

<b>Division of Compensation Analysis and Support</b> <b>Program Evaluation Report</b>	Document Number: DCAS-PER-055 Effective Date: 9/12/2014 Revision No. 0
<b>TBD-6000 Revision</b>	
Page 1 of 3	
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RECORD OF ISSUE/REVISIONS			
ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	REV. NO.	DESCRIPTION
9/12/2014	9/12/2014	0	New document to determine the effect on previously completed claims due to issuing revision 1 of Battelle-TBD-6000.

### 1.0 Description

On 6/17/2011, revision 1 of Battelle-TBD-6000 was issued. This TBD provides internal and external doses for several tasks with uranium metal that are typical in the weapons program. Associated with the TBD are several independently written and approved appendices. Each of these appendices is applicable to a particular site and provides analysis of site specific information supplemented by TBD-6000. For some sites, TBD-6000 is used without an appendix resulting in a stand-alone dose reconstruction. The cases from these sites are the primary focus of this PER. Sites that have an existing appendix or standalone TBD will first require a revision to those documents followed by a PER to evaluate the effect of that revision.

### 2.0 Issue Evaluation

The revision to the TBD includes new and revised descriptions and editorial changes. It also contains changes that would cause dose estimates to increase or decrease. The changes that result in an increased dose estimate are described below.

First, Table 3.10 contains conversion factors to determine the beta and gamma dose rates from uranium surface contamination. The photon value was recalculated in revision 1 causing a slight decrease. A beta dose rate value was added that did not exist in revision 0.

The second change is that revision 0 estimated surface contamination from airborne activity by allowing it to settle. For internal dose, the calculation assumed the airborne settled for 365 days continuously. However, for external dose, some, but not all, the calculations assumed the airborne settled for only 7 days. During a review of TBD-6000,

<b>Division of Compensation Analysis and Support Program Evaluation Plan</b>	Document Number: DCAS-PER-055
Effective Date: 9/12/2014      Revision No. 0	Page 2 of 3

it was determined that a 30 day settling time was appropriate and revision 1 used this value.

In Table 5.1 and the same value summarized in Table 5.3, the external dose from surface contamination was based on 365 days of settling. As a result, the photon values in these tables decreased in revision 1. Beta dose was not accounted for in revision 0 but is included in revision 1. Therefore, the new beta doses included in these tables will result in increased reconstructed doses over revision 0. .

In Table 6.4, the photon dose from contamination is higher in revision 1 due to the dose in this table being based on 7 days of settling. The beta dose is also higher in this table because revision 0 did not account for beta dose from contamination.

As a result of these changes, claims with external dose that was calculated from surface contamination could need to be re-evaluated.

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

The first step in identifying the population of claims to consider relied on a text search of the dose reconstruction reports for all previously completed claims. The reports, which were searched for any occurrence of “6000”, identified 809 individual cases.

A number of identified cases were associated with a site for which a site-specific PER was already conducted. Those PERs included the revision to TBD-6000 so those cases were eliminated. That eliminated 166 cases from further evaluation.

Additionally, a number of cases were from sites that had an existing appendix and/or were already scheduled for a site specific PER that would include the revision to TBD-6000. Those cases were also eliminated from further review for this PER which resulted in removing an additional 356 cases.

An additional 50 cases were eliminated because the text search result was not associated with TBD-6000 or TBD-6000 was only mentioned but not used in the dose reconstruction.

Another 56 claims were removed that had been completed using revision 1 of TBD-6000.

Lastly, 151 claims were removed from consideration because a review of the original dose reconstruction indicated revision 1 would produce the same or lower values. Examples of this include cases where only internal dose from TBD-6000 was used or cases where only the recycled uranium fractions from TBD-6000 were used. However, a few of these claims has a very small increase in external dose due to photon exposure

<p style="text-align: center;"><b>Division of Compensation Analysis and Support</b></p> <p style="text-align: center;"><b>Program Evaluation Plan</b></p>	<p>Document Number: DCAS-PER-055</p>
<p>Effective Date: 9/12/2014      Revision No. 0</p>	<p>Page 3 of 3</p>

from surface contamination, while the photon dose from working with the metal was unchanged. Overall, this change in photon dose represented an increase in the external dose of between 0.03% and 1.6%, depending on the specifics with the case. It would take a probability of causation (POC) equal to 49.60% in the original dose reconstruction for the new POC to reach 50% with a 1.6% increase in all the doses. This change would not affect all doses but only the external dose. All cases in this group were reviewed and the original POC for all was below 45%, so these cases were not evaluated further.

Dose for the 30 claims that remained were recalculated using all the current methods applicable to the case. Twenty nine resulted in a new POC below 45%. One resulted in a new POC greater than 50%.

NIOSH will provide the Department of Labor with the list of all the claims evaluated under this PER. Further, NIOSH will request the return of the case that would now result in a probability of causation greater than 50%.