

ORAUT-OTIB-0023

Assignment of Missed Neutron Doses Based on Dosimeter Records

Report from the Procedures Review Subcommittee

Presented to the
Advisory Board on Radiation and Worker Health
Idaho Falls, Idaho

July 16–17, 2013

ORAUT-OTIB-0023 Summary

- The purpose is to provide information to allow dose reconstructors to determine when it is appropriate to assign missed neutron doses at DOE sites using the $n\text{LOD}/2$ method or an “alternative” method.
- Use of the “alternative” method should be applied when the missed neutron central estimate (i.e., $n\text{LOD}/2$) exceeds 75% of the assigned photon dose (i.e., from recorded dosimeter dose + missed dose).

ORAUT-OTIB-0023 Timeline

- March 7, 2005 – NIOSH Issued Revision 0
- June 8, 2006 – SC&A Review (SCA-TR-TASK3-0001)
- September 25, 2007 – NIOSH Initial Response
- October 2, 2007; November 7, 2007; January 7, 2008; June 24, 2008 – Discussed at Subcommittee Meetings; Findings Resolved
- November 5, 2007 – SC&A and NIOSH held conference call to discuss OTIB-0023 findings.
- May 14, 2008 – NIOSH Issued Revision 1, incorporated comments from Procedures Review Subcommittee, and aligned with OCAS-IG-001.

Findings Summary: ORAUT-OTIB-0023

- 8 Findings in total – complete histories captured in the Board Review System (BRS)
 - <http://app-cinc-dcas.cdc.gov:8106/documents/default.aspx?mode=ASSIGNED>
 - Resolution spanned 2 years (6/2006 to 6/2008)
 - All 8 findings are Closed
- The following slides provide summary information on the resolution of each Finding – Details in BRS and handout.

Findings Summary: ORAUT-OTIB-0023

Many of the findings/resolutions deal with OTIB-0023, Rev. 00, Section 6, Condition #1, which SC&A believed to be inconsistent with OCAS-IG-001:

- **IG-001, Section 2.2.2.2.1:** “ ..., when the neutron missed dose central estimate ($n\text{LOD}/2$) ***exceeds 75% of the photon dose*** (dosimeter dose + missed dose), the ***[neutron] exposure should be evaluated*** to determine if it should be considered to be an unmonitored exposure.”
- **OTIB-0023, Section 6:** “Missed ***neutron doses do not need to be assigned*** if:
 1. The neutron missed dose central estimate ($n\text{LOD}/2$) would ***exceed 75% of the photon dose*** (dosimeter dose + missed dose).
[Emphasis added.]

ORAUT-OTIB-0023 Review Findings

#	Finding	Resolution
1	The procedure lacks clarity by failing to provide clear definition(s), and is inconsistent in its terminology.	Closed on June 24, 2008. OTIB-0023, Revision 1, addressed this finding.
2	For the alternative method, detailed information is required that will not be readily available to the dose reconstructor.	Closed on June 24, 2008. Rev. 00, Section 6, Condition #1 was eliminated by Rev. 01, which resolves Finding 2.

ORAUT-OTIB-0023 Review Findings

#	Finding	Resolution
3	<p>References OCAS-IG-001 as the basis for its guidance; however, guidance contained in OTIB-0023 and OCAS-IG-001 is inconsistent.</p> <p>Review Objective 1.4: “Is the procedure consistent with all other procedures that are part of the hierarchy of procedures employed by NIOSH for dose reconstruction?”</p>	<p>Closed on January 7, 2008.</p> <p>OTIB-0023, Revision 1 (and IG-001, Rev. 3), corrected the inconsistencies between IG-001 Section 2.2.2.2.1 and OTIB-0023 Section 6.</p>
4	<p>It is questionable whether dose reconstructors are in a position or have the information to make the potentially subjective decisions required.</p>	<p>Closed on June 24, 2008.</p> <p>Rev. 00, Section 6, Condition #1 was eliminated by Rev. 01, which resolves Finding 4.</p>

ORAUT-OTIB-0023 Review Findings

#	Finding	Resolution
5	<p>Refer to Finding OTIB-0023-03 for Review Objective 1.4.</p> <p>Review Objective 4.2: “Does the procedure adhere to the hierarchical process as defined in 42 CFR 82.2?”</p>	<p>Closed on January 7, 2008.</p> <p>The Subcommittee indicated that issue OTIB-0023-03 was "Closed," since this issue refers to issue OTIB-0023-03, it has also been "Closed."</p>

ORAUT-OTIB-0023 Review Findings

#	Finding	Resolution
6	The reconstruction of missed neutron doses from “...numerous neutron measurements and accurate time information” is unrealistic.	Closed on June 24, 2008. Rev. 00, Section 6, Condition #1 was eliminated by Rev. 01, thus rendering Findings 6, 7, and 8 moot.
7	The regulatory recommendation for “striking a balance between the need for technical precision and process efficiency” has been ignored.	
8	The generic assumption of a neutron-to-photon ratio of 0.75:1 as a limiting value for the application of $nLOD/2$ is neither technically defensible nor claimant favorable.	

Questions?