Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health (NIOSH)
Advisory Board on Radiation and Worker Health
Argonne National Laboratory - West/Idaho National Laboratory (ANL-W/INL) Work Group
Meeting Minutes

December 17, 2025

Summary Proceedings

The ANL-W/INL Work Group (WG) meeting convened via teleconference/ videoconference at 11:00 a.m. Eastern Standard Time (EST), with Dr. Paul Ziemer, Chair, presiding.

Attendees

Members

Paul Ziemer, Chair
Henry Anderson, Member
Josie Beach, Member

Non-Members

Roberts, Rashaun, Designated Federal Officer (DFO)
Adams, Nancy, NIOSH contractor
Barton, Bob, SC&A
Behling, Kathy, SC&A
Buchanan, Ron, SC&A
Burgos, Zaida, NIOSH
Burns, Bob, Oak Ridge Associated Universities (ORAU)
Chalmers, Nancy, ORAU
Cook, Madeline, NIOSH
DeGarmo, Denise, Public/Special Exposure Cohort (SEC) Petitioner Representative
Freilich, Justina, Public
Gleckler, Brian, ORAU
Hawkinson, John, ORAU

Holzberger, Malia, Department of Health and Human Services
Jerison, Deb, Public
Lobaugh, Megan, NIOSH
Mangel, Amy, SC&A
Marion-Moss, Lori, NIOSH
McCloskey, Pat, ORAU

Welcome and Roll Call – Dr. Rashaun Roberts, DFO

Dr. Rashaun Roberts called to order the Argonne National Laboratory-West/Idaho National Laboratory Work Group (ANL-W/INL WG) at 11:00 a.m. EST on December 17, 2025, via teleconference/videoconference. A roll call of WG members confirmed that a quorum was present. The quorum was maintained throughout the meeting. None of the WG members or participating staff had conflicts of interest. After introductory remarks, Dr Roberts turned the meeting over to Dr. Paul Ziemer, WG Chair.

Dr. Ziemer introduced himself as being new to the ANL-W/INL WG but noted that Ms. Beach and Dr. Anderson had considerable tenure on the WG. The reduction in Board members through retirements has caused remaining Board members to take on additional WG chairmanships, so he agreed to chair this one, even though he is new to it. He expressed his gratitude to Ms. Beach, Dr. Anderson, and the staff of the Division of Compensation Analysis and Support (DCAS) and SC&A for assisting him in getting caught up with the WG discussions. The WG last met on July 16, 2020. Because of the long interval between meetings, a portion of this meeting will be familiarizing everyone with what the WG has discussed.

NIOSH/DCAS Presentation (Brief Summary): "Evaluation of EBR-II and BORAX-IV for ORAUT OTIB-0054 Applicability," ORAUT RPRT-0099 – Dr. Megan Lobaugh, DCAS

Dr. Megan Lobaugh, DCAS, presented information from ORAUT-RPRT-0099. This information had been presented to the WG at its last meeting in July 2020. OTIB-0054 describes internal dosimetry dose reconstruction methods for workers who are working around operating nuclear reactors. For workers exposed around nuclear reactors, there could be a large variety of radionuclides available for intake, but bioassay techniques typically measure a limited number of those radionuclides. Therefore, it is necessary to estimate the quantities of unmeasured radionuclides relative to the measured radionuclides to determine total intake, and therefore internal dose. OTIB-0054 provides those relative quantities for several categories of reactors.

In their review of the INL-E SEC petition, SC&A questioned whether the OTIB-0054 approaches were applicable to the experimental reactors that were operated at INL. Because of the experimental nature of the reactor operations, they might not fit the categories of reactors that are available in OTIB-0054. RPRT-0099 was prepared to respond partially to SC&A's concern.

