



## Presentation Handout

### History of Advisory Board Review of ORAUT-OTIB-0052

Meeting of the Subcommittee for Procedure Reviews

February 16, 2023

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At the May 25, 2022, meeting of the Subcommittee for Procedure Reviews (SPR), SC&A was tasked to present the history, reviews, presentations to the Advisory Board on Radiation and Worker Health (“Advisory Board”), and outstanding issues associated with ORAUT-OTIB-0052, “Parameters to Consider When Processing Claims for Construction Trade Workers” (“OTIB-0052”), and related documents. This document satisfies that tasking.

#### Chronology of ORAUT-OTIB-0052

**ORAUT-OTIB-0052, revision 00 PC-1:** On January 16, 2007, the National Institute for Occupational Safety and Health (NIOSH) revised sections 8.2 (guidance on the determination of penetrating dose for unmonitored construction trade workers (CTWs)), 8.3 (guidance on the determination of nonpenetrating dose for unmonitored CTWs), and 8.4 (guidance on the determination of internal dose) to provide consistent guidance for dose reconstruction (NIOSH, 2007a).

**SC&A draft review of ORAUT-OTIB-0052, revision 00:** At the September 19–21, 2006, Advisory Board meeting, SC&A was tasked with performing a review of ORAUT-OTIB-0052. SC&A’s review was submitted July 3, 2007 (SC&A, 2007). As a result of this review, SC&A identified 16 findings (SC&A, 2011). Table 1 summarizes the 16 findings and their resolution.

**OCAS-PER-014, revision 0:** NIOSH issued OCAS-PER-014, revision 0, “Construction Trades Workers,” on November 28, 2007 (NIOSH, 2007b), to evaluate CTW claims that had been adjudicated at U.S. Department of Energy (DOE) sites with existing external coworker studies before the issuance of OTIB-0052.

**ORAUT-OTIB-0052, revision 01:** On February 17, 2011, NIOSH issued revision 01 of OTIB-0052 (NIOSH, 2011) to address five of the findings from SC&A’s review of revision 00 PC-1.

**SC&A draft review of ORAUT-OTIB-0052, revision 01:** SC&A issued its review of ORAUT-OTIB-0052, revision 01, on July 11, 2011 (SC&A, 2011). As a result of many SPR meetings, 6 of the 16 findings identified in the review of OTIB-0052, revision 00, were closed, 3 findings were transferred to the ORAUT-OTIB-0020 review, 1 finding was in abeyance, and 6 findings remained in progress. The purpose of the report was to determine which of SC&A’s findings were addressed by OTIB-0052, revision 01, and to provide recommendations to the Subcommittee on the status of the remaining findings.

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**SC&A's draft review of OCAS-PER-014, revision 0:** On March 16, 2012, SC&A issued its review of OCAS-PER-014 (SC&A, 2012). The review of OCAS-PER-014 identified six findings. Three of the findings were identified as “conditional” because SC&A was unable to confirm data due to the lack of or restrictive access to information. One finding identified NIOSH's failure to proceed with the evaluation of the 977 potentially affected claims, and two findings related to unresolved issues from SC&A's review of ORAUT-OTIB-0052, revision 00 (SC&A, 2007).

**ORAUT-OTIB-0052, revision 02:** NIOSH issued revision 02 of ORAUT-OTIB-0052 on July 24, 2014, to add language to the Purpose, Scope, section 7.0, and section 8.0 to clarify applicability of the OTIB to CTWs who could have worked for prime management and operations contractors and DOE sites (NIOSH, 2014).

**DCAS-PER-062, revision 0:** NIOSH issued DCAS-PER-062 on November 2, 2017 (NIOSH, 2017), in response to the issuance of revisions 01 and 02 of OTIB-0052 (NIOSH 2011, 2014). Both revisions to OTIB-0052 added language to clarify guidance for the dose reconstruction of CTWs, hence the need for this program evaluation report (PER).

**SC&A's draft review of DCAS-PER-062, revision 0:** On May 31, 2018, SC&A issued its review of DCAS-PER-062 (SC&A, 2018). This review identified two observations. Observation 1 stated that SC&A could not find documentation indicating that a coexposure model was being developed or that a PER is forthcoming for Albany Research Center. Observation 2 stated that to ensure that appropriate ORAUT-OTIB-0052 guidance is applied to all cases evaluated under planned PERs for the 20 sites listed in table 3-1, SC&A should (1) maintain a list of these sites, (2) be informed when the PER is issued, and (3) review the PER to assess whether the selection of reworked cases will adequately capture all potential CTWs. These observations were closed at the February 13, 2019, SPR meeting.

