

Area IV of the Santa Susana Field Laboratory

SEC-00235

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**Advisory Board on Radiation and Worker Health, 118th
Meeting**

Santa Fe, NM

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Previous SEC classes for Area IV SSFL

Petition Number	NIOSH recommended SEC class
SEC-00093	All covered employees, all areas of Area IV SSFL, Jan. 1, 1955 - Dec. 31, 1958 - based on lack of internal monitoring pre-1959
SEC-00156	All covered employees, all areas of Area IV SSFL, Jan. 1, 1959 – Dec. 31, 1964 - based incomplete bioassay data available to NIOSH pre-1965
SEC-00234	All covered employees, all areas of Area IV, SSFL, Jan. 1, 1965 – Dec. 31, 1988 - based on insufficient data to assess intakes from thorium and americium
SEC-00235	None

Petition Evaluation History

- Petition SEC-00235 received August 9, 2016 for class:
All employees of North American Aviation, to include corporate successors and subcontractors who worked at Area IV of the SSFL from December 31, 1964 through present.
- Class evaluated was:
All employees of the DOE, its predecessor agencies, and their contractors and subcontractors who worked at Area IV SSFL in Ventura County, CA, from Aug. 1, 1991 through Jun. 30, 1993
- NIOSH proposed class to be added to SEC: None

Controls for Environmental Pollution (CEP)

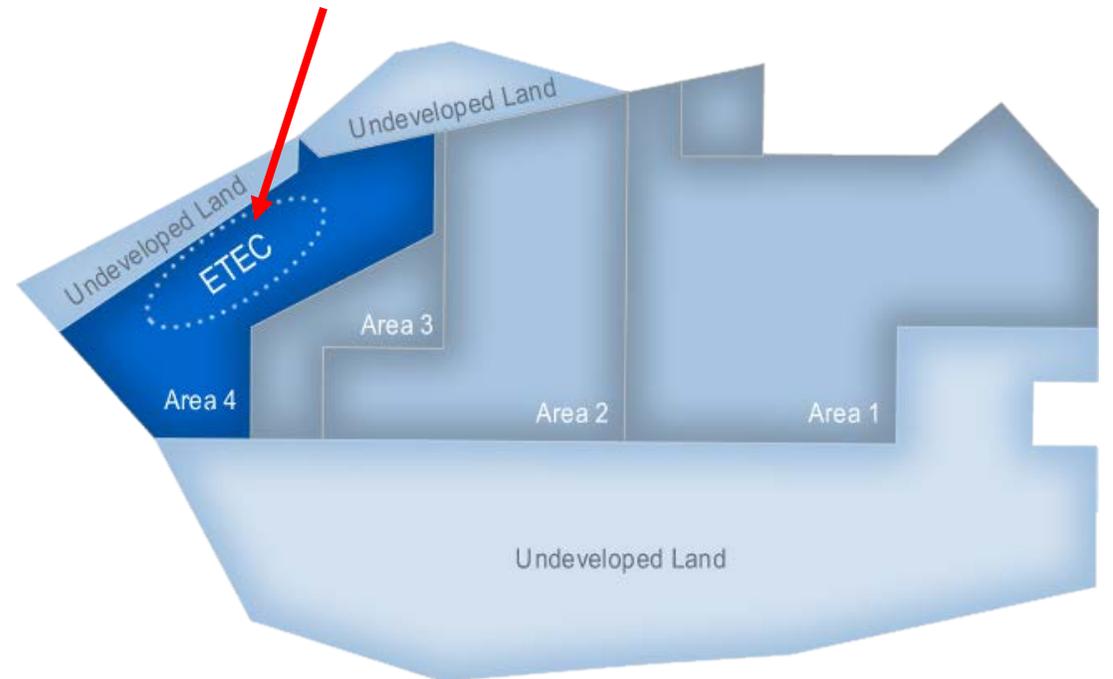
- Petition did not adequately support any of the defined bases
- CEP was suspected of data falsification and results are not used by NIOSH
- NIOSH considered petition basis F.2 supported (lost, falsified or destroyed records)
- Area IV used Controls for Environmental Pollution (CEP) as the urine sample analysis vendor from August 1991 to June 1993
- Research found documentation of contract end in June 1993
- Evaluation to determine if there is any impact to DR due to the discarding of CEP data

