

Review of Rocky Flats Plant Technical Basis Documents: Revisions and Issues

Advisory Board on Radiation & Worker Health

December 8, 2022, Meeting

David Kotelchuck, Chair, Rocky Flats Plant Work Group

Report on RFP WG meeting: Oct.4, 2022

Members of the Rocky Flats Plant (RFP) Work Group (WG):

- R. William Field
- David Kotelchuck, Chair
- Loretta Valerio
- Paul Ziemer

R. William Field, PhD, MS (1954 – 2022)

It is with great sadness that the Rocky Flats Work Group of the Advisory Board on Radiation and Worker Health observes the passing of Board and WG member Bill Field. We acknowledge his many important contributions over the years to this WG and to the Board.

Background

- At its 3/23/2017 meeting, the Advisory Board decided it had sufficient information available to do individual dose reconstructions with sufficient accuracy for RFP claimants exposed after 1/1/1984. Thus, the Board decided not to extend the status of Special Exposure Cohort (SEC) 192 beyond 12/31/1984.
- At the 10/4/2022 meeting of the RFP WG, we considered updates and changes to the technical basis documents (TBDs) that make up the Rocky Flats site profile.

Revisions to Rocky Flats Plant TBDs

Five RFP TBDs have been revised as of January 2021:

- Site description (TBD-2): ORAUT-TKBS-0011-2, rev. 02, 2020
- Occupational medical dose (TBD-3): ORAUT-TKBS-0011-3, rev. 03, 2019
- Occupational environmental dose (TBD-4): ORAUT-TKBS-0011-4, rev. 03, 2020
- Occupational internal dose (TBD-5): ORAUT-TKBS-0011-5, rev. 04, 2020
- Occupational external dose (TBD-6): ORAUT-TKBS-0011-6, rev. 03, 2019

SC&A reviewed five revised RFP TBDs

- SC&A reviewed all five RFP TBDs that had been revised as of January 2021
- SC&A's review was to determine if previous issues identified by SC&A's original 2005 site profile review had been resolved by the revised TBDs, the RFP WG proceedings, and NIOSH
- SC&A also performed a general review of the five revised TBDs
- SC&A provided the RFP WG with a review report on Dec. 3, 2021
- NIOSH issued a response paper to SC&A's December 2021 review on July 22, 2022

SC&A and RFP Work Group discussion

- SC&A presented its review results to the RFP WG on October 4, 2022
- The RFP WG, NIOSH, and SC&A discussed the results of SC&A's review and the current status of the previous findings and any new findings or new issues that were presented
- The following slides outline the review of the findings/issues and their current status

SC&A's issues for TBD-2, "Site Description," resolved by revised TBDs

- SC&A finds that all previous TBD-2 issues have been addressed in rev. 02.
- Rev. 02 is more comprehensive in scope and depth and includes more details on site closure and decommissioning (SC&A's observation 1), as well as information about specific operations and their operational timelines, including recycled uranium and uranium-233 (SC&A's observation 2).
- SC&A recommended closure of finding 8 (inadequate information about recycled uranium), based on updated treatment of the issue in the internal dose TBD-5. The RFP WG discussed and closed this finding.
- SC&A recommends that TBD-2 be revised to be consistent with TBD-5:
 - NIOSH plans to address this recommendation in future TBD revisions.
 - SC&A concurs with NIOSH's response and plans to review such future revisions.

SC&A's issues for TBD-3, "Occupational Medical Dose," resolved by TBD revision

- TBD-3 finding 5 was about radiation exposure from occupationally necessitated medical x-rays.
- SC&A finds all remaining issues for finding 5 have been addressed and resolved in rev. 03 of TBD-3 and recommended closure. The RFP WG discussed and closed this finding.
- General review of rev. 03 did not identify any new findings.
- Observations: SC&A identified some incorrect tables listed on page 2 of the revised TBD-3:
 - NIOSH plans to address these errors in future TBD revisions.
 - SC&A concurs with NIOSH's response and plans to review such future revisions.

SC&A's finding 9 for TBD-4, "Environmental Dose," resolved by TBD revision

- TBD-4 finding 9 was about inadequacies in addressing potential environmental exposure from routine and ambient airborne releases and resuspension of contaminated soil.
- SC&A finds that rev. 03 of TBD-4 resolves finding 9:
 - NIOSH has provided better justification of its basis in available site monitoring data.
 - NIOSH has added more specific information and guidance about the contribution of resuspension of soil contaminants for occupational environmental exposures.
- SC&A recommended closure of this finding.
- The RFP WG discussed and closed this and other TBD-4 issues.

