

**Draft**

**ISSUE RESOLUTION MATRIX FOR  
SC&A FINDINGS ON PETITION EVALUATION REPORT FOR  
JOSLYN SEC PETITION 00200**

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## INTRODUCTION

This document presents an issues matrix based on SC&A's *Review of Joslyn Manufacturing and Supply Company Petition Evaluation Report for Special Exposure Cohort (SEC) Petition 00200* dated March 2013. NIOSH has not yet commented on this matrix nor has it been discussed in any Work Group meetings. However, SC&A had the opportunity to develop additional information relevant to its findings on Joslyn during the preparation of a report on TBD-6000 entitled, *Supplementary Comments on Revision 01 of Battelle-TBD-6000*. In particular, new information on uranium pit burning, floor sweeping and chip fires was generated. As discussed in Section 5 of that report, SC&A concluded that exposures from these sources were within the bounds specified in TBD-6000. Consequently, SC&A proposes to modify Issue 6 below eliminating any reference to Finding 8 and to completely eliminate Issue 8 below.

### Time Line of Joslyn PER Issues Matrix:

- December 3, 2012: NIOSH (2012) issued *SEC Petition Evaluation Report SEC-00200, Joslyn Manufacturing*.
- March 28, 2013: SC&A (2013a) issued *Review of Joslyn Manufacturing and Supply Company Petition Evaluation Report for Special Exposure Cohort (SEC) Petition 00200*.
- May 27, 2013: SC&A (SC&A 2013b) issued *Supplementary Comments on Revision 01 of Battelle-TBD-6000* (PA-cleared version).
- December 18, 2013: SC&A distributed this "Issue Resolution Matrix for SC&A Findings on Petition Evaluation Report for Special Exposure Cohort Petition 00200 for Joslyn Manufacturing and Supply Company," which lists 11 issues. These issues were taken from the list of 11 findings<sup>1</sup> presented in the executive summary of SC&A 2013.

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<sup>1</sup> The "findings" in the earlier report are presented as "issues" in the present document.

**Issue Resolution Matrix for SC&A Findings on Petition Evaluation Report for Special Exposure Cohort Petition 00200 for Joslyn Manufacturing and Supply Company**

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**Issue 1: Incorrect Units of Measure**

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**SC&A Finding:** *The units of measure for the data from Klevin (1952) in Table 6-1 are cited as pCi/m<sup>3</sup>, but the presented information is based on dpm/m<sup>3</sup>.*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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**Issue 2: Incorrect Units of Measure**

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**SC&A Finding:** *The units of measure in Table 6-2 should be dpm/m<sup>3</sup>, not pCi/m<sup>3</sup>.*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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**Issue 3 – Basis for Start Date**

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**SC&A Finding:** *NIOSH should document the basis for assuming that 1948 is the starting date for the site surveys upon which TBD-6000 is based. The 1948 date needs to be affirmatively established in order to ensure that the TBD-6000 data are claimant favorable.*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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#### Issue 4 – Correction of Table 7-1

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**SC&A Finding:** *Table 7-1 needs to be corrected to assure that comparable units are used throughout, and that 1952 air concentrations from TBD-6000 are based on 2,200 work hours per year.*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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#### Issue 5 – Correction of Table 7-2

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**SC&A Finding:** *Typographical and calculational errors in Table 7-2 should be corrected.*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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#### Issue 6 – Use of TBD-6000 for Dose Reconstruction Not Sufficiently Prescriptive

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**SC&A Finding:** *The NIOSH approach for reconstructing internal doses due to metal-working operations at Joslyn for 1948 through 1952 appears reasonable for routine exposures. However, we have concerns that the exposure matrix does not adequately describe how the dose reconstruction methods in TBD-6000 are to be applied. In addition, as developed further under Finding 8, we have concerns regarding the degree to which the surrogate values in TBD-6000 adequately account for exposures associated with outdoor uranium pit burning and with incidents such as uranium chip fires. [Note that the concerns regarding out door pit burning have been resolved (see introduction). Hence, we recommend closing this aspect of this issue.]*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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### Issue 7 – Uncertainty in Air Concentrations

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**SC&A Finding:** *To address uncertainty as to whether air concentrations are dependent upon production rates, NIOSH should consider using the 95<sup>th</sup> percentile values from TBD-6000 to reconstruct doses at Joslyn.*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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### Issue 8 – Pit Burning, Floor Sweeping and Chip Fires must Be Considered

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**SC&A Finding:** *Though of short duration, the airborne uranium dust levels associated with uranium open pit burning and associated activities, such as shoveling the burn residue into containers, could contribute significantly to annual intakes of uranium. NIOSH needs to evaluate the degree to which outdoor open pit burning of uranium shards renders TBD-6000 incomplete as a surrogate dataset for Atomic Weapons Employer (AWE) facilities with limited bioassay and air sampling data. NIOSH should do the same for uranium chip fires that may have occurred in the machining or scrap storage areas. A third area of concern is that there are no data for the frequent sweeping activities that likely generated considerable resuspension of uranium dust. The present intake matrix is incomplete in all three respects. [Note that the concerns regarding out door pit burning and shoveling have been resolved (see introduction). Hence, we recommend closing this issue.]*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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### Issue 9 – Source Term Documentation

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**SC&A Finding:** *It would strengthen the report if the basis for the 90% coverage of the uranium source term was documented.*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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### Issue 10 – Need for Revised External Exposure Assumptions

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**SC&A Finding:** *SC&A does not agree with some of the assumptions proposed by NIOSH in Section 7.3.1 of the ER. SC&A suggests that NIOSH consider prorating the dose values in Table 6-4 based on actual working time, such as days per month. At a minimum, the NIOSH approach appears to underestimate external exposure in 1948. In addition, there is no need to differentiate between rolling and machining operations, since the doses are the same. However, there is one caveat—the units of measure for the data listed in Table 6-4 as Metal Whole Body Dose should be mrem/yr, not mR/yr. This is an important consideration when converting whole-body dose to organ dose.*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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### Issue 11 – Documentation on Thorium Hazard Sources

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**SC&A Finding:** *NIOSH should document the sources of information they propose to use regarding the relative radiological hazard from thorium.*

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**NIOSH Response:**

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**Board Action:**

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**SC&A Observation Status:**

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## REFERENCES

Klevin, P.B., 1952. *Joslyn Manufacturing and Supply Company Occupational Exposure to Radioactive Dust*; March 25, 1952; SRDB Ref ID: 9664.

NIOSH 2012. *SEC Petition Evaluation Report SEC-00200*, Joslyn Manufacturing. National Institute for Occupational Safety and Health, Cincinnati, Ohio. December 3, 2012.

SC&A 2013a. *Review of Joslyn Manufacturing and Supply Company Petition Evaluation Report for Special Exposure Cohort (SEC) Petition 00200*. SCA-TR-SEC2013-0069, Rev. 0. SC&A, Inc., Vienna, Virginia. March 28, 2013.

SC&A 2013b. *Supplementary Comments on Revision 01 of Battelle-TBD-6000*. Rev. 0. SC&A, Inc., Vienna, Virginia. May 27, 2013 (PA-cleared version).