

HHS Determination Concerning a Petition to Add Members to the
Special Exposure Cohort
under the
Energy Employees Occupational Illness Compensation Program Act of
2000

Determination Concerning a Petition for Employees from
United Nuclear Corporation
Hematite, Missouri



I. Determination

I, Kathleen Sebelius, Secretary of Health and Human Services (Secretary), have determined that the employees defined in Section II of this report do not meet the statutory criteria for addition to the Special Exposure Cohort (SEC), as authorized under the Energy Employees Occupational Illness Compensation Program Act of 2000 (EEOICPA), 42 U.S.C. § 7384q.

December 7, 2012
Date

[Signature on File]
Kathleen Sebelius

II. Employee Class Definition

All site employees who worked in any area of the United Nuclear Corporation – Hematite, Missouri, site from January 1, 1958, through December 31, 1973, and the residual period January 1, 1974, through July 31, 2006.

III. Decision Criteria and Recommendations

Pursuant to 42 U.S.C. § 7384q, to designate a class for addition to the SEC, the Secretary must determine, upon recommendation of the Advisory Board on Radiation and Worker Health (Board), that

- (1) It is not feasible to estimate with sufficient accuracy the radiation dose that the class received; and
- (2) There is a reasonable likelihood that such radiation dose may have endangered the health of members of the class.

The SEC final rule states in 42 C.F.R. § 83.13(c)(1) that it is feasible in two situations to estimate the radiation dose that the class received with sufficient accuracy. First, the rule states that radiation doses may be estimated with sufficient accuracy if NIOSH has established that it has access to sufficient information to 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. Alternatively, radiation doses may be estimated with sufficient accuracy if NIOSH has established that it has access to sufficient information to estimate the radiation doses of members of the class more precisely than a maximum dose estimate.

In a letter received by the Secretary on November 7, 2012, the Board, pursuant to 42 U.S.C. § 7384q, agreed with the following NIOSH findings, effectively advising the Secretary that radiation dose can be reconstructed with sufficient accuracy for certain United Nuclear Corporation – Hematite, Missouri employees in accordance with provisions of EEOICPA and the SEC final rule.

IV. Determination Findings

Feasibility of Estimating Radiation Doses with Sufficient Accuracy

The Secretary established the feasibility determination for the class of employees covered by this report based upon the findings summarized below.

- The principal sources of internal radiation dose for members of the class under evaluation were uranium metal and uranium oxides in the form of radioactive particulates. Thorium dioxide processing did not represent routine plant operations as it was a special project limited to a single time period in 1964.
- Bioassay and air sampling data are available in sufficient quantity and quality to adequately represent the potential internal exposures for the UNC-Hematite class under evaluation over the entire operational period. These data can also be used to support the evaluation of the UNC-Hematite internal dose over the site's residual radioactivity period as described in Technical Basis Document for the United Nuclear Corporation Hematite, Missouri, (DCAS-TKBS-0008). NIOSH can bound the internal uranium dose associated with the weapons-related residual radioactivity that remained on site after the end of AEC-related operations.
- The available air sample data, including breathing zone and general air data, are available and can be used to supplement the bioassay data, or as the primary source of internal monitoring data for the period from 1961-1962. In addition, NIOSH has access to other radiological monitoring data and investigation reports that support bounding internal dose for UNC-Hematite from January 1, 1958, through December 31, 1973, and the residual period January 1, 1974, through July 31, 2006.
- Although non-AEC-related radioactive materials work continued at UNC-Hematite after 1973, NIOSH is required to evaluate the potential internal exposures from the residual radioactivity that remained as a result of weapons-related work during the operational years at the site (1958-1973). The weapons-related work performed during the covered operational years involved uranium only.
- NIOSH intends to use the personnel monitoring data and existing internal dose reconstruction processes and procedures set forth in the Technical Basis Document for the United Nuclear Corporation Hematite, Missouri, (DCAS-TKBS-0008), to reconstruct uranium dose for the class under evaluation. NIOSH may also use the available uranium air monitoring data, source term information, and process descriptions to supplement the reconstruction of the uranium dose and support bounding the associated dose. These resources support the ability to reconstruct uranium dose using methods that are more precise than a bounding dose estimate.
- The principal source of external radiation exposure for members of the class under evaluation was photon and beta (electron) radiation associated with AEC operational activities, including handling of radioactive materials in production or research activities; or radioactive waste-handling operations. Uranium metal and uranium compounds from natural and enriched uranium constituted the principal external radiation dose-producing material sources for members of the class.

