

# Metals and Controls

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Work Group members

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# M&C Issues

- Internal exposures associated with subsurface maintenance and repurposing activities in Building 10.
- Landauer film-badge dosimetry reports and incorrectly calculated annual 95<sup>th</sup> percentile external penetrating doses to workers in the residual period.
- NIOSH incorrectly calculated annual 95<sup>th</sup> percentile beta skin doses to workers in the residual period.
- Swipe data used in model
  - Appropriateness of the survey locations included in the model, and the overall representativeness of the data, given that much of the information was illegible.
  - WG questioned how well the model bounded exposures in the ceiling area near the rafters, or work performing roof penetrations, or HVAC maintenance.

## M&C Issues, cont.

- The distinction between production and non-production workers should be better defined in the ER.
- Methods used to calculate ingestion rates should be more consistent with other sites.
- SC&A questions using exposures experienced by High Flux Isotope Reactor workers “*as supporting evidence to validate the bounding method used.*”
- May be inappropriate to use external dosimetry data collected during the last year of Atomic Weapons Employer (AWE) operations as the basis for bounding the external doses during the residual period.

# WG Members Concerns

- How representative is volumetric contamination data from the drain line characterization to exposures experienced by maintenance workers.
- The available sample data was analyzed with either isotopic identification or gross alpha techniques. The use of such data is acceptable if, in the absence of isotopic analyses, NIOSH assumes that the gross alpha activity is either all uranium or all thorium, whichever gives the higher POC.
- The amount of time subsurface work was performed each year.
- SC&A proposed a filter dust-loading value: one hour per year may not represent worker exposures.
- NIOSH needs to demonstrate and back up their conclusions using example dose reconstructions applying assumptions and models being proposed with the information and data that is available.
- NIOSH needs to confirm the adequacy and completeness of the data.

# WG Members Concerns

- Work during M&C residual period included renovations, demolition and extensive maintenance, all taking place without health physics support, training or knowledge of radiological hazards for the entire class period.
- Radiological exposure potential in subsurface areas drains, utility trenches and exterior area:
  - All previously mentioned activities have a high potential for residual radioactivity
  - Workers were not monitored.
  - The swipe samples NIOSH intends to use from late in the operation periods do not represent actual work that took place in the residual years.
- Maintenance work performed on the roof with potential exposure to workers is not mentioned in the ER. As stated during worker interviews, roof work could have taken 2-3 months in a given year.
- Unknown levels of uranium and thorium in subsurface areas inside and outside areas.
- Combining and reducing all intrusive work activities, e.g. roof work including roof top, roof penetration work, roof line just under the roof deck, drains, and utility trenches, exterior soil etc. to one month per year, seems on the low side.

# Petitioners Concerns

- Workers were untrained, unmonitored and unaware of what they were being exposed to on a routine basis working in subsurface soils, in drains, utility trenches, on roofs, and in exterior areas.
- M&C workers used aggressive work practices, coming in direct contact with source materials with no controls to limit exposure.
- 1982 surveys used to release building interiors for unrestricted use were flawed and were limited in scope.
- There were no intrusive surveys done inside the drains lines, utility trenches subsurface areas, overhead areas, and exterior areas that served former AWE areas.

## Petitioners Concerns cont.

- Characterization surveys in 1994 and 1995 showed the 1982 survey missed considerable amounts of residual activity.
- 1992 surveys were limited to former burial site.
- Estimation of one month duration of exposure per year is low.
- M&C maintenance workers would have been exposed to subsurface residual radioactive source materials requiring no excavation while snaking out plugged drains, pulling wires through underground conduit, installing and repairing services in subsurface utility trenches.

## Petitioners Concerns cont.

- 1985 survey failed to identify, detect or quantify volume of buried debris or where the majority of the respirable radioactive contamination was found and does not represent likely exposures to M&C maintenance workers.
- Maintenance worker exposures and job descriptions not described accurately or left out completely.
- ER lacks sufficient data to meet its own criteria of estimating the bounding dose to workers in a scientifically sound and claimant-favorable manner.