ADVISORY BOARD ON RADIATION AND WORKER HEALTH
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July 12, 2021

The Honorable Xavier Becerra
Secretary
Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Mr. Secretary:

The Advisory Board on Radiation and Worker Health (The Board) has evaluated SEC Petition 00103 concerning workers at the Savannah River Site (SRS) in Aiken, South Carolina under the statutory requirements established by the Energy Employees Occupational Illness Compensation Program Act of 2000 (EEOICPA) and incorporated into 42 CFR Sec. 83.13.

The Board respectfully recommends that SEC status be accorded to:

> "All construction trade employees of Department of Energy subcontractors [excluding employees of the following prime contractors who worked at the Savannah River Site in Aiken, South Carolina, during the specified time periods: E. I. du Pont de Nemours and Company, October 1, 1972, through March 31, 1989; and Westinghouse Savannah River Company, April 1, 1989 through December 31, 1990], who worked at the Savannah River Site from October 1, 1972 through December 31, 1990, for a number of work days aggregating at least 250 work days, occurring either solely under this employment or in combination with work days within the parameters established for one or more other classes of employees included in the Special Exposure Cohort."

This recommendation is based on the following factors:

- Individuals working at the SRS during the time period in question worked on nuclear weapons production and related operations.
- Subcontractor construction trades workers conducted a broad range of work activities supporting research, fuel handling, transuranic material processing and separation, decontamination and decommissioning, and reactor outages. They may have worked in high-contamination and high-airborne radioactivity areas and may have been utilized for short-term high-exposure work tasks.
- Subcontractor construction trades workers may have been "transient" and not have worked for long periods at SRS and also may have been intermittently tasked with nonroutine radiological jobs under work permits, and thus were not likely enrolled in the routine (including termination) bioassay monitoring program.

- The Board finds there to be insufficient information, including a lack of job-specific radio-bioassay monitoring data for subcontractor construction trades workers, and assurance of workplace monitoring and source term data, to enable NIOSH to estimate with sufficient accuracy all potential internal doses from radionuclides associated with fuel handling, reactor operations, fuel reprocessing, and/or research activities, to which the proposed class may have been exposed during the time period in question.

- The Board also finds there to be sufficient information to reconstruct occupational external dose, as well as medical dose, for SRS subcontractor construction trades workers.

- The Board determined that health may have been endangered for subcontractor construction trades workers exposed to radiation at the SRS during the time period in question.

Based on these considerations and the discussions held at the April 15 and June 23, 2021, Board meetings, the Board recommends that this class be added to the SEC.

Enclosed are documents from the Board meetings where this SEC class was discussed. The documents include copies of the petition, the Board's deliberation, NIOSH's review thereof, and related materials. If any of these items are unavailable at this time, they will follow shortly.

Sincerely,

[Signature on File]

Henry A. Anderson III, M.D., Chair
Advisory Board on Radiation and Worker Health

Enclosures

Summary of Findings of the Advisory Board on Dose Reconstruction Feasibility and Health Endangerment Determination

Feasibility of Dose Reconstruction Findings

This current evaluation of petition SEC-00103 proposes a class that begins on October 1, 1972 and extends through December 31, 1990. The Advisory Board on Radiation Worker Health (The Board) finds there to be insufficient information, including job-specific radiobioassay monitoring data for subcontractor construction trades workers, and workplace monitoring and source term data, to allow it to estimate with sufficient accuracy the potential internal doses from radionuclides associated with fuel handling, reactor operations, fuel reprocessing, or research activities, to which the proposed class may have been exposed during the period from October 1, 1972 through December 31, 1990. The Board finds that it is feasible to reconstruct occupational external dose as well as medical dose for Savannah River Site (SRS) subcontractor construction trades workers.

The Board's dose reconstruction feasibility findings are based on the following:

• Subcontractor construction trades workers conducted a broad range of work activities supporting research, fuel handling, transuranic material processing and separation, decontamination and decommissioning, and reactor outages (including work in high-contamination and high-airborne radioactivity areas).

• Principal sources of internal radiation exposure for members of the proposed class included radionuclides such as: isotopes of uranium, thorium and plutonium; neptunium-237; americium-241; tritium; and mixed fission and activation products.

• Subcontractor construction trades workers were sometimes considered transient in that they may not have worked for long periods at SRS, may have been intermittently tasked with nonroutine radiological jobs under work permits, and thus were not likely enrolled in the routine (including termination) bioassay monitoring program and should have been monitored.

• Contemporary interviews with subcontractor construction trades workers (including Computer Assisted Telephone Interviews) indicate that some subcontractor construction trades workers may have been utilized for short-term high-exposure work tasks to save on the potential radiological exposures to "in-house" prime contractor personnel.

• Deficiencies in the conduct of permit-driven job-specific monitoring were noted by SRS and the Department of Energy as late as 1997 (e.g., 79% bioassay incompleteness). The lack of procedural assurance for subcontractor participation in bioassay programs, including termination monitoring, as established by SRS, likewise impacts the completeness of subcontractor trades workers monitoring.

• The Board has determined that insufficient information exists to establish the completeness and representation of job-specific bioassays for at least the time period

from 1972-1990. The Board recommends a cutoff of the class definition for December 31, 1990, in recognition of the lack of specific internal exposure information concerning the conduct of job-specific monitoring that persisted until at least the end of that year.

