

**Office of Compensation Analysis and Support**  
**Program Evaluation Report**

Document Number: OCAS-PER-018  
Effective Date: 7/31/2007  
Revision No. 0

**Los Alamos National Laboratory TBD Revision**

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RECORD OF ISSUE/REVISIONS

ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	REV. NO.	DESCRIPTION
7/31/2007	7/31/2007	0	New document to determine which previously completed claims require evaluation for the effect of revising the LANL TBD.

**1.0 Description**

The Los Alamos National Laboratory Occupational External Dose Technical Basis Document (ORAUT-TKBS-0010-6) was revised on 5/30/2007. This revision (revision 1) superseded revision 0 which was issued on 5/10/2005. The purpose of this Program Evaluation Report is to evaluate the effect of the change to ORAUT-TKBS-0010-6 on previously completed Dose Reconstructions.

**2.0 Issue Evaluation**

The primary modification to Revision 0 of ORAUT-TKBS-0010-6 is a change in the neutron dose estimate for individuals who were potentially exposed to neutron but were not monitored. Both this revision and the earlier version apply a neutron-to-photon ratio to the worker's monitored photon dose to determine potential neutron dose. Both revisions provide a median and an upper bound ratio and allow the upper bound ratio to be used as a maximizing assumption. However, the revision to the ratios caused the median values to increase and all but one of the upper bound values decreased. This revision also added a category of work locations. The estimates of dose for unmonitored workers may increase or decrease. Because this change only applies to worker's who were not monitored for exposure to neutrons, it will not affect dose estimates for individuals with personal neutron monitoring data.

Another modification made in revision 1 is the change in the energy distribution for photon radiation at the Los Alamos Meson Physics Facility at the Los Alamos Neutron Science Center (LAMPF/LANSCE) in technical area 53. This change affected the assignment of non-penetrating dose to electron or photons less than 30 keV. It also affected the assignment of penetrating dose to medium energy photons (30 keV to 250

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kev) or high energy photons (greater than 250 kev). That change would affect not only the dose assigned but the effect of that dose on the probability of causation results for those claims which had a dose reconstruction performed using ORAUT-TKBS-0010-6, Revision 0.

### **3.0 Plan for Resolution or Corrective Action**

It is not possible to precisely determine the effect of the change to LAMPF dose estimates on Probability of Causation without a new Dose Estimate. However, it is possible to determine if the LAMPF energy distribution was used in the original dose estimate. It is also possible to determine if an individual was assigned unmonitored neutron dose based on neutron to photon ratios and whether the ratio used will increase or decrease under the new revision to the TBD.

In order to determine the effect of these factors, the individual cases must be re-examined. Since the unmonitored neutron dose has the potential of affecting every claim, all claims completed prior to May 30, 2007 from Los Alamos National Laboratory with a Probability of Causation less than 50% will require a review. NIOSH will request claims be returned in which the LAMPF energy distributions were originally assigned using Revision 0 for a new dose estimate. NIOSH will also request the return of claims in which the original dose estimate utilized a neutron to photon ratio that has now increased. For all other claims, NIOSH will review the claim against any other revisions to other technical documents that may affect the claim. DOL will be provided with a statement for each claim indicating what changes the claim was reviewed against and why the change did not affect the particular dose estimate or the Probability of Causation calculation. For any claims where it is not possible to provide this statement without a new Dose Estimate, NIOSH will request that DOL return the claim for a new Dose Estimate.

NIOSH has determined that 300 claims meet the criteria for further review. The remaining cases with a probability of causation less than 50% (1 claim) were completed using revision 1 of the TBD. NIOSH will provide DOL with the list of 300 claims as well as a determination on each claim as to whether a new Dose Estimate is required.