



Review of ORAUT-OTIB-0022, Revision 00

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Advisory Board on Radiation and Worker Health,
Subcommittee for Procedure Reviews (SPR)

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ORAUT-OTIB-0022 (“OTIB-0022”)

- ◆ Title: “Guidance on Wound Modeling for Internal Dose Reconstruction,” revision 00, issued November 18, 2005
- ◆ Provides guidance on modeling wound contamination to estimate internal plutonium doses for dose reconstruction purposes
- ◆ SC&A reviewed technical information bulletin OTIB-0022 as part of the second set of procedure reviews:
 - Revision 0 issued June 2006
 - Revision 1 issued [August 2007](#)
- ◆ SC&A’s review identified no findings

OTIB-0022 overview

- ◆ Introducing plutonium into the body via a wound can result in the following (assuming no medical intervention):
 - Absorbed into blood
 - Transported to lymph nodes
 - Retained locally
 - Removed naturally
- ◆ Dose significance depends mainly on plutonium absorbed into systemic circulation or lymph nodes
- ◆ Local retention is less critical unless cancer develops at the site

OTIB-0022 wound modeling

- ◆ Assumes two exponential compartments representing short- and long-term absorption, with parameters adjustable for best fit
- ◆ Estimates fraction of wound deposition absorbed into the bloodstream, which can be evaluated using urinary excretion data
- ◆ Initial wound deposition measured in vivo may be higher than the absorbed fraction due to insoluble material

OTIB-0022 discussion of medical intervention

- ◆ Treatments like chelation therapy and tissue excision can significantly reduce systemic dose
- ◆ Chelation therapy's effect is modeled based on urinary excretion after last treatment

SC&A's review of OTIB-0022

- ◆ Suggested wound model for plutonium is reasonable as a starting point for input of parameters into the Integrated Modules for Bioassay Analysis (IMBA) program wound model
- ◆ Wound model for other radionuclides is not specific but can be applied if sufficient bioassay data are available

Summary of Board Review System entries for OTIB-0022

SC&A's review of this document produced no comments, and SC&A agrees with its contents and conclusions.

◆ 8/24/2007

- No response required.
- (Note: Not discussed at the August 29, 2007, SPR meeting.)

◆ 10/2/2007

- SC&A finds no issue here.
- Not addressed by the working group but, given SC&A's affirmation of the dose reconstruction approach, it is judged to be a closed issue.

The SPR never formally closed OTIB-0022.



Questions?