



Kansas City Plant Work Group Report

Josie Beach, Chair

KCP Work Group

Advisory Board on Radiation and Worker Health

Oakland, CA.

Nov. 19, 2015

Work Group Members

Josie Beach, Chair

Brad Clawson

Jim Lockey

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Work Group activities to date

- Work Group meetings held:
June 2014; January, July and October 2015
- Three technical calls
- Four site visits with worker interviews and data capture
- Review of classified records at DOE/Germantown

Closed SEC Matrix Issues previously reported

- 4 - Super S uranium
- 5 - Recycled uranium
- 6 - DU after 1971, and during and after 1997
- 8 - Metal tritides
- 12 - Fading of NTA -
- 14 - Post-1993 monitoring
- 19 - Potentially unmonitored exposures

Summary of SEC Issues Newly Closed

7 - Radioactive Waste -WG accepted NIOSH's proposal to apply DU coworker model to all unmonitored radwaste and D&D workers. Becomes site profile issue pending inclusion in TBD.

11- N/P - Upon SC&A's review of 35 available positive neutron measurements, WG and SC&A satisfied with NIOSH's proposed bounding methodology making use of three highest values.

13 - Mg-Th Alloy Operations - WG accepted the example DR methodology for Mg-Th, pending inclusion of the recalculated organ dose using the 0.19 triple separation factor for thorium. With that recalculation, this issue is closed by the WG, albeit the question of Mg-Th operations during 1963-1970 remains a TBD issue for continued NIOSH followup.

15 - Thorium Oxide Operations - Based on DOE inventory review, listing of "unalloyed" thorium did not refer to thorium, but was duplicative of Mg-Th. Other than Mg-Th, thorium at KCP was laboratory scale and involved gram quantities with negligible exposure potential.

SEC Issues Closed (cont.)

16 - Natural Uranium, 1950-1958: application of TBD-6000 - WG's review of application of TBD-6000 for exposure to natural uranium for 1950-1955, and for 1955-1958 residual period at KCP found it acceptable based on existing Board and NIOSH guidance.

17 - D&D activities - WG accepted NIOSH's proposal to apply DU coworker model to all unmonitored radwaste and D&D workers. Becomes site profile issue pending inclusion in TBD.

18 - Accidents, Incidents, & Fires, in workers records - A review of classified records containing incident data did not uncover any additional reports. None of the incidents reviewed to date indicate exposures that were not adequately addressed by the site or potential exposures that would not be feasible to dose reconstruct.

20 - Tritium - WG accepted the example DR methodology for Tritium and Ni-63, and was satisfied with NIOSH's proposal to apply the dose to all KCP workers.

Open SEC Issues

Issues 1 and 9 (consolidated):

Data Completeness, legibility, and Accuracy, Internal and External Database – With WG acceptance of proposed sampling approach, NIOSH provided preliminary results of validation review to SC&A during technical call (Nov 12, 2015); report to be issued and reviewed by SC&A.

Summary of TBD Issues

2 - Worker Location, job category and coworker model – Remaining issue revolved around implementation of coworker model (but not feasibility). Additional information regarding the adequacy and completeness of data used for a coworker model and its applicability to various job categories will be incorporated in next TBD revision.

3 - Chronic vs. Acute – Work group agreed that question regarding chronic versus acute intake patterns not an SEC issue and can be accommodated by TBD 6000 model.

7 – Radioactive Waste and 17 - D&D activities: WG agrees with NIOSH proposal to apply DU coworker model to all unmonitored radwaste and D&D workers.

TBD Issues (cont.)

10 - Non-penetrating Dose - Clarification was needed on how non-penetrating dose calculated from recorded data to determine if appropriate data was recorded for DR purposes. WG agreed that these external dose record terms can be clarified and included in an update of the TBD.

13 - Mg-Th - Operations during 1963-1970 remain a TBD issue for continued NIOSH followup to ascertain whether any records exist that can definitively address whether such operations occurred.

Sample Dose reconstructions

WG requested “example DRs” be performed to validate proposed methodologies:

- Mg-Th operations, 1961–1963, and 1970–1977
- Manufacturing of switch plates containing tritium, 1963–1968
- Manufacturing of tritium monitors, 1959–1975
- Manufacturing of Ni-63 check sources for tritium monitors

Based on SC&A review of the example DRs, WG accepted the proposed methodologies for Mg-Th (*pending inclusion of the recalculated organ dose using the 0.19 triple separation factor for thorium*), tritium and Ni-63.

Petitioner Issues

- Included whether special nuclear materials used, and nuclear reactor tested and operated, at KCP; radiological significance of Pm-147 contamination incident and other known (or alleged) incidents; tritium, DU, and radiography monitoring; HP historic monitoring practices at KCP and their adequacy; movement of potentially contaminated workers to clean areas; and contribution of “nuclear fleas” (hot particles) to worker dose.
- Interviews conducted with petitioners, with followup information submitted to NIOSH for review. Specific responses provided by NIOSH.
- WG followed up with petitioners on issues and provided discussion periods during WG meetings (a half day session on July 16, 2015). On technical concerns, specific responses prepared.

Petitioner Issues (cont'd)

- WG conducted followup interviews on October 12, 2015, with those workers identified by petitioners who could be located, regarding specific allegations concerning radiation exposure incidents at KCP. No corroboration was found.
- WG concluded that all petitioner issues raised were either already addressed within the 20 SEC matrix items, were not SEC relevant, or could not be corroborated through the extensive interviews or records review to date.

Work Group Recommendations

- SC&A has reviewed NIOSH's report on validation of internal and external dose databases (Issues 1 and 9) and finds those results acceptable. Upon WG acceptance of those conclusions, all SEC issues identified for Kansas City Plant will have been resolved to its satisfaction.
- One remaining concern that needs resolution is thorium dose reconstruction method; comments provided for example DR. (ultimately site profile issue).
- With completion of these actions, WG recommends full Board closure with conclusion that dose reconstruction feasible as specified in NIOSH evaluation report.