Area IV SSFL claims as of July 2017

Total Number of claims submitted for DR	316
Total number of claims for workers who worked during the period from August 1, 1991 through June 30, 1993	29
Total number of claims for workers who started employment during the evaluated period	6
Number of DRs completed for the evaluated period (submitted to DOL)	22
Number of claims with internal dosimetry records for the evaluated period	5
Number of claims with external dosimetry records for the evaluated period	10

Area IV SSFL Site

- 2,850 acres total
- Simi Hills, Ventura County; 30 miles northwest of Los Angeles,
- 4 administrative and operational areas (Area I-IV)
- Area IV (290 acres) is the only covered area (ETEC)
- Contractor during 1991-1993 period: Rockwell International



SSFL Processes

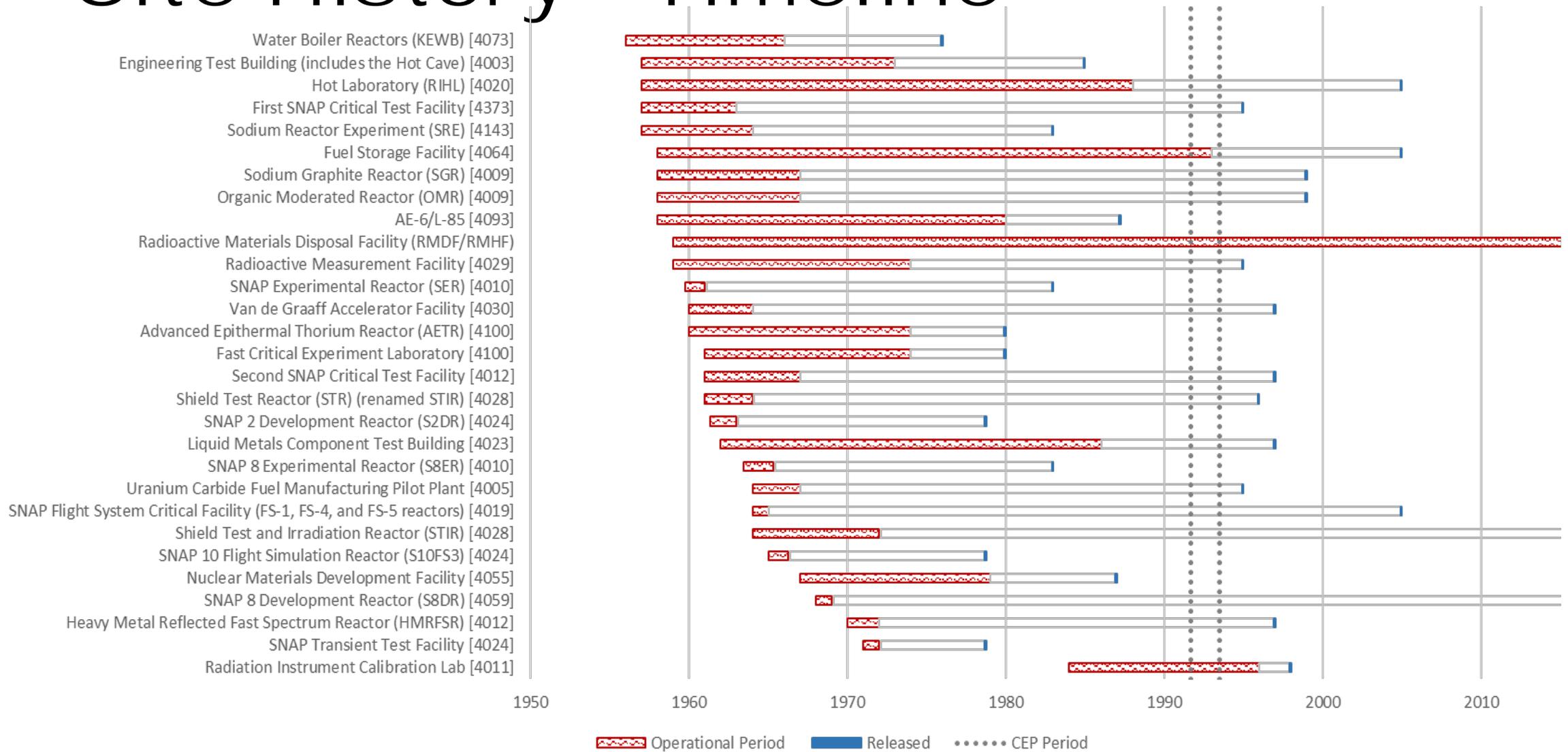
- **DOE operations (1955-1988)**
 - Reactor testing and development
 - Nuclear Support operations
 - Energy and non-nuclear R&D