• The Board finds that given the nature of radiological work assigned to transient subcontractor construction trades workers, the lack of assurance provided their bioassay monitoring, and identified gaps in the permit-driven job-specific monitoring program, the completeness and representation of subcontractors who were, or should have been, monitored has not been sufficiently established. Therefore, dose reconstruction for unmonitored subcontractor construction trades workers who should have been monitored via the permit-driven job-specific monitoring program are not feasible using the co-exposure models for internal exposures developed by NIOSH.

• NIOSH has determined that available external monitoring is sufficient for use in dose reconstruction in accordance with existing NIOSH methods and procedures. NIOSH has also determined that reconstruction of medical dose is feasible by using claimant-favorable assumptions in the technical information bulletin Dose Reconstruction from Occupational Medical X-Ray Procedures (ORAUT-OTIB-0006) and the SRS site profile documents. The Board concurs with this determination.

Pursuant to 42 C.F.R. § 83.13(c)(1), the Board determined that there is insufficient information to either: (1) estimate the maximum radiation dose, for every type of cancer for which radiation doses are reconstructed, that could have been incurred under plausible circumstances by any member of the class; or (2) estimate the radiation doses of members of the class more precisely than a maximum dose estimate.

Although the Board found that it is not possible to completely reconstruct radiation doses for the proposed class, NIOSH intends to use any internal and external monitoring data that may become available for an individual claim (and that can be interpreted using existing NIOSH dose reconstruction processes or procedures). Therefore, dose reconstructions for subcontractor construction trades workers at SRS during the period from October 1, 1972 through December 31, 1990, but who do not qualify for inclusion in the SEC, may be performed using these data as appropriate.

Evaluation of Health Endangerment for Petition SEC-00103

The health endangerment determination for the class of employees is governed by EEOICPA and 42 C.F.R. § 83.13(c)(3). Pursuant to these requirements, if it is not feasible to estimate with sufficient accuracy radiation doses for members of the class, it must be determined that there is a reasonable likelihood that such radiation doses may have endangered the health of members of the class. The regulations require that it be assumed that any duration of unprotected exposure may have endangered the health of members of a class when it has been established that the class may have been exposed to radiation during a discrete incident likely to have involved levels of exposure similarly high to those occurring during nuclear criticality incidents. If the occurrence of such an exceptionally high-level exposure has not been established, then the Board is

required to specify that health was endangered for those employees who were employed for a number of work days aggregating at least 250 work days within the parameters established for the class or in combination with work days within the parameters established for one or more other classes of employees in the SEC.

The Board has determined that members of the class were not exposed to radiation during a discrete incident likely to have involved levels of exposure similarly high to those occurring during nuclear criticality incidents. However, the evidence reviewed by the Board indicates that some workers in the class may have accumulated radiation exposures through exposure to various radionuclides and from direct exposure to radioactive materials.[1] Specifically, the Board finds that subcontractor construction trades workers in the class may have accumulated radiation exposures through intakes of nuclear material processing, reactor operations, fuel reprocessing, laboratory research, or waste management related radionuclides. These SRS facility radionuclide exposure sources have been highlighted in various NIOSH technical basis documents, work group proceedings, and are summarized in the next section.

Subcontractor construction trades workers often performed nonroutine jobs involving unique radiological exposure sources or conditions, and permit-required, job-specific bioassays were necessary to characterize any potential uptake of radioactive material. The Board has determined that the lack of job-specific bioassays being performed for such non-routine work may have led to unrecorded exposures for source terms different, and possibly higher, than construction trades workers on routine monitoring. This gap stemmed from programmatic deficiencies in the bioassay monitoring programs, which accompanied by other program shortfalls, such as inadequate radiological source term identification and worker bioassay tracking, may have led to unmonitored exposures.

Consequently, the Board concludes that health of the proposed class of employees may have been endangered at SRS during the period from October 1, 1972 through December 31, 1990.

[1] Including: NIOSH 2019a, 2019b, 2019c, 2019d, 2020; SC&A 2019, SC&A 2020, SC&A 2021

Summary of subcontractor construction trades workers radiation exposures, October 1, 1972 through December 31, 1990

Subcontractor construction trades workers performed work in almost all areas of SRS, including the following facilities and could have been exposed to the corresponding radiation exposure sources listed, as a function of work assignments.

SRS Facility	Activities	Radionuclides of Concern
Reactors	Before 1989: Target irradiation After 1989: Reactor restart, D&D, waste management	Pu-239, Am-241, U-234, MFPs, H-3, Np-239, Pu-238, Cm-242/244
F and A-Line	Product extraction, conversion, and processing.	Pu-239, U-235/U-236/U-238, MFPs
Puff and PEF	Fuel fabrication	Am-241, Pu-238/239/241, Np-237, Th-232
F/H Area Tank Farms	High level radioactive waste handling	Am-241, Pu-238/239/241, MFPs, Cm-244
H Canyon	Separation/Recovery of Pu-239 and U-238	Pu-238/239/241, Np-237, U-234/235/236/238, MFPs
RBOF and RRF	Receipt and storage of irradiated nuclear fuel	Uranium, MFPs, MAPs
Uranium Target Fabrication Facility, M Area	Reactor fuel fabrication	U-234/235/236/238
S Area, DWPF	Radwaste processing	Pu-238/241, MFPs
Z Area	Radwaste processing	Pu-239/239, MFPs, H-3
A Area, 773-A laboratory	Actinide technology research and development	Pu-238/239/241, U-235/238, Np-237, Cm-242/244, Cf-252, H-3, MFPs, MAPs

Source: WSRC, “Facility Descriptions” (LaBone, 1996)

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