmental Protection
Committee Meeting
May 9, 2013

January 2013 Plutonium Finishing Plant Contamination Event

Presented by:

Larry Romine, DOE-RL

Mike Swartz, CHPRC

Problem Statement

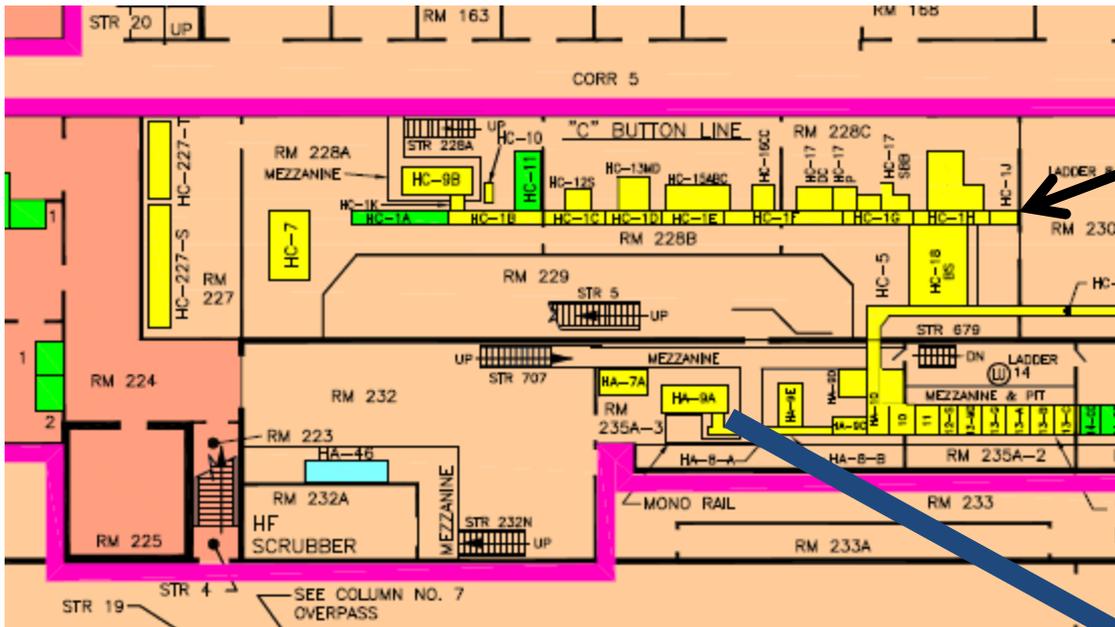
On 1/2/13, ten individuals working in Room 232 and 235A-3 of Building 234-5Z were potentially exposed to airborne alpha radioactivity, with four of the individuals initially having positive nasal smears.

Event Background

- **~2500 entries into Airborne Radioactivity Areas per month**
- **~150 horsetail-type cuts successfully executed/mo.**
- **Crew performing seal-out experienced; performed >200 times at PFP.**
- **During Work Package planning, Rad-Con exempted point source ventilation due to:**
 - congested work area,
 - ergonomic challenges,
 - successful use of wet towel method (proven adequate during past activities).