- **DOE remediation (1988 – present)**
 - D&D of structures and components
 - Characterization, treatment, packaging and temporary storage of radioactive and mixed waste

SSFL Processes - cont'd

- **Highest exposure potential during D&D:**
 - SNAP Reactor Development Facility D&D
 - Hot Lab: Hot cell D&D
- **Facilities still operating:**
 - Fuel Storage Facility
 - Rad. Materials Handling Facility Complex
 - Rad. Instrument Calibration Laboratory

Site History - Timeline



Internal Exposure during D&D

Sources:

- Dust from demolition operations
- Removal of reactor activated concrete
- Decontamination of hot cell facility
- Unencapsulated material handled, stored and packaged in the RDMF

Radionuclides of concern:

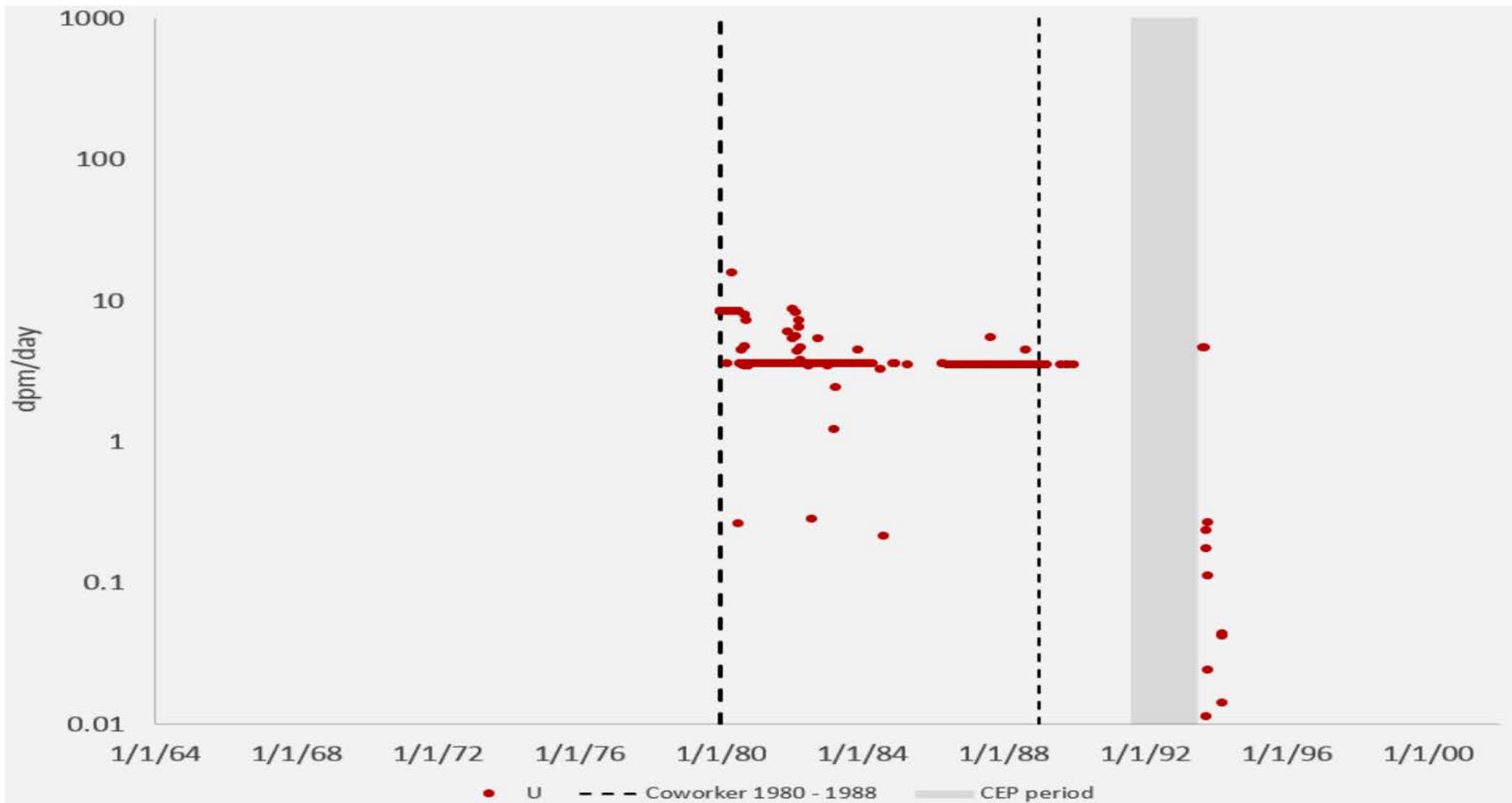
- Transuranics
- Activation products
- Uranium compounds
- Limited thorium and plutonium

