Program Evaluation Reports Considered to Not Need a Review

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Background information

- Previous SPR chairperson determined that 14 program evaluation reports (PERs) did not require an SC&A review
- Current SPR members became aware of this during the presentation of SPR achievements at the November 16, 2023, SPR meeting
- SPR chairperson tasked SC&A with providing additional information about these unreviewed PERs

PER Subtasks 1–2

- **Subtask 1**: Assess NIOSH's evaluation and characterization of the issue addressed in the PER and its potential impacts on dose reconstruction (DR).
- **Subtask 2**: Assess NIOSH's specific methods for corrective action.
  - The technical basis forming the DR methodology should be reviewed by SC&A to establish the scientific basis and source of information.
  - If such technical basis has been previously reviewed by SC&A, subtask 2 will simply provide a summary and conclusion of this review process.

PER Subtasks 3–4

- **Subtask 3**: Evaluate the PER's stated approach for identifying the universe of potentially affected DRs and assess the criteria by which affected DRs were selected for reevaluation. SC&A will also evaluate the timeliness of the completion of the PER.
- **Subtask 4**: Conduct audits of a sample of DRs affected by the PER under review. SC&A will provide case selection criteria based on changes introduced in the PER and supporting documents.

OCAS-PER-024, rev. 0, "General Steel Industries TBD Approval"

- September 25, 2007: PER-024 issued
- Reason for PER:
  - GSI technical basis document (TBD), Battelle-TBD-6000, Appendix BB, approved June 2007
  - Includes external dose to radiographers that is greater than ORAUT-OTIB-0004
- PER assesses 4 cases previously adjudicated using external doses from ORAUT-OTIB-0004
- GSI TBD has been revised 3 times, resulting in the issuance of two additional PERs: PER-057 (3/11/2015) and PER-080 (8/20/2017)
- SC&A has reviewed these later PERs and revised TBD

OCAS-PER-026, rev. 0, "Pantex TBD Revision – ORAUT-TKBS-0013"

- October 31, 2007: PER issued
- Pantex TBD-3 rev. 02 resulted in increased occupational medical doses for:
  - Thyroid, testes, and uterus doses for chest exams 1967–1971
  - Ovaries, urinary bladder, and colon doses:
    - For chest exams 1967–1971 and 1995–2004
    - For lateral lumbar spine exams prior to January 1, 1982
  - Skin dose for AP lumbar spine exams prior to January 1, 1982
- 50 cases evaluated by NIOSH
- July 17, 2008: SC&A reviewed Pantex TBD-3 rev. 01
  - Identified concerns about assessment of occupational medical dose
  - Concerns were addressed in TBD-3 rev. 02

OCAS-PER-027, rev. 0, "Clarksville and Medina Site Profile – ORAU TKBS-0039"

- October 31, 2007: PER issued
- Reason for PER:
  - Clarksville and Medina site profile issued November 2006
  - To assess cases adjudicated during the development of TBD, because doses increased in the final approved site profile
- 65 cases evaluated by NIOSH
- Site profile has been revised 3 times, resulting in issuance of PER-087 (January 2019)
- SC&A reviewed ORAUT-TKBS-0039, rev. 00, and PER-087

OCAS-PER-028, rev. 0, "Pinellas TBD Revision"

- October 31, 2007: PER issued
- Reason for PER:
  - TBD-6 (external dose) revised August 3, 2006 (rev. 00 PC-1), to provide direction on assigning missed photon dose
  - TBD-6 revised again November 8, 2006 (rev. 00 PC-2), to clarify language that could be misinterpreted to exclude missed photon dose
- 24 cases evaluated by NIOSH
- Pinellas TBD-6 revised two additional times, resulting in issuance of PER-079 (2020)
- SC&A reviewed Pinellas TBD-6 rev. 00 and rev. 01 to ensure findings were resolved
- SC&A has not reviewed PER-079

OCAS-PER-032, rev. 0, "Nevada Test Site TBD Revisions"

- December 18, 2007: PER issued
- NTS TBD-6 rev. 01:
  - Increased limit of detection of dosimeters issued after 1986
  - Corrected recorded photon dose from film dosimeters, which contained lead filters, used during July 1960 to end of 1965
- 481 cases evaluated
- NTS TBD-6 revised two additional times to add SEC information and eliminate neutron dosimeter correction factor
- SC&A has reviewed the NTS TBDs

DCAS-PER-034, rev. 0, "Harshaw Chemical Company TBD Revision"