## **Previous SPR Presentations to the Advisory Board**

### *March 12, 2013, Advisory Board meeting*

**SPR presentation:** The SPR presented “ORAUT-OTIB-0052: Parameters to Consider When Processing Claims for Construction Trade Workers,” on revisions 00 and 01, to the Advisory Board at the March 12, 2013, meeting (ABRWH, 2013a).

**Summary:** The procedure provides guidance for developing a coworker model for unmonitored CTWs. The OTIB specifies that CTW coworker external doses should be 1.4 times all monitored worker (AMW) doses and CTW coworker internal doses be equal to AMW doses, except for Hanford. Ratios were developed based on data from the Savannah River Site (SRS), Y-12, K-25, Rocky Flats Plant, Idaho National Laboratory (INL), and Hanford.

**Table 1. 16 total findings from review of ORAUT-OTIB-0052, rev. 00**

#	Finding	Resolution
1	Does not address differences in doses received by different construction occupations.	November 14, 2011 – Closed NIOSH added a paragraph to ORAUT-OTIB-0020 explaining that for routinely exposed workers (i.e., workers who were expected to have been monitored), the 95th-percentile dose should be applied.
2	The dose databases used are lacking significant data during the early operational years.	June 2008 – Closed NIOSH concurs with SC&A in their July 30, 2007, report where on page 77 they postulate a reason for relatively low CTW exposure during early years of site operations.
3	The dose databases do not always identify who were CTWs, and for CTWs, what were their occupations.	June 2008 – Closed SC&A agrees with the NIOSH Initial Response that the dose databases constitute the best available source of information for a large population. The SPR concluded that the issue should be Closed.
4	NIOSH did not make modifications to the internal dose calculation methodology, as they indicated to the Center to Protect Workers' Rights (CPWR) that they would.	June 2008 – Closed While developing OTIB-0052, NIOSH determined that a better course of action was to use actual CTW bioassay data rather than assumed intakes based on air concentration (which was the basis for the CPWR discussions).
5	Plutonium and/or uranium were used to compare internal CTW to AMW doses. What about other radionuclides?	July 14, 2011 – Closed In Revision 01, NIOSH placed a limitation on the use of the internal dose reconstruction portions of OTIB-0052. Closed based on the change made by NIOSH in revision 01 and SC&A's concurrence.
6	Does not address how to determine CTW doses at sites that do not have a coworker OTIB.	June 24, 2008 – Closed SC&A agrees with the NIOSH Initial Response that for sites lacking coworker studies, the dose for unmonitored CTWs is reconstructed in the same way as other unmonitored workers with a potential for exposure or intakes.
7	Does not address how to determine neutron CTW doses.	June 24, 2008 – Closed SC&A agrees with the NIOSH Initial Response (provided in August 2007) that external doses were not intentionally differentiated according to gamma or neutron doses.

