

ORAUT-OTIB-0026
External Coworker Dosimetry Data for the
K-25 Site

Report from the Subcommittee for Procedure Reviews (SCPR)

Presented to the
Advisory Board on Radiation and Worker Health
Oakland, California
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ORAUT-OTIB-0026, “External Coworker Dosimetry Data for the K-25 Site”

ORAUT-OTIB-0026 provides guidance to allow dose reconstructors to assign doses to workers at the Oak Ridge Gaseous Diffusion Plant (K-25) who have no or limited monitoring data, based on site coworker external dosimetry data.

- **Revision 00:** Issued May 31, 2005.
- **Revision 00 PC-1:** Issued July 29, 2005, to incorporate changes regarding calculation and use of coworker doses.
- **Revision 00 PC-2:** Issued November 15, 2006, to incorporate release of ORAUT-OTIB-0052, “Parameters to Consider When Processing Claims for Construction Trade Workers.”
- SC&A’s review of Revision 00 PC-2 submitted October 29, 2007, contained three findings.

Finding 1: DR staff judgment is required to determine if the worker's dose is based on onsite ambient dose, 50th percentile, or 95th percentile dose. OTIB should develop a more prescriptive approach that enables categorizing workers without the routine need for professional judgment.

- NIOSH response:
 - Professional judgment is needed to appropriately categorize the worker's potential for exposure. It would be difficult to provide detailed prescriptive guidance due to the wide variety of data and information that is available to the DR staff.
 - DR staff also has guidance available regarding the application of coworker dose in ORAUT-OTIB-0020.
 - Any assumptions made as part of the DR staff's professional judgment are recorded in the DR report and passed through an ORAUT peer review as well as a DCAS review.
- SC&A agrees with NIOSH's response and the rationale provided. SC&A recommends closing this finding.
- ***Resolution as of December 9, 2008: The SCPR found NIOSH's response acceptable and closed this finding.***

Finding 2: Until approximately 1980, few of the dosimeters issued at the K-25 site were processed. Thus, the entire database for coworkers is based to a great extent on an unknown group of (presumably) higher exposure individuals, coupled with a large component attributable to the LOD/2 values.

- NIOSH response: This situation is addressed by a comparison of OTIB-0026 data with K-25 data, analyzed using a maximum likelihood method (Section 7 of OTIB-0020). This comparison showed the OTIB-0026 data to be very favorable.
- SCPR asked SC&A and NIOSH to provide further explanation of why this issue should be closed.
- SC&A analyzed the coworker data in OTIB-0026 to evaluate whether the dose data reported during the period 1975–1980, when most of the employees’ dosimeters were processed and recorded, were significantly different from those of the earlier period (1945–1975), when only selected employees were monitored and the results recorded. SC&A concluded the coworker data recommended in Table 2 of OTIB-0026 would provide for reasonable, and likely claimant-favorable, external doses.
- ***Resolution as of May 16, 2016: The SCPR considered SC&A’s coworker data analysis and closed this finding.***

Finding 3: The process for deriving data for the shallow dose in Table 2 resulted in zero values for the nonpenetrating component of dose for 19 of the 24 years addressed. OTIB-0026 considers this unimportant and states that IREP will automatically assign the penetrating dose to the nonpenetrating input, but this assumption may collapse if NIOSH modifies IREP in the future.

- NIOSH response: As the supporting language for this finding states, the approach in OTIB-0026 is “technically appropriate at this time.” Any future change to the method of input for IREP data would result in wide-ranging revisions to all technical information bulletins and site profile documents.
- SC&A concurs with this response and recommends closing this finding.
- ***Resolution as of December 9, 2008: The SCPR agreed with NIOSH and SC&A and closed this finding.***

Questions?