- December 9, 2011: PER issued
- Harshaw TBD rev. 01 increased intake rate for type S uranium for December 1, 1949–December 31, 1953
- 5 cases evaluated
- There is no Harshaw work group
- SC&A has not reviewed the exposure matrix

DCAS-PER-036, rev. 0, "Blockson TBD Revision"

- April 5, 2012: PER issued
- Blockson TBD rev. 03:
  - Increased radon exposure from 1963 to the end of residual period
  - Increased particulate intakes during residual period after 1977
- 36 cases evaluated
- SC&A evaluated TBD changes between rev. 00 and rev. 01 during our review of PER-020 (March 2009)
- Blockson TBD rev. 03 not reviewed

DCAS-PER-039, rev. 0, "Baker Perkins TBD Revision"

- January 7, 2013: PER issued
- Reason for PER:
  - TBD rev. 00 (February 2011) modified external dose model
  - TBD rev. 01 (May 2012) modified internal dose model
- 8 cases evaluated
- SC&A reviewed TBD rev. 00 (November 2011)
- TBD rev. 01 not reviewed

DCAS-PER-041, rev. 0, "OTIB-6 Revision"

- July 12, 2012: PER issued
- ORAUT-OTIB-0006, "Dose Reconstruction from Occupational Medical X-ray Procedures," rev. 04:
  - Increased estimated dose from lateral projection of a lumbar spine x-ray for stomach, bone surfaces, liver, gall bladder, spleen, and remainder organs
  - Increased estimate dose to ovaries from pelvic x-rays through end of 1970
- 22 cases evaluated
- OTIB has been revised two more times
- SC&A reviewed OTIB-0006 rev. 03 and rev. 05

DCAS-PER-044, rev. 0, "Metallurgical Laboratory"

- May 16, 2013: PER issued
- Reason for PER:
  - No TBD, DR methodology template guidance changed dates of operational and residual periods
  - SEC-00135 established for internal and external doses during entire covered period
  - Some previously adjudicated DRs reference ORAUT-OTIB-0070, "Dose Reconstruction during Residual Radioactivity Periods at Atomic Weapons Employer Facilities," which was revised March 2012 to lower contamination reduction rate and resulted in an increase in dose estimates
- 1 case evaluated
- SC&A reviewed the SEC evaluation report in June 2009
- SC&A has not reviewed DR methodology template

DCAS-PER-048, rev. 0, "Wah Chang"

- September 27, 2013: PER issued
- Reason for PER:
  - No TBD, DR methodology template guidance changed dates of operational and residual periods
  - SEC established for internal and external doses from thorium during entire covered period; updated uranium doses resulted in increased dose for some workers during residual period
  - OTIB-0070 revision lowered contamination reduction rate during residual period and resulted in an increase in dose estimates
- 114 cases evaluated
- SC&A has not reviewed DR methodology template (NIOSH plans to develop TBD for Wah Chang)

DCAS-PER-056, rev. 0, "BWXT Virginia"

- September 12, 2014: PER issued
- Reason for PER:
  - No TBD, DR methodology template guidance used
  - SECs established for 1959, 1968–1972, and 1985–11/30/1994
  - OTIB-0070 revision lowered contamination reduction rate during residual period and resulted in an increase in dose estimates
- 78 cases evaluated
- SC&A has not reviewed DR methodology template (NIOSH plans to develop TBD for BWXT)

DCAS-PER-058, rev. 0, "Dow Chemical Co. (Madison Site)"

- November 21, 2014: PER issued
- Dow Chemical TBD rev. 01 (Battelle-TBD-6000, Appendix C):
  - Changed deposition time used to calculate external dose from contamination from 7 to 30 days, resulting in increase in photon dose
  - OTIB-0070 revision lowered contamination reduction rate and resulted in an increase in dose estimates
- 80 cases evaluated
- SC&A has reviewed Dow Chemical TBD rev. 00 and rev. 01

DCAS-PER-074, rev. 0, "NIOSH-IREP 5.8 Upgrade"

- August 5, 2016: PER issued
- Reason for PER:
  - NIOSH-IREP relies on an underlying computational platform Analytica Decision Engine (ADE), which was upgraded from version 3.0 to version 4.1.6
  - Upgraded ADE version uses different random number generator, resulting in slightly different probability of causation (POC) results
  - Revised NIOSH-IREP version 5.8 incorporate updated ADE
- Analysis of effect of using ADE version 4.1.6 was performed by the Oak Ridge Center for Risk Analysis (original developers)
- NIOSH also performed independent analysis
- 117 cases with POCs 48%–50% were evaluated
- Difference in POC was -0.77%–0.56%

Questions?