Memorandum

To: URAWE Working Group

From: LaVon Rutherford, DCAS Health Physicist
Mutty Sharfi, ORAU Team Health Physicist

Subject: Response to SC&A's Comments on SEC Evaluation Report for SEC-00217

Date: May 24, 2016

The following are responses to SC&A's July 2016 report on the Special Exposure Cohort Evaluation Report (ER) for SEC-00217, Westinghouse Electric Corporation (New Jersey), which was issued in April 14, 2015.

Observation 1. Mode 2 ingestion exposures based on OCAS-TIB-009 should be adjusted for the duration of the work-day (i.e., 8, 8.8 or 9.6 hr) based on the dates which the exposures occurred.

The assumption was made that during the residual period the occupancy time was 8 hours per work-day. However, SC&A is correct that to be consistent with Battelle-6000, the occupancy time should be as follows:

- 1950 – 48 hours (9.6 hr/day)
- 1951–1955 – 44 hours (8.8 hr/day)
- After 1955 – 40 hours (8 hr/day)

Therefore, the occupancy times will be updated to reflect the recommendations in Battelle-6000.

Observation 2. The deposition time used in the Model DR (Spreadsheet 2015) is not consistent with that proposed on p. 37 of NIOSH 2015.

NIOSH agrees that there is an inconsistency with the 5 days reported in the ER and the application of 30 days in the calculations. Since the 3rd operational period only lasted 5 days, NIOSH agrees that the residual surface contamination levels for the 3rd residual period should not be based on 30 days. NIOSH will update the calculations for the 3rd residual period to 5 days.

Finding 1. The procedure for calculating air concentrations during the 1st residual period is not consistent with the guidance provided in ORAUT-OTIB-0070.

NIOSH agrees that the recommended approach for a residual period with a known end concentration is to estimate the operational air concentration using Battelle-6000 or ORAUT-OTIB-0070. NIOSH also agrees with SC&A that the interpretation of that is unclear.

We understand SC&A's concern that backwards extrapolation using the default removal rate of 0.000067/day provided in OTIB -0070 is not necessarily claimant favorable. However, given that

SC&A's independent analysis of the available data using TBD-6000 demonstrated that NIOSH's backwards extrapolation was indeed claimant favorable (85 dpm/m3 vs 69 dpm/m3), we believe that the air concentration value calculated by NIOSH should be used.

Finding 2. The guidance provided in OTIB-0070 (Section 3.6) for calculating doses during the residual period refers to OCAS-TIB-009 (NIOSH 2004). This guidance should be revised, since the OCAS-TIB-009 approach cannot be used to calculate ingestion intakes from transfer of surface contamination to the hands and then to the mouth. Use of the procedure in TIB-009 understates this source of ingestion. The calculations in the SEC-00217 ER for the 1st residual period should be modified accordingly.

NIOSH agrees that they have committed to limit the scope of OCAS-TIB-009 to operational years. Therefore, NIOSH agrees to modify the ingestion intakes to be equal to the non-radiation production area workers ingestion intakes from the prior operational period for the first year and then apply source term depletion rate for all subsequent years. Given that during the residual period there is no on-going covered operations, the ingestion rate for the first year of the residual should not exceed the ingestion rate of a worker that works in the production area, but does not handle the material directly (i.e. source term for the worker is indirect exposure or exposure to contamination). This change is applicable to all three residual periods.

This can be done during the 1st residual period using the approach suggested by SC&A or by taking the 85 dpm/m^3 calculated for the start of the residual period and using the equation for resuspension of surface contamination from OTIB-70 calculate back to determine the surface contamination. Then take the surface contamination and divide by the deposition velocity and deposition time to get the operational air concentration. The operational air concentration can be multiplied by .2 for the initial ingestion rate.

LaVon Rutherford
DCAS SEC Health Physics Team Leader