De Soto Avenue Facility
SEC-00246

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Providence, RI

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Previous related SEC classes

Petition	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-00168	All covered employees, all areas of the DeSoto Avenue Facility from January 1, 1959 through December 31, 1964 - Based on incomplete bioassay data available to NIOSH pre-1964
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 (NIOSH evaluated Area IV, 1992-1994 for SSFL Area IV)
SEC-00246	None (Current De Soto evaluation)

SEC-00246 Petition

- Petition received December 13, 2017
  - Additional supporting documents received February 27 and March 29, 2018
  - Requested class: *All workers who worked at the De Soto Avenue Facility in Los Angeles County, CA during the period from January 1, 1965 through December 31, 1995.*
- Petition qualified on March 1, 2018
  - No modification to petitioner requested class
- Evaluation Report sent to ABRWH: July 5, 2018 (within 180 day timeframe)
- NIOSH recommended class to be added to SEC: None

De Soto Facility - Petition Concerns

- SEC-00234: Th and Am exposures cannot be reconstructed at Area IV
- Area IV and De Soto Avenue operated under the same H&S oversight
- Petition states americium and thorium were used at De Soto
  - SRE
  - TRUMP-S
  - SNAP
- Thorium fabrication work
- Controls for Environmental Pollution bioassay contractor (1992-1994)

