

# Idaho National Laboratory Update to SEC Evaluation Report

SEC-00219, Rev. 2

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**Advisory Board on Radiation and Worker Health, 116<sup>th</sup> meeting**

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# Why a revision?

- Normally NIOSH will issue an addendum to cover a reserved topic not initially included in the SEC Evaluation Report (ER)
- The INL evaluation report had three different reserved topics that needed follow-up
- The ER addendum became cumbersome and difficult to follow as a stand alone document
- Incorporating into the initial ER provided proper context without duplication of effort

# Petition History

- Petition received on July 8, 2014
- July 21, 2015 revision to NIOSH evaluation report issued recommending a single class of workers be added to the SEC
- Three areas reserved for follow-up evaluation
  - Test Area North (TAN-615) – Uranium w/o fission products
  - Auxiliary Reactor Area (ARA-1) – Protactinium separation
  - Burial Ground – November 1969 Drum retrieval
- Evaluation Report Rev. 2 issued February 22, 2017

# Proposed Class Definition

All employees of the Department of Energy, its predecessor agencies, and their contractors and subcontractors who worked at the Idaho National Laboratory (INL) in Scoville, Idaho, and (a) who were monitored for external radiation at the Idaho Chemical Processing Plant (CPP) (e.g., at least one film badge or TLD dosimeter from CPP) between January 1, 1963 and February 28, 1970; or (b) who were monitored for external radiation at INL (e.g., at least one film badge or TLD dosimeter) between March 1, 1970 and December 31, 1974 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.

# Test Area North (TAN-615)

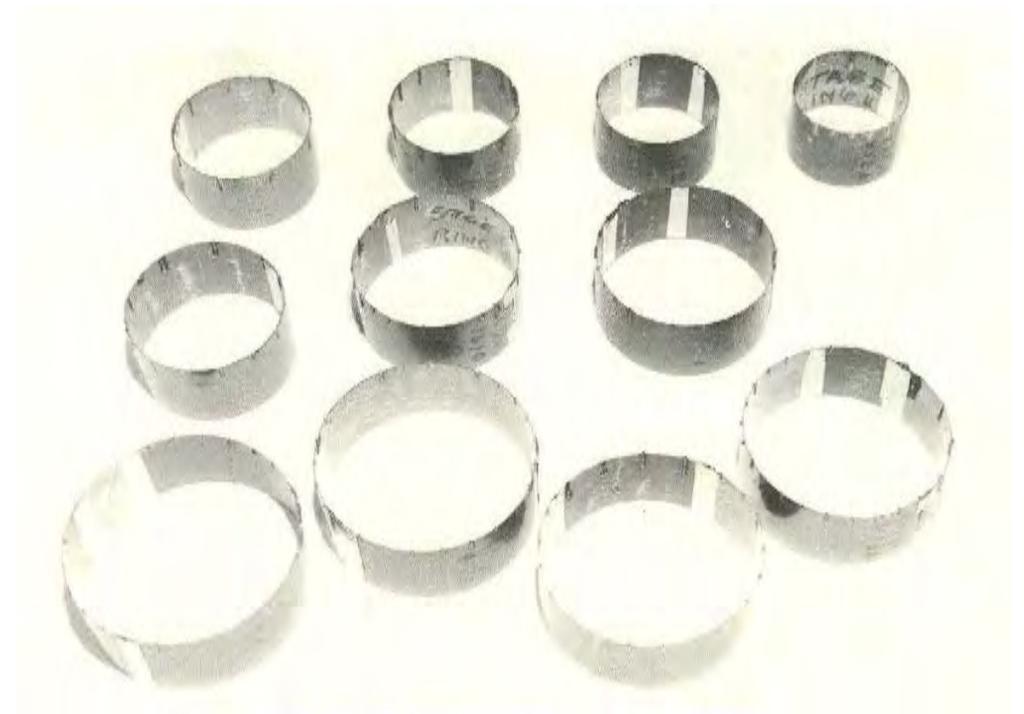
- August 1962 uranium work with reactor fuel foils in TAN-615 for the 630A Critical Experiment (CE) reactor at Low Power Test Facility (LPTF)
- Removal of plastic coating
- Electro-polishing
- Recoating with fluorocarbon plastic



INL Photo: 62-7499

# Low Power Test Facility (LPTF)

- Work with uranium fuel continued at the LPTF and ended in 1964
- This was a General Electric (GE) program