Fifty-two reactors were constructed at INL and ANL-W, utilizing different fuels and operational characteristics. SC&A prioritized the reactors as high, medium, or low,

based on the potential for worker doses to be underestimated using OTIB-0054. RPRT-0099 evaluated two of the high priority reactors, Experimental Breeder Reactor II (EBR-II), and Boiling Reactor Experiment -IV (BORAX-IV). RPRT-0099 uses modules of SCALE 6.2.3, a modeling package used by NRC in Safety Analysis Reports, to calculate the ingrowth and subsequent decay of fission and activation products under a variety of operating durations, and delay until exposure scenarios. It then calculates likely intakes and resulting doses to all target organs for all scenarios and compares those doses to the ones that would be assigned using OTIB-0054. In every case, the dose from using OTIB-0054 exceeded the dose from using the SCALE 6.2.3 results for these two reactors. This indicates that worker doses will not be underestimated by using OTIB-0054.

Upon being asked when additional high priority reactors would be evaluated, Dr. Lobaugh reported that current efforts by the DCAS and ORAU-Team staff working on ANL-W and INL are to revise the site profiles to incorporate worker co-exposure models, and to incorporate the results of the SEC investigations. Consequently, comparison of additional reactors to OTIB-0054 is not underway.

SC&A Presentation: "Review of ORAUT-RPRT-0099 Evaluation of EBR-II and BORAX-IV" – Dr. Steve Ostrow, SC&A

Dr. Steve Ostrow, SC&A, presented the results of SC&A's review of RPRT-0099. SC&A's review found the approach in RPRT-0099 to be sound and agreed that using OTIB-0054 would bound worker exposures for workers working around EBR-II and BORAX IV. They noted, though, that for some scenarios and target organs, TBD-0054 overestimated the reactor-specific doses a good deal, sometimes by as much as a factor of 9. SC&A recommended that DCAS prepare a discussion of why and under what conditions OTIB-0054 might significantly overestimate doses, and whether this would represent an unrealistic estimate of exposure.

During the subsequent discussion WG members and the staffs of DCAS and SC&A made several points. They noted that exposure estimates that, while overestimates of likely true doses are bounding and therefore acceptable, it is not sufficient to just reconstruct a large number. It must be linked to reality. It was also noted that many organ doses are quite small, and a significant overestimate of a very small dose is still quite small and should not be considered unrealistic. There is also a question about the need for OTIB-0054 doses to exceed reactor-specific doses for every target organ and every scenario. All these questions will be discussed at future meetings.

The WG members also asked if the available records allowed dose reconstructors to determine what reactors a worker was exposed to. For some years, workers at ANL-W/INL were issued operating area-specific external dosimetry devices and those records are available. When a worker left one operating area and went to another, they would leave one dosimetry device behind and pick up another one at the second operating area. However, for some years, workers were issued a single external dosimetry device at their home operating area and wore that when going to other operating areas. Even for those years with operating area-specific external dosimetry devices, it is not possible to determine the exact reactor because some areas contained

more than one reactor. For this reason, it is very helpful to have a tool like OTIB-0054 if, in fact, it covers all reactor exposure scenarios

Work Group Discussion and Path Forward

The WG endorsed SC&A's recommendations that DCAS prepare a discussion of why and under what circumstances OTIB-0054 significantly overestimates reactor-specific doses. WG members recalled that there had been discussions about radioactive waste burial site activities. SC&A reminded that they had prepared a significant report about those activities and potential issues with dose reconstruction. DCAS has conducted a data capture at INL in response, and after a long delay, INL has provided the selected documents. DCAS's response on the burial site is among the tasks to be completed. However, because of limited resources, it is not possible to work on all tasks simultaneously. The priority now is to revise the site profiles to incorporate the SEC research and the co-exposure model.

DCAS has also prepared reports about using area air monitoring data, rather than personal sampling data, to estimate worker exposures. ORAUT-RPRT-0097 describes how that will be done generically, and that document has been reviewed by the Procedures Review Subcommittee. ORAUT-RPRT-0089 describes ANL-W/INL specific considerations for using air sampling data in this fashion. The WG tasked SC&A to review RPRT-0089.

For tomorrow's Board teleconference, Dr. Ziemer will provide a very brief report about this meeting. He will give a more complete report of the WG's progress at the next full Board meeting.

Meeting Adjourned

The meeting adjourned at 12:45 p.m. EST.