SC&A's findings 1 and 2 for TBD-5, "Occupational Internal Dose," resolved by TBD revision

Finding 1

- TBD-5 finding 1 was that NIOSH's suggested use of urine bioassay minimum detectable amount (MDA) values appears low
- SC&A finds that TBD-5 rev. 03 resolves this issue and recommended closure
- The RFP WG discussed and closed this issue

Finding 2

- TBD-5 finding 2 was that the TBD lacks definitive direction in some instances
- SC&A finds that TBD-5 rev. 03 resolves this issue and recommended closure
- The RFP WG discussed and closed this issue

SC&A's finding 7 for TBD-5, resolved

- TBD-5 finding 7 was that TBD-5 should include recommendations for ingestion intakes or direct reference to the appropriate ingestion-intake-related document.
- NIOSH response:
 - TBDs are designed to contain site-specific guidance. ORAUT-OTIB-0060, "Internal Dose Reconstruction," provides guidance in this area.
 - There is no site-specific scenario identified in this finding that would warrant the TBD to provide site-specific guidance. Therefore, no changes to TBD-5 are recommended.
- SC&A accepts NIOSH's clarification and recommended closure of TBD-5 finding 7.
- The RFP WG discussed and closed this issue.

SC&A TBD-5 observation about MDA units

- SC&A finds that table B-11, page 104, lacks units for the MDA values for Am-241; it appears that it should specify the unit of nanocuries
- NIOSH plans to edit TBD-5 to add units for MDA values
- SC&A concurs with NIOSH's response and will review the revised TBD-5 when available

SC&A's finding 3 for TBD-6, "Occupational External Dose," resolved by TBD revision

- TBD-6 finding 3 was concerned with the interpretation of NTA film data for workers who were not included in the Neutron Dose Reconstruction Project
- Rev. 03 of TBD-6 addresses this finding by use of neutron-to-photon ratios, coupled with use of available coexposure data
- SC&A recommended closure of this finding
- The RFP WG discussed and closed this finding

SC&A's finding 4 for TBD-6 resolved by TBD revision

- TBD-6 finding 4 was concerned with treatment of personal dosimeter placement and angular dependence
- Rev. 03 of TBD-6 addresses this finding by analysis of angular dependence of the monitoring devices
- SC&A recommended closure of this finding
- The RFP WG discussed and closed this issue

SC&A's finding 10 for TBD-6 resolved by TBD revision

- TBD-6 finding 10 was concerned with hand and wrist doses
- Rev. 03 of TBD-6 addresses these extremity doses
- SC&A recommended closure of this finding
- The RFP WG discussed and closed this finding

SC&A's finding 11 for TBD-6 resolved by TBD revision

- TBD-6 finding 11 was concerned with the potentially significant doses from industrial x-ray and neutron generators used for research and development and nondestructive work
- Rev. 03 of TBD-6 addresses these issues
- SC&A recommended closure of this finding
- The RFP WG discussed and closed this finding

SC&A observation on neutron dose factors in TBD-6

- SC&A observes that NIOSH needs to clarify the reason for the change in neutron dose multiplier factors listed in table 6-16 of TBD-6 rev. 03 compared to table 6-14 of rev. 00
- NIOSH responded that these multiplier factors were updated based on guidance in ORAUT-OTIB-0055 (2006), which was issued after TBD-6 rev. 00 (2004)
- SC&A concurs with NIOSH's response and recommended closure
- The RFP WG discussed and closed this issue

SC&A observation on neutron LOD values in TBD-6

- SC&A observes that the reason for recommending a limit of detection (LOD) value of 226 millirem (mrem) in table 6-18 and table 6-19 needs clarification
- NIOSH will correct the LOD value for 1962 and 1963 in table 6-18 in future revisions to TBD-6
- SC&A concurs with NIOSH's response and will review future revisions

Conclusions: RFP WG report

- All differences between SC&A review findings and NIOSH responses resolved & approved by the RFP WG
- All SC&A observations discussed and NIOSH differences resolved and approved by the RFP WG

Questions?