Schedule for DCAS Savannah River Activities

July 14, 2016

#	Issue Topic	Deliverable	Schedule Date
1	Co-worker Models	Interim ORAUT-OTIB-0081 *Savannah River Site Coworker Model (tritium and exotic radionuclides*)	Oct. 7, 2016
		Full ORAUT-OTIB-0081 *Savannah River Site Coworker Model (Completion of All Coworker models)*	Feb. 21, 2017
2	Neptunium	ORAUT-RPRT-0065: *An Evaluation of Neptunium Operations at Savannah River Site*	Aug. 1, 2016
		ORAUT-RPRT-0077: *Evaluation of Personnel Health Physics and Department Codes to Identify Neptunium Workers at the Savannah River Site*	Sept. 27, 2016
		ORAUT-RPRT-0080: *An Evaluation of PuFF construction worker exposure potential to the Np-237 billet line.*	Dec. 14, 2016
3	Thorium	ORAUT-RPRT-0070: *Thorium Exposures post 1972 at the Savannah River Site*	Jan. 18, 2017
		ORAUT-RPRT-0081: *Thoron exposures at the Savannah River Site*	Jan 30 2017
4	Metal Hydrides	ORAUT-RPRT-0072: *Metal Hydride exposures at the Savannah River Site*	Oct 14, 2016
5	Subcontractor Follow-up	Job Plan evaluation of Construction Trades Worker monitoring data	Feb. 23 2017

Savannah River Site Co-worker models

The first two co-worker models being developed (Interim ORAUT-OTIB-0081 in the table above) are tritium and exotic radionuclides (Americium, Curium, Californium, and Thorium). These are the two that we have committed to give to the Advisory Board to evaluate whether the Draft Co-worker Implementation Guideline is sufficient to develop co-worker models. Since these are the first two models being developed under the new guidance there has been a significant learning curve between both DCAS and ORAU. Thus they have taken longer than originally expected.

Once the first two models are delivered to the SRS WG or Board in October, the Board will face making a decision about their acceptability, and derivatively, the acceptability of the draft Co-Worker Model Implementation Guide. However, NIOSH and ORAU Team will be working on the remaining SRS Co-Worker models (mixed fission products, plutonium, uranium, strontium, cesium, cobalt, and neptunium) without waiting for that Board decision. The full completion of the SRS co-worker models is now scheduled to be completed February 21, 2017.

The methodology used to identify Construction Trades Workers is the same approach that was discussed in ORAUT-RPRT-0055 - *Comparison of Exotic Trivalent Radionuclide Coworker Models at the SRS*; ORAUT-RPRT-

0056 - *A Comparison of Neptunium Coworker Models at the SRS*; and ORAUT-RPRT-0058 - *Comparison of Mixed Fission and Activation Product Coworker Models at the SRS*. All of these have a root basis from ORAUT-OTIB-0052 - *Parameters to Consider When Processing Claims for Construction Trade Workers* which has been reviewed by the ABRWH on multiple occasions. In the Co-worker reports a more detailed description of the methodology and basis used to identify Construction Trades Workers will be provided.

Neptunium Exposures

The main method for dose reconstruction of neptunium exposures will be the neptunium co-worker model discussed above. However, there is somewhat limited data to develop the co-worker model because not all workers were exposed to or monitored for neptunium exposures. To further document that the co-worker model will be acceptable, DCAS/ORAUT is developing three reports to demonstrate the limited operations and that those workers were the individuals who were monitored. Below is a summary of the basic topics of each of the supplemental reports and their associated due dates.

ORAUT-RPRT-0065: *An Evaluation of Neptunium Operations at Savannah River Site*

This report gives an overview of all of the neptunium operations conducted at the Savannah River Site. It describes the radiation safety monitoring and the personnel monitoring methods. It compares doses calculated using urinalysis versus whole body counting to illustrate that the whole body count methods are bounding. This report is scheduled to be completed and delivered to the ABRWH in early August 2016.

ORAUT-RPRT-0077: *Evaluation of Personnel Health Physics and Department Codes to Identify Neptunium Workers at the Savannah River Site*

This report will demonstrate that we can identify the workers who were potentially exposed to neptunium using dosimetry codes. Furthermore, this report will support the use of limited data for the co-worker model because the most highly-exposed workers were monitored. Since their data was used to develop the co-worker model noted above, the exposure model will be bounding for all SRS workers. This report is scheduled to be completed in September 2016.

ORAUT-RPRT-0080: *An Evaluation of PuFF construction worker exposure potential due to the Np-237 billet line.*

This report will focus solely on construction worker exposure to the Np-237 billet line in 235-F. During the early 1970s (1972 through 1978) part of Building 235-F was renovated for the new Plutonium Fuel Fabrication Facility (PuFF). This was a major construction undertaking that occurred simultaneously with neptunium billet production in another part of the building that was isolated. There is significant air sampling data and survey data demonstrating that the alpha (neptunium) exposures were confined to the billet area and construction workers were not exposed. This report summarizes this information and is scheduled to be completed December 14, 2016.

Thorium Exposures

The report on post-1972 thorium exposures will describe the work that was done with thorium, show that we can identify the employees who were most highly exposed to thorium were monitored for exotic nuclides (americium, curium, californium, and thorium) through May 1980, so that their results can be used to construct

a co-worker model during this time. After the May 1980 time period, we will be using 10% of the DAC to bound the thorium doses. ORAUT-RPRT-0070 will justify the use of 10% DAC as the bounding dose up through 1995 when 10CFR835 was implemented. This justification will utilize smear and air monitoring data, some of which was just recently captured. The scheduled completion of this report is January 18, 2017.

Thoron

We had previously proposed using concentrations near the largest thorium storage location as bounding concentrations for thoron exposures. The SRS Work Group did not accept this approach so we are currently developing ORAUT-RPRT-0081 to demonstrate the appropriateness of either our bounding approach or facility specific concentrations. The scheduled completion for this report is January 30, 2017.

Metal Hydrides (metal tritides)

The ORAU team has developed report ORAU-RPRT-0072 evaluating and discussing work with and the associated exposures to metal hydrides at the Savannah River Site. The document is currently in classification review by DOE, and is currently scheduled to be completed on October 14, 2016.

Subcontractor Follow-up

This evaluation is an attempt to address ABRWH concerns that construction trades workers may not have been monitored for radiation the way they should have been. The documents that contain the site's judgment about how workers on construction jobs should be monitored are called construction job plans. Construction job plans list the individuals who are working on a specific job along with their radiation monitoring requirements. We have recently captured what appears to be a complete set of construction job plans for an area of SRS for the 1980s. The Job Plan Evaluation (deliverable 5 in the table above) will select a random sample of the captured construction job plans, collect all the names of persons working on those plans along with their required radiation monitoring, then look for monitoring results in the SRS radiation monitoring records to determine if the required monitoring was done. The scheduled completion date for this Task is February 2017.