Internal Monitoring Data

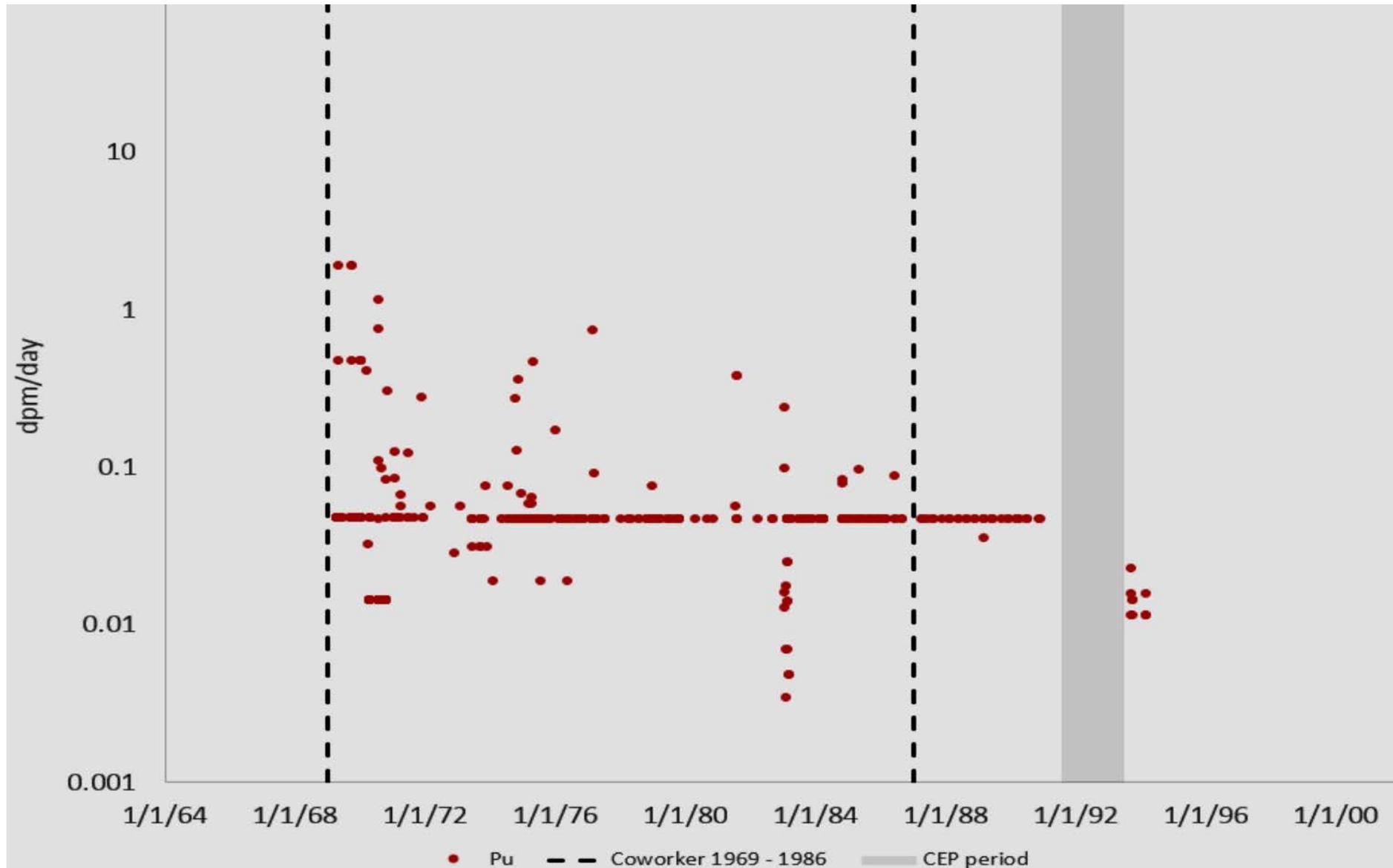
- Internal monitoring for workers:
 - High contamination areas
 - Handling unencapsulated materials
- Special samples triggered by air sample results
- *In-vitro* and *in-vivo* were routine, but dependent on job assignment
- CEP was primary bioassay vendor: Aug. 1, 1991 – June 30, 1993
- CEP suspected of data falsification
- CEP bioassay analyses for uranium, gross alpha, plutonium and mixed fission products are not being used by NIOSH

