

<b>Division of Compensation Analysis and Support</b> <b>Program Evaluation Report</b>	Document Number: DCAS-PER-041 Effective Date: 7/12/2012 Revision No. 0
<b>OTIB-6 Revision</b>	
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RECORD OF ISSUE/REVISIONS			
ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	REV. NO.	DESCRIPTION
7/12/2012	7/12/2012	0	New document to determine the effect on previously completed claims due to revision ORAUT-OTIB-0006, Dose Reconstruction from Occupational Medical X-ray Procedures.

**1.0 Description**

Revision 4 of the Dose Reconstruction from Occupational Medical X-Ray Procedures (ORAUT-OTIB-0006) was issued on 6/20/2011. The previous version (revision 3 PC-1) was issued on 12/21/2005. Revision 2 was issued 12/29/2003 resulting in minor increases in the dose to some organs. This change (and previous changes) was addressed in OCAS-PER-002. Revision 3 primarily added dose estimates for x-ray procedures not previously addressed. That does not constitute an increase in dose but rather the implementation of an estimate previously unnecessary. Revisions 3 PC-1 fixed typographical error and added standard language but did not affect the estimated dose.

**2.0 Issue Evaluation**

Several changes to the estimated dose were made in revision 4. Some of these changes resulted in a slight decrease in the estimated dose. The changes that resulted in increases in the estimated doses are:

- An increase in the estimated dose from a lateral projection of a lumbar spine x-ray for all years for the stomach, bone surfaces, liver, gall bladder, spleen and remainder organs.
- Increase in the estimated dose to the ovaries from pelvic x-rays through the end of 1970.

ORAUT-OTIB-0006 is a complex wide document used for sites in which better information is not available. Default frequencies in ORAUT-OTIB-0006 do not include

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lumbar spine or pelvic x-ray procedures. Therefore, with no other information, no lumbar spine or pelvic x-ray dose would be assigned.

ORAUT-OTIB-0006 does not necessarily affect sites for which site specific information is available. However, some site technical basis documents (TBDs) refer the reader to ORAUT-OTIB-0006 for estimates of x-ray doses. Therefore, each TBD was reviewed to determine if ORAUT-OTIB-0006 was used. In this PER, TBD is used to refer to any TBD, TIB, Appendix or any other dose reconstruction methodology. Many TBDs indicated ORAUT-OTIB-0006 was to be used but few required a lumbar spine or pelvic x-ray. Most assumed a default pre-employment, annual and termination PA chest x-ray and were therefore unaffected by this revision.

Other TBDs indicated that the lumbar spine or pelvic x-ray values were from ORAUT-OTIB-0006 but then provided the values to be used in the TBD itself. In those cases, current dose reconstructors would use the values in the TBD. Therefore, those TBDs must first be revised and then claims associated with those revisions will be evaluated in a future PER.

The following TBDs require or allow a lumbar spine or pelvic x-ray, and refer the reader to ORAUT-OTIB-0006 for the appropriate dose.

- Harshaw – assumes a pelvic x-rays between 1942 and 1944 and again between 1950 and 1951 for process workers (ORAUT-TKBS-0022 rev 1, page 18).
- Brookhaven National Laboratory– indicates lumbar spine x-rays may have been taken but are not an assumed default. ORAUT-OTIB-0006 would be used if medical records include a lumbar spine x-ray (ORAUT-TKBS-0048 rev 1, page 48).
- Extrusion Plant – assumes a pre-employment lumbar spine x-ray between 1962 and 1975 for hourly employees and prior to 1986 for laborers (ORAUT-TKBS-0056, Rev 0, page 30). ORAUT-OTIB-0079 however, indicates x-rays were taken off-site until 1977 and after 1996. Therefore, the default lumbar spine x-rays to be accounted for would only be pre-employment x-rays for laborers who started work between 1977 and 1986.
- Paducah Gaseous Diffusion Plant – indicates lumbar spine x-rays were possible in early years and refers reader to Attachment A for the dose. Attachment A in earlier versions of the TBD was removed in the current revision. Therefore it is assumed readers would refer to ORAUT-OTIB-0006. Earlier versions of the Paducah TBD provide higher values than ORAUT-OTIB-0006 but some estimates could have been performed using Revision 3 of ORAUT-OTIB-0006 which has now been revised resulting in an increase in the dose estimate (ORAUT-TKBS-0019-3, rev. 2, page 14).