#	Finding	Resolution
8	All SRS external doses are from the HPAREH. Need to evaluate other dose databases, e.g., Fayerweather, SRSABST.	June 24, 2008 – Closed SC&A agrees with the NIOSH Initial Response (provided in August 2007) that the HPAREH was shown to be claimant favorable relative to the other SRS databases.
9	Evaluation is based on DOE annual exposure report. Need to address the MUD dose database for INL.	July 14, 2011 – Closed Closed based on SC&A's concurrence that the data in the annual reports is equivalent to the MUD data for the overlapping time periods.
10	For post-1974 ratio of penetrating doses experienced by CTWs to other workers in OTIB-0052, does not agree with NIOSH 2005 (INL epidemiologic study), which indicates a correction factor closer to 2, and perhaps greater for some job types.	July 14, 2011 – Closed Closed based on a clarifying statement that NIOSH added to OTIB-0052, rev. 01, section 5.13.
11	Claimant favorability of OTIB-0052 approach for INL early period internal dose (to 1965) cannot be determined.	July 14, 2011 – Closed Closed based on the statement that NIOSH added to OTIB-0052, rev. 01, section 5.14.
12	The REX dose database was not used. Need to evaluate results based on the REX database to those given.	November 25, 2014 – Closed In December 2011, NIOSH proposed an editorial change to replace the current wording in section 6 of rev. 01. The agreed-upon wording was inserted into OTIB-0052, rev. 02.
13	The CTW doses need to be compared consistently to either AMWs or Non-CTWs. Currently, different sections perform different comparisons.	April 10, 2012 – Closed NIOSH demonstrated that this had a minor effect on the results (i.e., less than the margin of uncertainty for dosimetry programs, ~30%). Subcommittee changed status to Closed.
14	The handling of “missing dose” needs to be consistent. Currently, some sections include “missing dose” while others do not.	July 31, 2012 – Closed NIOSH demonstrated that the inclusion of missed dose had a minor effect on the CTW-to-AMW ratio (i.e., less than the margin of uncertainty for dosimetry programs, ~30%).
15	No instructions are given as to what to do if high or low cumulative exposures are suspected.	April 11, 2012 – Closed Transferred to OTIB-0020; statement added to OTIB-0020 to alert the dose reconstructor that certain CTWs may need special consideration. (Refer to the discussion of finding 1.)

#	Finding	Resolution
16	Some construction occupations (e.g., pipefitters) receive exposures larger than the average CTW exposure and may receive exposures above the 95th percentile CTW exposure.	April 11, 2012 – Closed Transferred to OTIB-0020; statement added to OTIB-0020 to alert the dose reconstructor that certain CTWs may need special consideration. (Refer to the discussion of finding 1.)

**2013 OTIB-0052 Advisory Board discussions:** There was a significant amount of discussion about OTIB-0052, in which several Advisory Board members raised the following questions (ABRWH, 2013b, pp.107–140):

- How were the CTW ratios established?
- Is there validity in establishing such a ratio?
- What kind of evaluation quantitatively needs to be done when applying this or determining whether to apply this at a particular site?
- Who made the decision that we were going to put construction workers in a category of using coworker data?
- Why are we using coworker data for unmonitored workers, when it appears these people should just be put into a Special Exposure Cohort?
- What is the science behind the 1.4 correction factor?
- Do you apply correction factor to every job title in the construction industry?
- How it is OTIB-0052 being used, and where is it being applied?

**Board path forward:** Since the relevant NIOSH staff member was not available to answer these questions, it was determined that the Advisory Board would need clarification at the next meeting on how this OTIB is being used. If the approach is being used, then there are further issues about how dose reconstructors have interpreted the OTIB and applied the data.

The next Advisory Board meeting was held on July 16–17, 2013. However, the OTIB-0052 followup discussion was neither on the agenda nor discussed at this meeting.

#### *2017 Advisory Board presentation on OTIB-0052 and followup discussions*

**SPR presentation:** The SPR presented the same 16 findings and associated resolutions to the Advisory Board at the December 13, 2017, meeting (ABRWH, 2017a).

**Advisory Board discussion:** Advisory Board members raised the following questions (ABRWH, 2017b, pp. 176–198):

- **General Comment:** A side issue was raised regarding the information provided in the Board Review System (BRS) for OTIB-0052 was lacking meaningful followup information, and the BRS could benefit from more clarity and better tracking information.

- **Question:** It appears there may be a lot of updating to do with OTIB-0052, because of coworker models and other related issues that are going on at other sites, such as SRS, Idaho, Hanford, etc.

**Response:** NIOSH agreed but stated that they will continue using OTIB-0052 and the CTW correction factor of 1.4 until other data become available. NIOSH is in the testing phase with an SRS draft implementation guide, so that may prompt changes.

- **Question:** The finding 8 response from NIOSH indicates that no value is gained by using information other than that contained in the HPAREH database. However, HPAREH only contains dosimeter data for workers actively employed in 1979 or later. Is there not a value to be gained from studying workers who terminated during a period before 1979?

**Response:** NIOSH responded that there were discussions on the application of the HPAREH to workers who terminated prior to 1979; however, they were not prepared to provide details that would answer the question. The Advisory Board requested that NIOSH provide a followup regarding previous discussions to clarify this question.

The next Advisory Board meeting was held on April 11, 2018. Based on the transcripts, there was no followup discussion about OTIB-0052.

## References

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