- NIOSH has obtained sufficient personal dosimetry records for individual workers exposed to beta and photon radiation during the AWE operations period. The available external dosimetry monitoring data are available in sufficient quantity and quality to adequately represent the potential for external exposures for the UNC-Hematite class under evaluation over the entire operational period. The dosimetry data are the primary data source that will be used to bound external dose for the UNC-Hematite class under evaluation. These data, applied as defined in the UNC-Hematite TBD, can also be used to support the evaluation of the UNC-Hematite external dose over the site's residual radioactivity period.
- NIOSH did not identify any neutron dosimetry data. However, based on its review of the available information, such as source material and the potential generation of neutrons from that material, NIOSH determined the neutron doses could be bound by using methods in ORAUT-OTIB-0024, Estimation of Neutron Dose Rates from Alpha-Neutron Reactions in Uranium and Thorium Compounds.
- Although no specific information regarding occupational medical dose has been identified for UNC-Hematite, the dose associated with medical x-ray exams, if required as a condition of employment, can be bounded by using the assumptions in the complex-wide Technical Information Bulletin, Dose Reconstruction from Occupationally Related Diagnostic X-Ray Procedures (ORAUT-OTIB-0006). NIOSH believes this methodology supports its ability to bound the occupational medical x-ray doses for UNC-Hematite.
- Although non-AEC-related radioactive materials work continued at UNC-Hematite after 1973, NIOSH is required to evaluate the potential external exposures from the residual radioactivity that remained as a result of weapons-related work during the operational years (from January 1, 1958, through December 31, 1973). The Technical Basis Document for the United Nuclear Corporation Hematite, Missouri, (DCAS-TKBS-0008), provides a method to bound external doses associated with residual radioactivity exposures at UNC-Hematite.
- NIOSH has collected personnel and area monitoring data for the operational and post-AEC operations period. These data, coupled with the approaches defined in The Technical Basis Document for the United Nuclear Corporation Hematite, Missouri, (DCAS-TKBS-0008), support NIOSH's ability to bound external dose for the residual radioactivity period. More precise external dose estimates can be evaluated by accounting for the depletion of the AEC-related source term/material over the UNC-Hematite residual period as presented and discussed in ORAUT-OTIB-0070, Dose Reconstruction During Residual Radioactivity Periods at Atomic Weapons Employer Facilities.
- NIOSH determined that it has access to sufficient site-specific information to either (1) estimate the maximum internal and external 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 evaluated class; or (2) estimate the internal and external radiation doses to members of the evaluated class more precisely than a maximum dose estimate.
- The Board concurred with NIOSH's determination.

Health Endangerment

Because the Secretary established that it is feasible to estimate with sufficient accuracy the radiation doses encountered by Weldon Spring employees as specified in this class, a determination of health endangerment is not required.

V. Effect of the Determination

Members of the class of employees covered by this determination and their survivors continue to be eligible to submit claims for compensation under EEOICPA. As required for cancer claims covering other DOE and Atomic Weapons Employer employees (or Atomic Weapons Employees) not included in the SEC, qualified cancer claims under Part B of EEOICPA for members of this class will be adjudicated by the Department of Labor, in part on the basis of radiation dose reconstructions which will be conducted by NIOSH.

VI. Administrative Review of Determination

The determination provided in this report may be subject to an administrative review within HHS, pursuant to 42 C.F.R. § 83.18(a). On the basis of such a review, if the Secretary decides to designate the class of employees covered by this determination, in part or in whole, as an addition to the SEC, the Secretary would transmit a new report to Congress providing the designation and the criteria and findings on which the decision was based.