

**Report of the Piqua Organic
Moderated Reactor Working Group
(Petition SEC-00126)**

**John W. Poston, Sr.
Working Group Chair**

**Richland, WA
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Working Group Members

Dr. R. William Field, member

Mr. Phillip Schofield, member

Dr. John W. Poston, Sr. (Chair)

Board/NIOSH Staff

Dr. John Mauro, SC&A

Mr. Charles D. Nelson, NIOSH

Dr. James Neton, NIOSH

Background

- Piqua Organically Moderated Reactor
 - AEC Demonstration Project – Piqua, OH
 - Reactor was 45 MW, organically-cooled and moderated
 - Operation began in 1963 and was terminated in 1966
 - Decommissioning from 1966-1969

Timeline

- **September 2009** - NIOSH Evaluation Report Issued
- **October 2009** - NIOSH Presentation to the Advisory Board
 - ER evaluated: All employees associated with reactor activities who worked within and around the reactor dome at the Piqua Organic Moderated Reactor during the covered period from 01/01/63 through 02/28/69.
 - The Advisory Board voted to approve the recommended class of workers for an SEC for the **POST-OPERATIONNAL** period (05/02/66 - 2/28/69) as recommended by NIOSH
 - The Advisory board established a working group to review the **OPERATIONAL** period (01/01/63 – 05/01/66)

NIOSH Position

- It was feasible to reconstruct doses during the reactor operational period based on the available records (i.e., 1963-1966)
- It was not feasible to reconstruct doses during the decommissioning period (i.e., 1966-1969)

First Meeting – July 8, 2010

- There was no site profile available for review – only the petition evaluation report was available
- Goal was to raise issues that should be considered before a final decision was recommended to the Board.
- Discussion resulted in the generation of several white papers requiring further review and discussion.

Issues and Concerns

- The volatility of the organic coolant/moderator
- The tritium to carbon-14 ratio
- Exposure of workers during maintenance
- The potential from N-16 carryover
- The availability of bioassay data
- Records on airborne activity levels
- Consideration of the dose to the workers from neutrons

Response to Issues

- **December 2010** - NIOSH white paper, *Tritium and Carbon-14 Organic Moderated Reactors at Piqua and INL*
- **March 2011** - NIOSH white paper, *The Neutron Exposure at the Piqua Organic Moderated Reactor*

Second Meeting – April 11, 2011

- Opportunity to discuss the white papers prepared regarding the issues raised as well as responses from SC&A
- Concluded that many of the issues raised had no impact of NIOSH approach to dose reconstruction
- Agreement that all concerns had been addressed sufficiently

Recommendation

- The Working Group voted unanimously to accept the NIOSH position that dose reconstruction was feasible during the operational period.
- The SEC Petition for the operational period should be denied.