

# Y-12

# Special Exposure Cohort

# Petition Evaluation Report

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# Petition Overview

- NIOSH unable to complete the dose reconstruction for an existing Y-12 claim
- April 13, 2011: NIOSH notified the claimant and provided a copy of Special Exposure Cohort Petition Form A
- April 22, 2011: Petition (83.14) received
- July 19, 2011: NIOSH Evaluation Report approved

# Proposed Class

All employees of the Department of Energy, its predecessor agencies, and DOE contractors or subcontractors who worked at the Y-12 facility in Oak Ridge, Tennessee during the period from January 1, 1948 through December 31, 1957, 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 in the Special Exposure Cohort.

# Y-12 Operations (1948-1957)

- “Second Era” of operations at Y-12
- Uranium operations
  - Recycling/salvage
  - Machining and component assembly
- Lithium isotope separation
  - Li-6 from Li-7
- Thorium studies
  - Co-precipitation medium for U recovery
  - Isotopic Separation Program (calutrons)
  - Research and development work involving thorium
  - ORNL research and development support

# Y-12 Operations (1948-1957)—cont.

- **Waste disposal**
  - S-3 ponds: seepage pits
  - New Hope Pond: retention basin
- **ORNL work at Y-12:**
  - Production of stable and radioactive isotopes for medical research using the Y-12 calutrons
  - Plutonium isotopic separation – process design
  - Operation of 86-inch cyclotron for isotope production and nuclear physics research
  - Critical Experiments Facility
  - Van de Graff Accelerator (5 MeV)
- **Weapons assembly/disassembly**

# Existing Y-12 SEC Classes

- **SEC-0018 (83.13)**
  - 1943-1947
  - Specified job titles (uranium enrichment workers)
  
- **SEC-0098 (83.14)**
  - 1943-1947
  - All workers
  
- **SEC-0028 (83.13)**
  - 1948-1957
  - Specified areas (buildings and certain operations)
  
- **SEC-00186 (83.14)**
  - 1948-1957
  - All workers, all areas

# SEC Class Definition Review

- **November 2010: NIOSH assessment report to review SEC class definitions issued**
- **Systematic review of existing SEC class definitions based on a NIOSH evaluation and recommendation**
- **Review based on criteria of consistency, applicability, and whether any actions may be required by NIOSH to correct an existing class definition (such as possible problems with implementation by DOL)**
- **Review specific to the criteria used in the SEC evaluation report to develop the class definition (e.g., feasibility time period, access controls, DOL implementation)**

# SEC Class Definition Review—cont.

- **Report Findings**
  - **Most of issues and discrepancies identified in the NIOSH report were associated with the evolution of the NIOSH process for defining a class in an SEC Evaluation Report**
    - Early classes were closely related to the petitioner proposed class
    - Early classes were established based on perceived limitations and sometimes without the review by DOL to ensure they could be implemented as written
  - **Over time, the need to expand and/or adjust the proposed SEC class to address DOL class implementation issues was recognized to ensure claimants were not inadvertently excluded**

# SEC Class Definition Review—cont.

- SEC0028 class definition:

Department of Energy (DOE) employees or DOE contractor or subcontractor employees who were monitored or should have been monitored for: thorium exposures while working in Building 9201-3, 9202, 9204-1, 9204-3, 9206, or 9212 at Y-12 for a number of work days aggregating at least 250 work days from January 1948 through December 1957, or in combination with work days within the parameters established for one or more classes of employees in the SEC; or radionuclide exposures associated with cyclotron operations in Building 9201-2 at Y-12 for a number of work days aggregating at least 250 work days from January 1948 through December 1957, or in combination with work days within the parameters established for one or more classes of employees in the SEC

# SEC Class Definition Review—cont.

- **The current SEC class is recommended to remove the restriction on the class definition of SEC-0028 using today's criteria**
  - **SEC-0028 class definition specifies job types and work location**
  - **Available employment records do not generally indicate work location**
  - **Worker movements across the site undocumented**

# Feasibility of Dose Reconstruction

- **Feasibility of Dose Reconstructions:**
  - **NIOSH lacks sufficient monitoring, process, or source information for various Y-12 operations to estimate internal radiation doses to Y-12 employees for the period of January 1, 1948 through December 31, 1957**
  - **SEC-0028: infeasibility was driven by the inability to bound internal exposures from thorium operations and cyclotron operations**
  - **NIOSH will use any internal and external individual personal monitoring data for partial dose reconstructions as appropriate**

# Feasibility Summary

Feasibility Findings for SEC-00186		
Source of Exposure	Dose Reconstruction Feasible	Dose Reconstruction NOT Feasible
<b>Internal</b>		
		X
<b>External</b>		
- Beta-Gamma	X	
- Neutron	X	
- Occupational Medical X-ray	X	

# Health Endangerment

- The evidence reviewed in this evaluation indicates that some workers in the class may have accumulated chronic radiation exposures through intakes of radionuclides and direct exposure to radioactive materials.
- Consequently, NIOSH is specifying that health may have been endangered for those workers covered by this evaluation who were employed for a number of work days aggregating at least 250 work days within the parameters established for this class or in combination with work days within the parameters established for one or more other classes of employees in the SEC .

# Recommendation

- For the period January 1, 1948 – December 31, 1957, NIOSH finds that radiation dose estimates cannot be reconstructed for compensation purposes

Class	Feasibility	Health Endangerment
January 1, 1948 – December 31, 1957	No	Yes