Internal Monitoring Data – cont'd

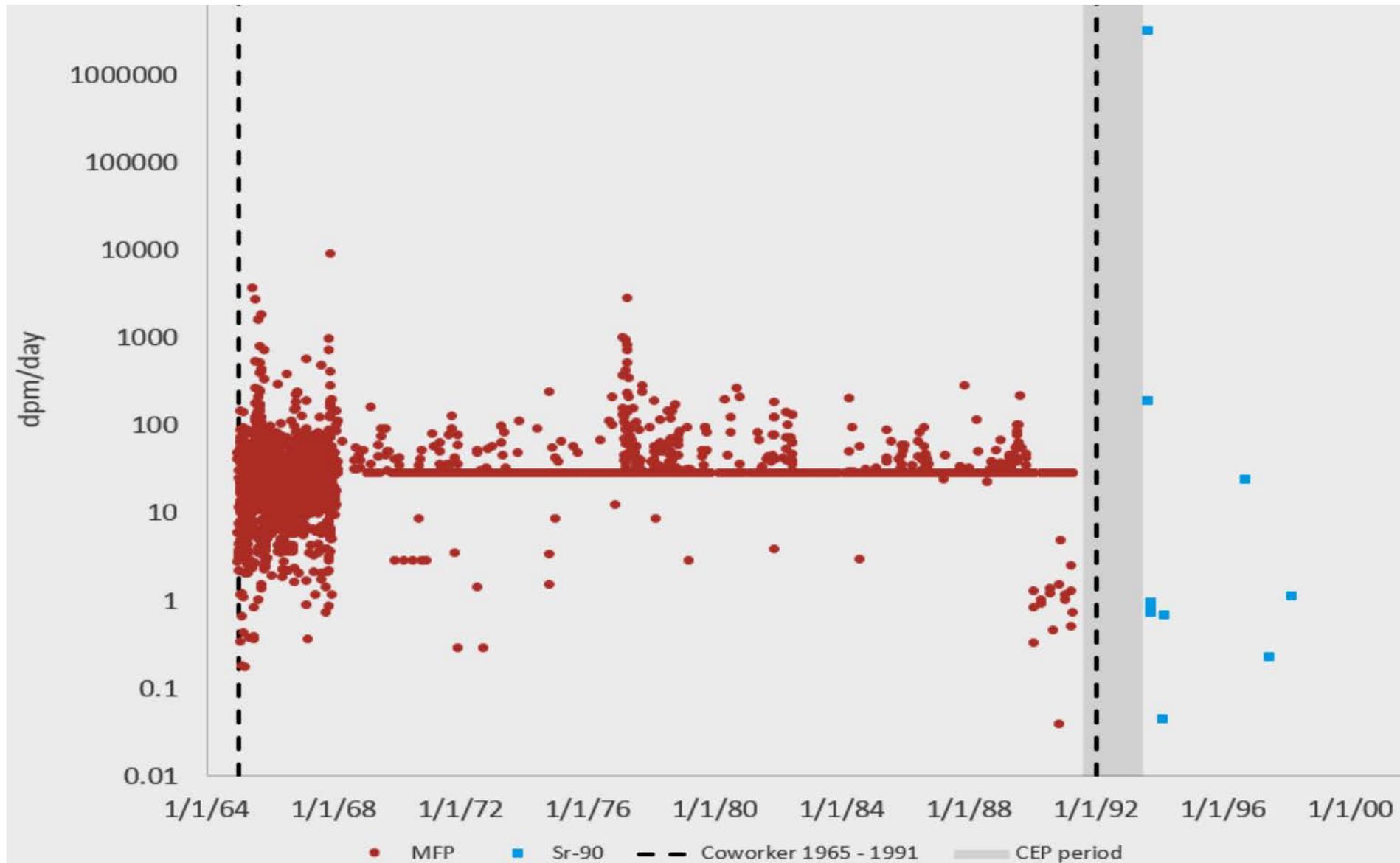
- SSFL CEP bioassay were baseline/routine in nature
- Air sample data is available for the same period
- *In-vivo* data is available for the same period (Helgeson)
- Coworker model (OTIB-0080) is available ending just prior to CEP period:
 - U: 1980-1988
 - Pu: 1969-1986
 - MFP: 1965-1991