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

#### **3.1 Determining the population of potential affected claims**

Harshaw and the Extrusion Plant had assumed x-ray projections affected by revision 4 while Brookhaven and Paducah cases were to have lumbar spine x-ray dose applied only if records indicated there had been a lumbar spine examination. Therefore, the population of potentially affected claims was determined differently for each site.

For Harshaw, all claims with a probability of causation less than 50% were searched to determine which had employment during 1942, 1943, 1944, 1950 or 1951. This search identified six claims.

For the Extrusion Plant, a search was conducted to identify all claims with a probability of causation less than 50% who started their employment at the Extrusion Plant between 1977 and 1985. This resulted in five claims matching these criteria.

For Brookhaven National Laboratory, lumbar spine x-rays were assigned only if medical records indicate a lumbar spine examination was performed. Therefore, a text search of all Brookhaven dose reconstruction reports was conducted. The search identified five claims with a probability of causation less than 50% and with the word “lumbar” or “spine” used in the text of the dose reconstruction report.

For Paducah, lumbar spine x-rays are only assigned if medical records indicate a lumbar spine examination was performed. Therefore, a text search of all Paducah dose reconstruction reports was conducted. The search identified 219 claims with a probability of causation less than 50% and with the word “lumbar” or “spine” used in the text of the dose reconstruction report.

#### **3.2 Determination of claims affected by TIB revision.**

The six Harshaw claims identified above were reviewed further. It was determined that dose for three of the six was recently recalculated as part of the DCAS-PER-0034 review. This was done after ORAUT-OTIB-0006 was revised and the recalculated dose included all current methods. None of those three resulted in probability of causation above 45%. One of the remaining three claims was employed in the accounting department. Pelvic x-rays were to be assigned to process area workers so no change would occur to the dose estimate. Dose was recalculated for the remaining two claims using all currently approved methods. The resulting probability of causation was less than 45% for both cases.

Lumbar spine x-rays are assigned only to laborers at the Extrusion Plant. Three of the five Extrusion Plant claims identified above had job titles inconsistent with a laborer.

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The remaining two claims were diagnosed with cancers that are not affected by the revision to OTIB-0006.

Each of the five Brookhaven National Laboratory claims identified above was diagnosed with cancers that are not affected by the revision to OTIB-0006.

Of the 219 Paducah claims identified above, 198 were diagnosed with cancers that would not be affected by the revision to OTIB-0006. Five of the remaining 21 claims were found not to have lumbar spine x-rays assigned. The word “lumbar” or “spine” appeared in the text for other reasons. Twelve of the claims were found to have lumbar spine x-ray dose assigned that was higher than revision 4 of OTIB-0006. Most of those were the result of assigning both an AP view and a lateral view. This was common when lumbar spine x-rays were taken. The dose for the lateral view increased in revision 4 but the dose for the AP view decreased. The resulting dose estimate decreases slightly if both views are assigned. Three claims were assigned x-ray dose based on an organ not affected by revision 4 of OTIB-0006. The last claim was found to have been pulled from dose reconstruction when it was found that it met the criteria for an SEC. Therefore, compensation for this case no longer depended on a dose reconstruction.

As a result of this review, the revision to ORAUT-OTIB-0006 did not result in probability of causation of any previously completed claims rising to greater than 50%. A listing of those claims evaluated and their final disposition will be forwarded to the Department of Labor.