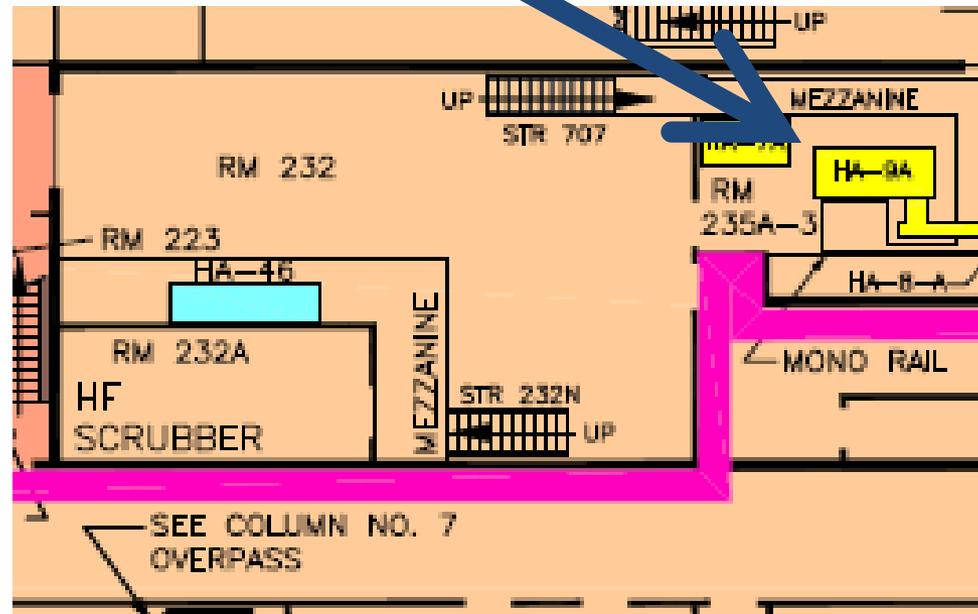
Room 235A-3 Mezzanine





RMC Process Line

RMA Process Line



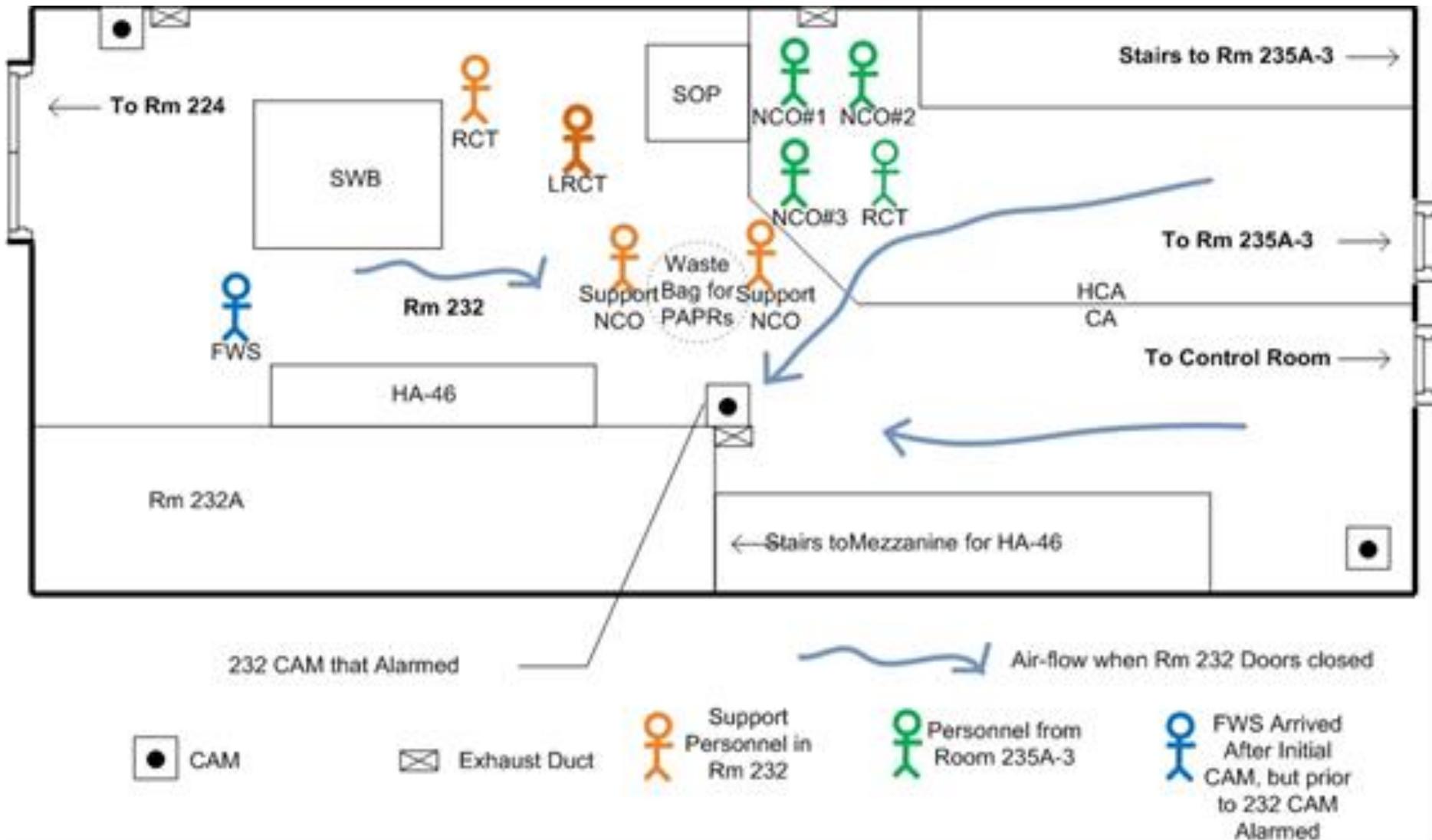
Event A Discussion (Room 235A-3)

