

# ORAUT-OTIB-0020

## Use of Coworker Dosimetry Data for External Dose Assignment

Report from the Subcommittee for Procedure Reviews (SCPR)

Presented to the  
Advisory Board on Radiation and Worker Health  
Albuquerque, New Mexico  
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# **ORAUT-OTIB-0020, “Use of Coworker Dosimetry Data for External Dose Assignment”**

- ORAUT-OTIB-0020 provides general information to allow dose reconstructors to assign doses to workers at U.S. Department of Energy (DOE) sites who have no or limited monitoring data, based on site coworker external dosimetry data.
- Revision 01, issued October 7, 2005.
  - SC&A review report June 8, 2006 (Rev. 0), contained 6 findings (on BRS).
  - Work Group, NIOSH, and SC&A worked on resolutions 2006–2007.
- Revision 02, issued December 4, 2008.
- Revision 03, issued November 14, 2011.
  - SC&A performed pre-review to determine whether there were sufficient technical changes to OTIB-0020 to warrant a full review.

## Finding 1: The applicability of OTIB-0020 lacks clarity and prescriptive guidance.

- NIOSH response:
  - OTIB is a **general use** document describing the methodologies and technical considerations for subsequent technical information bulletin (TIB) documents addressing specific coworker data sets for a wide variety of DOE sites.
  - **Prescriptive guidance** is found in the **site-specific coworker TIBs**.
  - Regarding clarity, the purpose of OTIB-0020 is stated clearly in Section 1.0: “This **TIB is to be used in conjunction with separate TIBs** or other approved documents that provide site-specific coworker data.”
- NIOSH and SC&A concurred that each specific coworker TIB should be used as a guide and not as a substitute for more site-specific TIBs. They also agreed that the only way to determine whether judgments about the use of coworker models are being used in a consistent manner is to review the dose reconstructions (DRs).
- *Resolution as of October 2, 2007: The SCPR found NIOSH’s response acceptable and closed this finding.*

**Finding 2: Side-stepping the use of OTIB-0020 and coworker data requires the dose reconstructor to make a quantitative determination of what corresponds to “reasonable” upper exposures that the unmonitored person may have received.**

- NIOSH explained that the context of the use of OTIB-0020 is critical. Use of coworker data is part of the hierarchy of data sources listed in IG-001 (Table 1.1) and PROC-0006 (Table 5.2). As a claim is processed using PROC-0006, data other than coworker data may be needed to complete the claim. These types of data may be found in site profile documents or in documents available through the SRDB system.
- SC&A concurs with this response.
- *Resolution as of October 2, 2007: The SCPR also agreed with NIOSH’s explanation and closed this finding.*

**Finding 3: The OTIB stipulates that site-specific coworker data may not be necessary for dose reconstruction and the dose reconstructor may select “reasonable upper limits, provided POC is less than 45%.” This places an unreasonable burden on the dose reconstructor and may lead to inconsistencies.**

- NIOSH’s response was the same as for Finding 2, that the use of coworker data is part of the hierarchy of data sources.
- SC&A concurs with this response.
- *Resolution as of October 2, 2007: The SCPR agreed with NIOSH and SC&A and closed this finding.*

**Finding 4: The dose reconstructor is placed into a situation where “professional judgment” must be made, i.e., 50th or 90th percentile dose. It is SC&A’s opinion that data needed for these decisions are unlikely to be available to the dose reconstructor.**

- NIOSH response:
  - Dose reconstruction staffs do not work in a vacuum. First, the DR staff will use **PROC-0006 to evaluate the claim.**
  - Professional judgment used during claim processing is supported by information from the **site profile documents** (and authors), the **coworker OTIBs**, the available **records from the site**, SRDB documents, discussions with site lead **DR staff**, and interaction with the project **principal dosimetrists.**
  - In addition, assumptions made about the choice of 50th or 95th percentile values must be **peer reviewed** by other DR staff as well as staff from OCAS.
- SC&A concurs with this response.
- *Resolution as of October 2, 2007: The SCPR concurred with NIOSH’s response and closed this finding.*

## **Finding 5: SC&A considers the 50th percentile constant value as one that is without scientific basis and not claimant favorable.**

- NIOSH response:
  - The 50th percentile value is **claimant favorable for certain types of energy employees** as described in OTIB-0020.
  - In addition to using the 50th percentile of measured dose, a claimant-favorable quantity of **missed dose is also added** to the 50th percentile dose (see Sections 6.0 and 7.0 of OTIB-0020).
  - A comparison of 50th percentile values for the K-25 site was conducted against values calculated using a maximum likelihood method. The results (Table 7-1 of OTIB-0020) show that the **50th percentile values consistently exceeded the maximum likelihood geometric mean values** and generally exceeded the maximum likelihood 95th percentile values as well.
- SC&A concurs with this response.
- *Resolution as of October 2, 2007: The SCPR concurred with NIOSH's response and closed this finding.*

**Finding 6: There are multiple elements described in the guidance/use of this OTIB that require the dose reconstructor to make subjective decisions or require information that is not likely to be available.**

- NIOSH response:
  - The reviewer presupposes that information will not be available to make informed decisions. The variety of sources of information available to DR staff has been discussed in the previous responses.
  - The assertion that DR staff cannot resolve complex issues in a consistent manner is not true.
  - The project has additional staff resources, as described previously, to assist the DR staff with respect to judgments on individual DR claims.
- SC&A concurs with this response.
- *Resolution as of October 2, 2007: Issue resolved to the satisfaction of the SCPR. No further action required. The SCPR closed the finding.*

# SC&A Pre-Review of ORAUT-OTIB-0020, Revision 03

- Because OTIB-0020 had been revised at least twice since it was last reviewed, the SCPR (at its 07/31/12 meeting) authorized SC&A to perform a pre-review to determine if there were sufficient technical changes to the document to warrant a full review.
- SC&A found that since the original review of OTIB-0020, NIOSH has made two changes to the document:
  1. The K-25 example coworker doses, which had been provided in Table 7-1, have been removed in response to a Quality of Science (10-year review) comment.
  2. The second paragraph of Section 3 was modified as agreed upon by the Subcommittee, NIOSH, and SC&A to address a finding made by SC&A on ORAUT-OTIB-0052, Revision 00 (i.e., Finding OTIB-0052-16).
- Neither of these changes to OTIB-0020 is of a technical nature; thus, a full re-review is not required and OTIB-0020, Revision 03, may be accepted without further comments. The SCPR agreed with this recommendation and closed the finding.

# Questions?