General Electric, 1963c

# Exposure Monitoring

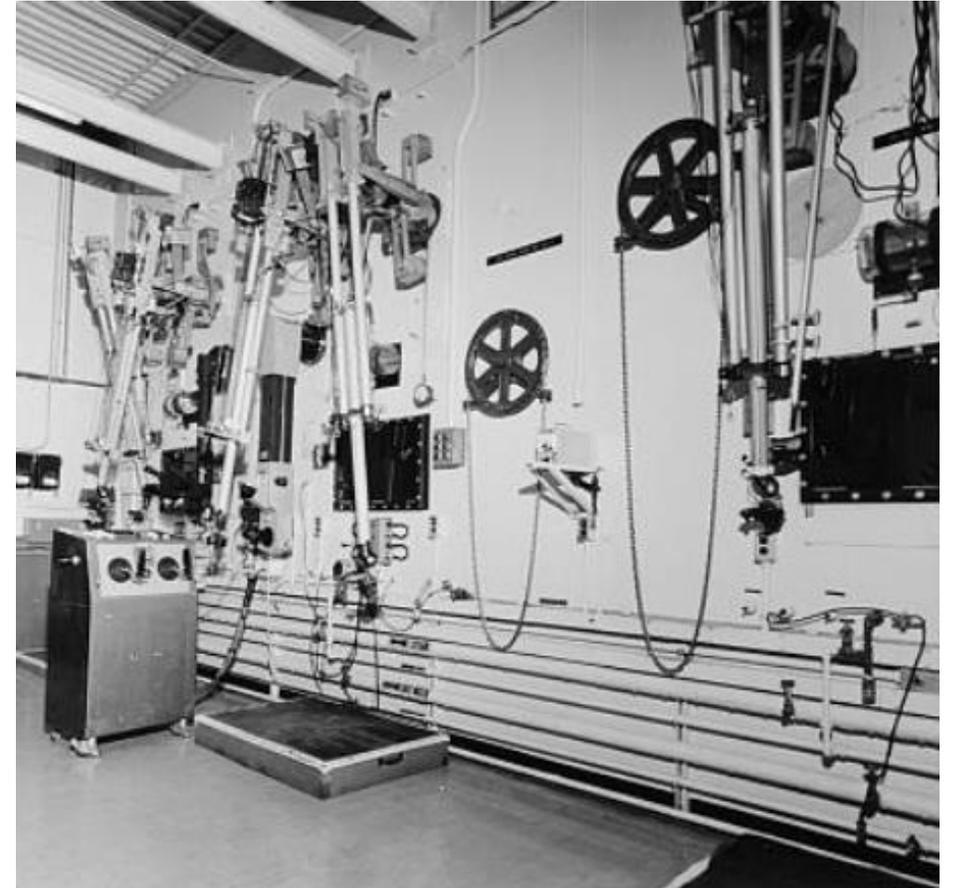
- Limited time period
  - August 1962 – January 1964
- Intermittent work
  - TAN-615 not used continuously during this time period
- Involved GE workers were on routine uranium bioassay, thus Dose Reconstruction is feasible