- **1/2/13, 4 workers in Rm 235A-3 performing seal-out of waste material from upper section of GB HA-9A.**
- **Small package of filter media waste (~1lb), removed from Glove Box via 11" transfer sleeve.**
- **During umbilical cut, package end remnant came out from under wet towel used as contamination mitigation.**
- **Before in-process surveys could be completed, 1 of 4 Continuous Air Monitors (CAM) in Rm 235A-3 alarmed.**
- **Workers immediately exited to Rm 232.**

Event B Discussion (Room 232 Response)

- **7 workers in Rm 232 supporting Rm 235A-3 activity**
 - 2 RCTs,
 - 2 NCOs,
 - 2 Chem Techs,
 - 1 Scientist.
- **When CAM alarmed in Rm 235A-3; 5 of 7 stayed in Rm 232 to assist in egress of workers from High Contamination Area to Contamination Area.**
- **The 5 workers who remained in Rm 232 not wearing Respiratory Protection.**
- **RCT from Rm 232 made initial report of CAM in Rm 235A-3 to Shift Operations Manager (SOM)/Building Emergency Director (BED); stated that no additional assistance required.**
- **Based on initial report from Rm 232, Incident Command Post (ICP) manned, but BED did not direct resources to Rm 232**

Room 232



Immediate Actions

- 10 employees undressed, surveyed, and cleared PCM-2 or whole body survey.
- No skin or personal clothing contamination was identified.
- Rad-Con established access controls to Rms 224, 232, and 235A-3.
- Nasal Smears: 4 of 5 individuals in Rm 232 not wearing RP when Rm 232 CAM alarmed - initial positive smears.
 - Follow-up positive bioassay results :
 - 1 assigned 1 mRem CLD (cumulative lifetime dose)
 - 1 assigned 3 mRem CLD (cumulative lifetime dose)

Additional Actions

- **Conducted Critique.**
- **Discussed Lessons Learned with project personnel and affirmed expectations; e.g.**
 - **appropriate emergency response**
 - **CAM alarm response**
 - **exit points & egress routes for work crew prior to authorizing work**
- **Suspend use of waiver for point source ventilation**

Effectiveness Review Criteria

- 1) Review of PFP Drill Reports from 2/23/13 to 8/23/13 shows demonstrated ability to execute operational upset drills at activity level and identified issues adequately remediated.**
- 2) Review of Condition Reports from 2/23/13 to 8/23/13 shows no individuals exposed to internal radiological contamination due to CAM alarm response.**
- 3) Interview and observation of glovebox seal outs and glovebox/glovebag separations demonstrate PFP personnel perform as expected.**