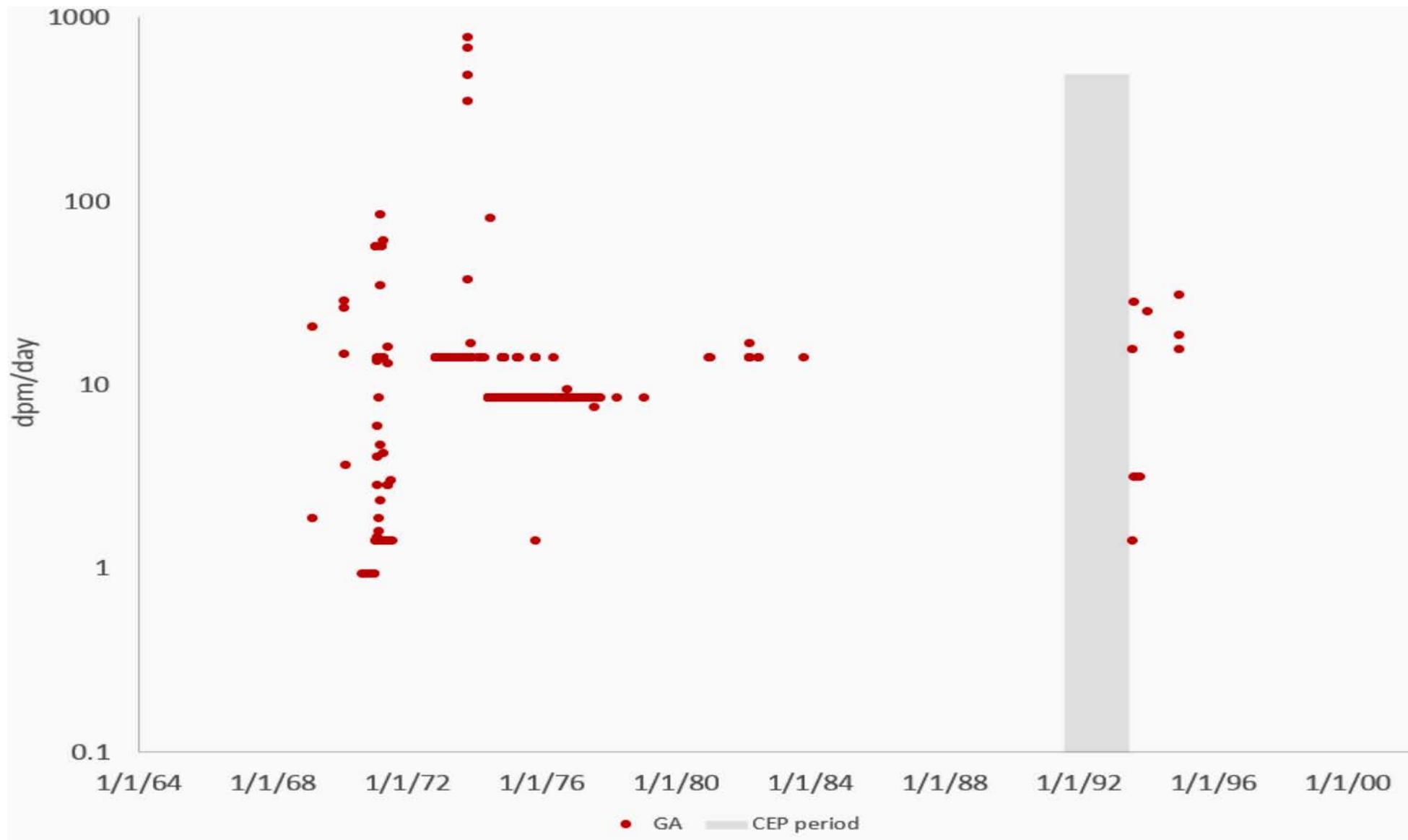
Uranium Bioassay Results



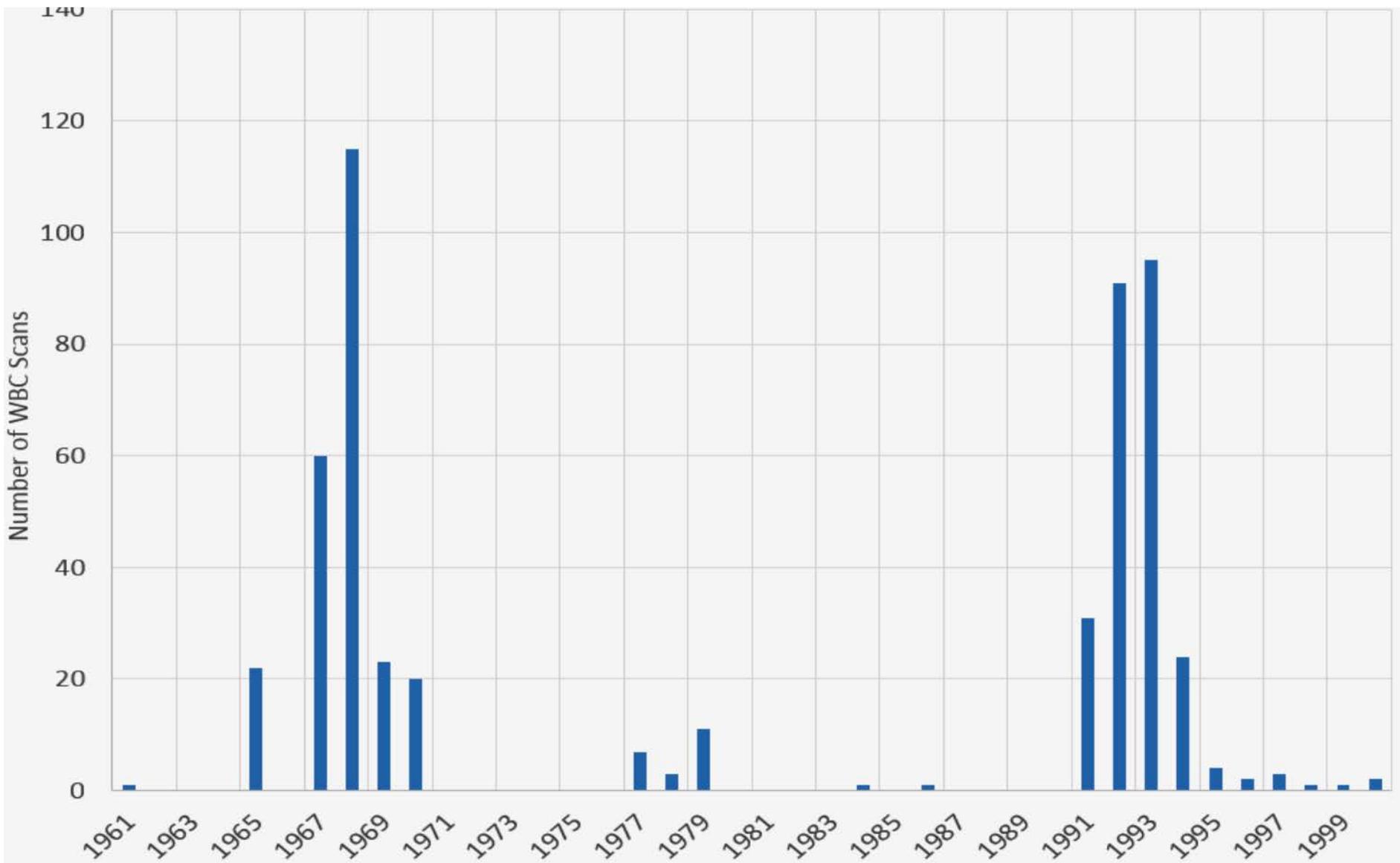
Plutonium Bioassay Results



MFP/Sr-90 Bioassay Results



Gross Alpha Bioassay Results



Frequency of WBC scans

Internal Feasibility

- Lack of CEP *in-vitro* data does not cause infeasibility to bound internal dose for monitored and unmonitored workers
- Comparison of remediation period bioassay data to the operational period data showed no indication that the coworker intake rates would not bound the exposures for unmonitored workers.
- D&D and waste handling operations throughout the remediation period (1989-present) remained consistent in procedure, equipment, and exposure risk.

Internal Feasibility - cont'd

- During the CEP period the site was performing routine *in vivo* whole-body scans with Helgeson, there were no measurable exposures.
- In response to the DOE concerns with CEP data, the SSFL site initiated confirmatory resamples analyzed by the new contractor, Teledyne-Brown Engineering, these follow-up *in vitro* results confirmed no measurable internal exposures.

Summary

Feasibility Findings for Area IV SSFL SEC-00235 (Aug. 1, 1991 – June 30, 1993)

Source of Exposure	Dose Reconstruction Feasible
Internal	
- all radionuclides	X
External	
-Beta-Gamma	X
- Neutron	X
- Occupational Medical X-ray	X