Summary Position on Dose Reconstruction Feasibility for Subcontractor Construction Trade Workers at Savannah River Site

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Job-specific vs. routine bioassays

- Deficiencies in permit-driven, job-specific bioassays identified in the late 1990s (only 21% completion in 1997); Advisory Board requested (2017) that NIOSH demonstrate data completeness for prior years
- Transient short-term subcontractors are likely affected by the job-specific bioassay program, and former worker interviews indicate that some subcontractors were brought in to do work with higher exposure potential (NIOSH, 2017)
- "Purpose of the job-specific bioassay sampling program is to collect bioassay samples from workers whose **routine bioassay program does not include some or all of the radionuclides present at the work site and who are not on a routine program**" (Kornacki et al., 1998, PDF p. 15; emphasis added) and "**routine sampling programs may not be appropriate for work involving non-routine mixes or concentrations of radioactive material**" (WSRC, 1997, PDF p. 9; emphasis added).

Primary investigation of permit-related, job-specific monitoring

Sampling plan developed by NIOSH in concert with SC&A and Work Group; executed in ORAUT-RPRT-0092 (NIOSH, 2019a)

- SC&A (2019a,b, 2020a,b) present review results
- Before 1991, work permits (job plans) only available for A-Area
- No permits available for 1975–1979
- Even more restrictive for separated americium
  - Permits only available for 1981–1988
  - Only 20% of workers on limited permits monitored
- SC&A concluded RPRT-0092 did not adequately establish permit-driven, job-specific bioassay completeness (*Note: job-specific bioassays are indistinguishable from routine bioassays in available records*)

Alternate completeness investigations (without permit linkage)

- Proposed by NIOSH at Dec. 2020 Board meeting ("weight of evidence")
  - NIOSH ORAUT-RPRT-0094 summarizes NOCTS claimant data for subcontractors (NIOSH, 2019b)
  - NIOSH review of captured plutonium logbook data (NIOSH, 2020a)
- In response, SC&A review found (SC&A, 2021a,b):
  - RPRT-0094 evaluation restricted to NOCTS claimant data
  - Data were homogenized by combining multiple forms of internal monitoring (e.g., all non-tritium monitoring grouped together)
  - Plutonium logbook and NOCTS data reflects primarily routine monitoring
  - No ability to distinguish or evaluate job-specific monitoring for completeness and representation (completeness "inferred" (ABRWH, 2019, p. 216))

Stratification assessments

- NIOSH presented stratification assessments for plutonium (2019c) and tritium (2021a,b)
- Stratification evaluations should a priori assume a complete and representative dataset per the co-exposure implementation guide (NIOSH, 2020b)
- No stratification comparison of job-specific monitoring results is possible (no ability to separate from routine monitoring)
- SC&A position on additional stratification assessments:
  - Data completeness and representation come first – have not been sufficiently established for job-specific bioassay monitoring of subcontractors (i.e., stratification assessments not appropriate)
  - Assessments primarily compare routine monitoring (i.e., do not address the completeness and exposure potential of job-specific bioassay)

Summary conclusions

- The only appropriate and adequate analysis to establish completeness and representativeness of workers on permit-driven, job-specific bioassay was attempted in ORAUT-RPRT-0092 (NIOSH, 2019a).
- SC&A review of RPRT-0092 concluded: "*without the validation of subcontractor data completeness that the RPRT-0092 evaluation was to provide, there has been no substantiation that there are sufficient job-specific bioassay measurements available to ensure that the coworker data in OTIB-0081 are either bounding or representative of the exposure potential of subcontractors performing permit-driven work across the SRS site*" (SC&A, 2019a, p. 65).
- NIOSH's recent alternate evaluations do not address issues of completeness and representation of the permit-driven job-specific bioassay, nor do they speak directly to exposure potential for nonroutine exposures of transient subcontractors most likely affected.

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