

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

Document Number: DCAS-PER-038
Effective Date: 7/24/2012
Revision No. 0

Hooker Electrochemical TBD Revisions

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RECORD OF ISSUE/REVISIONS

ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	REV. NO.	DESCRIPTION
7/24/2012	7/24/2012	0	New document to determine which previously completed claims require evaluation for the affect of revising the Hooker Electrochemical TBD.

1.0 Description

A Hooker Electrochemical site specific appendix to Battelle-TBD-6001 (Appendix AA) was issued 6/15/2007. This was superseded by a stand-alone Technical Basis Document (TBD) on 4/4/2011 (DCAS-TKBS-0009 rev. 0). On 6/16/2011, revision 1 was issued to that document to correct an error.

2.0 Issue Evaluation

The changes made in revision 1 of the TBD caused external doses to operators to decrease during the operational period. No increase in any doses occurred in revision 1. Revision 0 however, did result in some increased dose when compared to Appendix AA. Therefore, Appendix AA is compared to Revision 1 in this PER in order to itemize the increased dose.

Intakes rates and external dose rates are assigned based on the type of job an employee performed. Different doses are assigned in the operational period than the residual period. Also, units used in Appendix AA are different than those used in the TBD. Therefore, a detailed listing of intake rates and external dose rates are included in Attachment A. Appendix AA values were converted to the same units used in the TBD to make comparison easier.

Uranium intake rates assigned during the operational years in Appendix AA depended on the type of job an employee performed. In revision 1, all employees are assigned the same intake rate. The revision 1 intake rate is slightly lower than the Appendix AA intake rate for operators but higher for everyone else.

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External dose rates assigned during operational years in Appendix AA are higher than those assigned in revision 1 of the TBD. Therefore, operational year external dose was not evaluated further in this PER.

Uranium intake rates assigned during the residual contamination period in Appendix AA are identical to the intake rates assigned in revision 1 of the TBD. Therefore, residual period internal dose was not evaluated further in this PER.

External dose rates from photon radiation assigned in the residual contamination period in Appendix AA are higher than those assigned in revision 1 of the TBD. However, the external shallow dose rates are higher in the residual period in revision 1 to the TBD.

Therefore, the dose assignments that increased in the current revision compared to previous documents are:

- Uranium intakes during the operational years for everyone not originally assigned the operator intakes (labeled Plant Floor High intakes in Appendix AA).
- Shallow dose rates during the residual period for all job categories.

3.0 Plan for Resolution or Corrective Action

Based on the issues described above, two populations of claims potentially affected by these revisions were determined. The first population was based on the following criteria:

1. Probability of Causation (PC) less than 50%
2. Most recent version of the dose reconstruction approved by DCAS on or prior to April 4, 2011 (issue date of revision 0 of the TBD. Revision 1 decreased doses from there).
3. Employed at the Hooker Electrochemical between 1946 and 1976 (residual period).
4. Diagnosed with a skin cancer (only the shallow dose was increased).

These criteria identified total of 14 claims. These cases were evaluated further as discussed below.

The second population of potentially affected claims was developed from the following criteria:

1. Probability of Causation (PC) less than 50%

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2. Most recent version of the dose reconstruction approved by DCAS on or prior to April 4, 2011 (issue date of revision 0 of the TBD. Revision 1 decreased doses from there).
3. Employed at the Hooker Electrochemical between 7/11/1944 and 1/15/1946 (operational period).

These criteria identified total of 39 claims. These claims were reviewed to determine if the intake assigned in the dose reconstruction was higher or lower than that assigned in revision 1 of the TBD. Thirty three of the claims reviewed were determined to have been assigned the “Plant Floor High” intake rate from Appendix AA. The intake rate in revision 1 is slightly lower than that so these claims required no further evaluation. The remaining six claims were evaluated further as discussed below.

3.1 Determination of claims which will not change due to TBD revision.

For the twenty claims requiring further evaluation, dose was recalculated using all current dose reconstruction methods including the current version of the TBD. From that recalculated dose, a new probability of causation was determined. The probability of causation remained below 45% for 19 of the 20 claims. The probability of causation for the remaining claim fell between 45% and 50%. In accordance with NIOSH procedures, IREP was run 30 times with 10,000 iterations for each run. The final probability of causation was still below 50% and slightly lower than the original probability of causation.

As a result of this review, the revisions to the Hooker Electrochemical TBD did not result in the 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.

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Attachment A – Comparison of Assigned Doses and Intake Rates

The “Plant Floor High” job category in Appendix AA is equivalent to the “Operator” job category in the TBD. The “Plant Floor Low” job category in Appendix AA is equivalent to the “Laborer” job category in the TBD.

Inhalation Intakes

	App. AA	Rev 0	Rev 1
Operational - Operator	343 dpm/day	340 dpm/day	340 dpm/day
Operational - Laborer	172 dpm/day	340 dpm/day	340 dpm/day
Operational - Supervisor	85.8 dpm/day	340 dpm/day	340 dpm/day
Operational - Clerical	8.58 dpm/day	340 dpm/day	340 dpm/day
Residual – All	2.2 dpm/day	2.2 dpm/day	2.2 dpm/day

Ingestion intakes are proportional to the inhalation intakes in each revision
Appendix AA inhalation rates converted from pCi/day to dpm/day

External Gamma

	App. AA (mr/year)	Rev 0 (mr/year)	Rev 1 (mr/year)
Operational - Operator	147	14.755	1.885
Operational - Laborer	73.4	0.455	0.455
Operational - Supervisor	36.9	0.228	0.228
Operational - Clerical	3.69	0.0228	0.0228
Residual - Operator	137	0.455	0.455
Residual - Laborer	68.6	0.455	0.455
Residual - Supervisor	34.3	0.228	0.228
Residual - Clerical	3.43	0.0228	0.0228

Appendix AA values converted from mr/day to mr/year

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External skin (other than hands and forearms)

	App. AA (mrem/year)	Rev 0 (mrem/year)	Rev 1 (mrem/year)
Operational - Operator	358	334.5	69.9
Operational - Laborer	179	40.5	40.5
Operational - Supervisor	87.6	20.3	20.3
Operational - Clerical	7.3	2.03	2.03
Residual - Operator	0	40.5	40.5
Residual - Laborer	0	40.5	40.5
Residual - Supervisor	0	20.3	20.3
Residual - Clerical	0	2.03	2.03

Appendix AA values converted from mrem/day to mrem/year

External skin (hands and forearms)

	App. AA (mrem/year)	Rev 0 (mrem/year)	Rev 1 (mrem/year)
Operational - Operator	4015	1310.5	167.5
Operational - Laborer	2007	40.5	40.5
Operational - Supervisor	986	20.3	20.3
Operational - Clerical	110	2.03	2.03
Residual - Operator	0	40.5	40.5
Residual - Laborer	0	40.5	40.5
Residual - Supervisor	0	20.3	20.3
Residual - Clerical	0	2.03	2.03

Appendix AA values converted from mrem/day to mrem/year