INL Photo: 62-7498

# Auxiliary Reactor Area - I

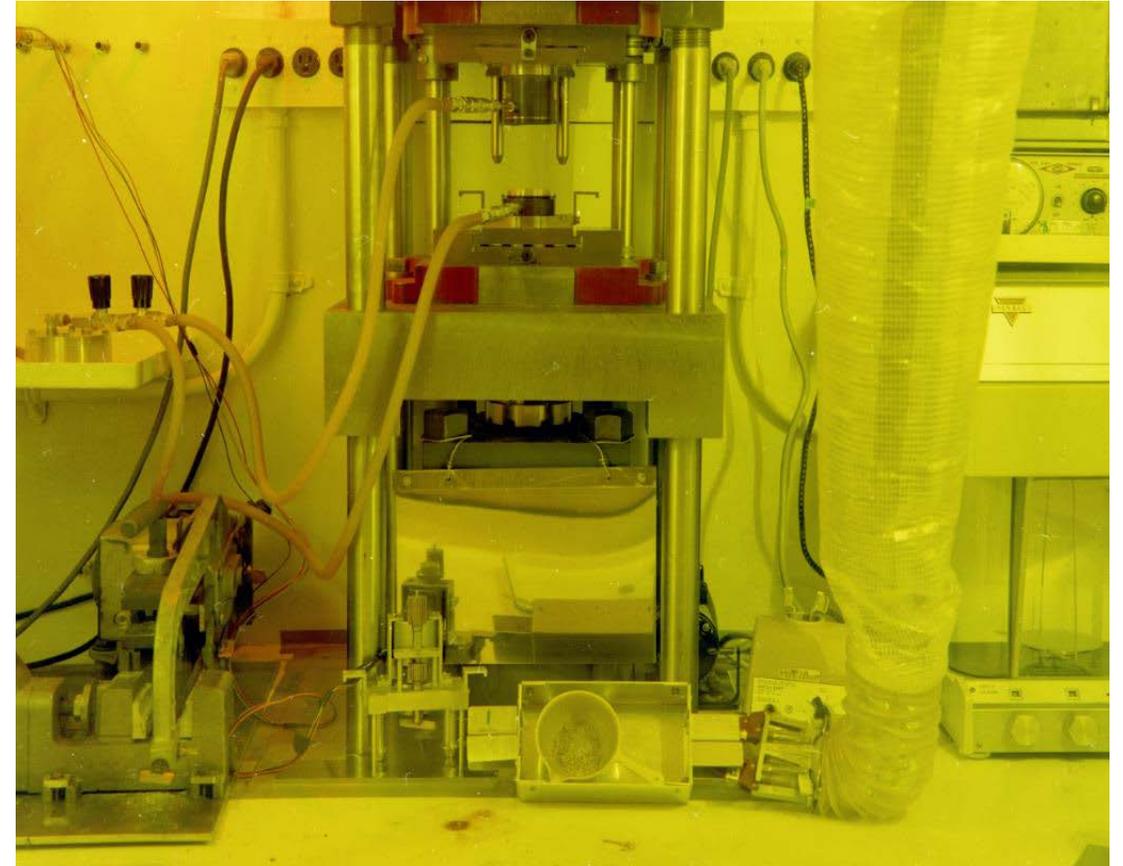
- Original Hot Cell facility for ARA to support SL-1 and ML-1
- 1968 ventilation and isolation boxes were modified for work separating Pa-233
- Potential for iodine exposure from dissolving fresh fuel/target material



[www.loc.gov](http://www.loc.gov) HAER No. ID-33-D-47

# Pa-233 Separations

- 816 grams of thorium metal were irradiated in three MTR cycles to produce the Pa-233
- Separation conducted on March 13, 1968
- Iodine was detected during operation, personnel wore charcoal filtered respirators



INL Photo: 68-1001

# ARA-I Exposure Monitoring

- All personnel involved with the Pa-233 work were counted using the MTR thyroid counter and all results were reported as “negative”
- In addition, Pa-233 and I-131 are easily detected via *in-vivo* (whole body) counting. *In-vivo* counts for the personnel involved did not detect any internal exposures
- Workers were monitored and there is no indication of an exposure from this operation

# Burial Ground – Drum Retrieval

- November 1969 dedicated effort to retrieve a specific 55 gallon drum
- First time buried waste was deliberately exhumed
- Retrieval was from a drum buried in Pit 1 which was opened in November 1957 and closed in October 1959
- Two locations were searched

# Burial Ground - Drum Retrieval



1958-2900516



INL Photo: 69-7004

# Burial Ground - Drum Retrieval



INL Photo: 69-6982



INL Photo: 69-6998

# Burial Ground – Drum Retrieval

- During the drum retrieval, there was continuous health physics coverage with contamination checks throughout the work
- No apparent issue with contamination
- Bioassay records were checked for personnel involved and no workers were placed on special bioassay

# Future Burial Ground Evaluation

- Will continue to evaluate Burial Ground exposures outside current SEC evaluation period (post 1970)
- Why?
- Large scale drum retrieval operations in the later 1970s through present
- If needed we will pursue expanding the class under the 83.14 process

# Future BG Evaluation (1977)



INEEL77-1262



INEEL 77-2632

# Feasibility Conclusion

- NIOSH believes that it has sufficient data to reconstruct both internal and external doses to all workers at the three reserved areas
- Therefore NIOSH is not recommending expanding the current class due to exposures at:
  - Test Area North
  - Auxiliary Reactor Area – I
  - Burial Grounds

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# Current INL Activities

- 83.14 underway expanding the Chemical Processing Plant (CPP) Special Exposure Cohort (SEC)
  - Basis: Site did not implement recommendations from 1974 evaluation for several years
  - Expect to complete and present (83.14) at the July ABRWH meeting
- Evaluate the Burial Grounds during large retrieval operations in the 1970s (If needed, expand the class under the 83.14 process)
- Respond to ABRWH/SCA Observations and Findings on SEC-00219 (INL) and SEC-00224 (ANL-W)

# Questions?

