



DEPARTMENT OF HEALTH & HUMAN SERVICES

Memorandum

DCAS External Memorandum
Division of Compensation Analysis & Support

To: Metals and Controls (M&C) Special Exposure Cohort (SEC) Working Group

From: Peter Darnell, DCAS Health Physicist

Subject: SC&A Review of the SEC00236 M&C Petition Evaluation Report

Date: February 22, 2018

The following update is provided for the M&C SEC Working Group. NIOSH received SC&A's review of the M&C ER on February 12, 2018. NIOSH will provide a revised SEC ER to accommodate to SC&A's findings and observations. Currently, NIOSH is reviewing bioassay data from the M&C remediation contractor (Creative Pollution Solutions – CPS), finalizing a subsurface soil exposure model, and following up with interviewee reviews of interview transcripts. NIOSH anticipates completion of the revised ER upon completion of these activities. NIOSH plans no new data captures or interviews before completing its revision of the ER.

The current revision of the ER states that for the class under evaluation, NIOSH found no part of the class for which it cannot estimate radiation doses with sufficient accuracy. Fundamentally, the SEC review agrees with NIOSH's assessment. However, the SC&A review noted several findings and observations. The remainder of this memorandum briefly addresses SC&A's findings and observations with the expectation that the revision to the ER will fully address the concerns raised in the SC&A review.

Finding 1: Internal exposures associated with subsurface maintenance and repurposing activities in Building 10 during the residual period should be explicitly included in the ER. NIOSH should not assume that there is sufficient conservatism inherent in the internal dose reconstruction methods employed in the ER to account for these exposures.

NIOSH response

In October 2017, NIOSH (with SC&A's participation) conducted interviews with personnel knowledgeable of site activities during the residual period. Upon review of that data, NIOSH agrees that the subsurface exposure provided in the current ER requires improvement to reflect more accurately the actual exposure potential during the residual period. The model currently in development should, with exception of calculations, be approved by the end of February 2018.

Finding 2: NIOSH incorrectly transcribed some of the Landauer film badge dosimetry reports and incorrectly calculated annual 95th percentile external penetrating doses to workers in the residual period.

NIOSH response

NIOSH will correct this in the revised ER.

Finding 3: NIOSH incorrectly calculated annual 95th percentile beta skin doses to workers in the residual period.

NIOSH response

NIOSH will correct this in the revised ER.

Observation 1: SC&A suggests that a more appropriate approach to deriving the chronic airborne concentration of uranium from resuspension during the residual period would be to use the average value for the swipe data (i.e., 12.3 dpm/100 cm²) and a resuspension factor of 1E-5/m. This would result in chronic uranium inhalation rates that are about 2 times higher, but well within a reasonable range for these types of exposures, given the available data.

NIOSH response

NIOSH is reviewing this suggestion and will provide an updated approach for accounting for resuspension in the revised ER.

Observation 2: The distinction between production and non-production workers should be better defined in the ER. After discussions with NIOSH, it was determined that the production worker group is intended to refer to workers who may have entered production areas. This includes construction trade workers, including, but not limited to, those listed in the ER. Additional text adding clarity to this point would ensure that this distinction is consistently applied to workers.

NIOSH response

Currently, NIOSH plans on a simplified approach. All M&C workers in the Facilities Construction and Maintenance Services Organization (Facilities) or Production Machine Operators/Helpers and Production Repair & Maintenance (R&M) organizations having access to, and work within production areas are considered to have potential for subsurface exposure. The revised ER will assign dose as appropriate using the calculated doses and a derived stay time in the work area. NIOSH will also assign resuspension dose to all workers following the TBD-6000 model.

Observation 3: NIOSH should consider adopting the approach used in the ER for Carborundum and the ER and technical basis document for General Steel Industries (GSI) for deriving ingestion doses during the residual period.

NIOSH response

When estimates of air concentration values are available, the OTIB-009 approach is the preferred approach. When air concentration data is not available, but surface contamination values are, NIOSH uses NUREG /CR-5512 .

Observation 4: Exposures experienced by High Flux Isotope Reactor (HFIR) workers cannot be used “*as supporting evidence to validate the bounding method used in Section 7 of this report*” as stated on page 24 of the ER.

NIOSH response

NIOSH will consider this observation and modify the revised ER as appropriate.

Observation 5: SC&A is concerned that it may be inappropriate to use external dosimetry data collected during the last year of Atomic Weapons Employer (AWE) operations as the basis for bounding the external doses during the residual period.

NIOSH response

AWE fuel was removed at the end of M&C site operations. However, a sizable amount of HIFR fuel remained. In its current approach, NIOSH does not deplete external source term for doses over site residual period, making doses assigned in the ER more conservative than that described by this observation. NIOSH agrees that the source term over time should deplete and will provide new calculations in the revised ER to maintain agreement with depletion of external doses.

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Peter Darnell, CHP, RRPT
Division of Compensation Analysis and Support