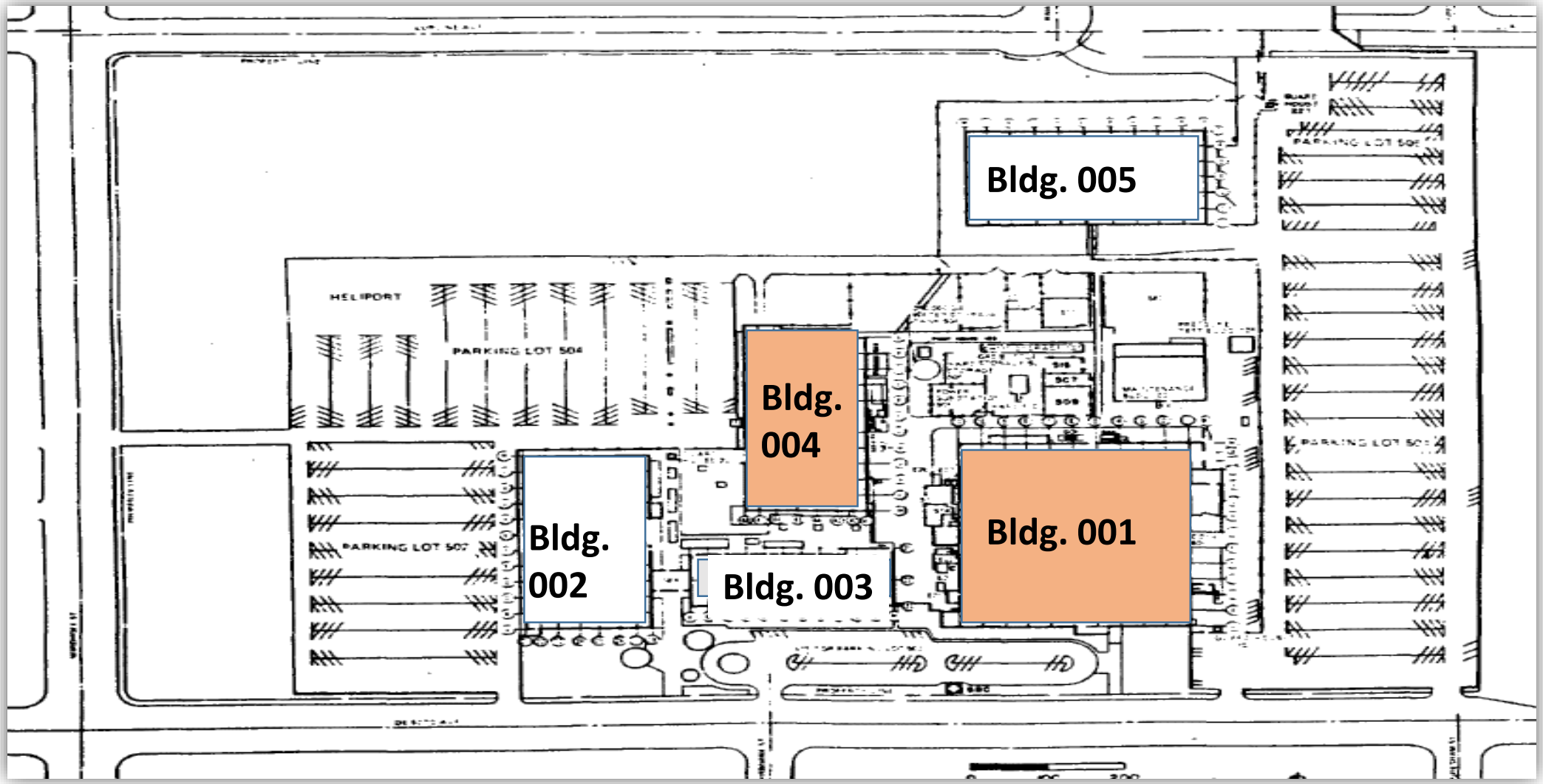
De Soto Facility Claims, July 2018

Total Number of claims submitted for DR	**292**
Total number of claims for workers who worked during the period from January 1, 1965 through December 31, 1995	**255**
Number of DRs completed for the evaluated period (submitted to DOL)	**210**
Number of claims with internal dosimetry records for the evaluated period	**64**
Number of claims with external dosimetry records for the evaluated period	**104**

De Soto Facility - Site Description

- Located at 8900 De Soto Avenue, Canoga Park, CA
- Covered Period
  - DOE 1959-1995
  - Remediation 1998
- Two buildings involved in radiological work.
  - Bldg. 001 - Fuel fabrication
  - Bldg. 004 – R&D
    - Gamma Irradiation Facility (GIF)
    - Helium Mass Spectrometry Lab

De Soto Facility - Site Description – cont'd



De Soto Facility - Site History

- Facility constructed in 1959
  - Headquarters of Atomics International (AI)
- DOE operations 1959-1995
  - Engineering design and construction
  - Nuclear fuel fabrication 1959 – 1983
  - L-77 research reactor 1959 – October 1974 (fuel removed 1976)
  - Gamma Irradiation Facility (operated 1966 – 1994)
  - Helium Mass Spectrometer Lab
  - Radiochemistry Support
  - Space Nuclear Auxiliary Power (SNAP) program R&D 1955 - 1973

De Soto - End of Operations Timeline

- 1983 – Nuclear activities terminated except GIF and Mass Spec
- 1984 – Nuclear areas decontaminated and released for unrestricted use (except GIF and Mass Spec Lab)
- 1994 – GIF ceases operations
- 1995 – Mass Spec Lab operations end in May
- 1998 – DOE remediation period, D&D of Mass Spec Lab and GIF

De Soto Facility-Information Resources

- Site Profile, Site Coworker Studies (Internal and External), and Procedures
- NIOSH Site Research Data Base: ~ 3143 documents for all SSFL/AI related sites
- Existing claimant files
- Data base entered from worker radiological file images
- Documentation provided by petitioner
- Interviews with former De Soto Avenue/SSFL employees

De Soto Facility - Americium

- Some instances of Am storage/shipping from vault
- Licensed for source fabrication
- No indication of americium fabrication or operational use
- Interviews confirmed no operational use of Am
- No occupational exposure data for Am
- Only Am use in commercial products (i.e. smoke detectors)

De Soto Facility - Thorium

- Fabrication ThO_2 fuel simulant discs for transit capsule testing, May 1970
- Post-test analysis transit capsule testing – Bldg. 001 Hot Shop, June 1970
- Application for Thorium Oxide Material Users Permit (3/11/71)
  - Aerospace Corporation (non-covered, off-site work)
- Machining thorium metal plates, Feb. 1979
- Bioassay and air data available for both operations
- Small scale process, names of involved personnel available

De Soto Facility - Petition Concerns

- SRE: only Th fuel for SRE was fabricated and stored at Area IV
- SNAP: De Soto did reactor/fuel R&D before reactor operations at Area IV, no used fuel handling
- TRUMP-S: no indication program was ever operational, received material in storage until shipped off site
- CEP primary vendor for urine sample analysis in 1992-1994
- Nuclear facilities D&D complete except GIF and Mass Spec Lab
- SEC-00235, for Area IV, found no impact on feasibility of DR due to discarding CEP associated data

De Soto Facility - Internal Exposure

- Inhalation and Ingestion of radioactive contamination from unsealed materials from fuel production and radiochemistry operations
- De Soto internal exposure potential different from Area IV
- Mostly uranium from fuel production
  - Uranium-Aluminide (UAlx) fuel production for ATR
  - Special DR methodology developed for UAlx workers
  - Well documented exposure issue
- Thorium from episodic work in 1970 and 1979
- No indication of Americium exposure potential

Internal Monitoring Data

- Radiation workers in high contamination areas
- Workers handling unencapsulated radiological materials
- Special samples triggered by air sample results
- *In vitro* and *in vivo* routine monitoring of rad workers by job assignment
- De Soto Avenue had radiation protection procedures and the *Rocketdyne Radiological Controls Manual*
- Event/condition driven special sampling program

Thorium Dose Reconstruction

- 1970: production and post test analysis of simulated Th fuel disks
- 1979: machining of Th metal discs (dose bounding operation)
  - Limited containment and larger quantity
  - 8 day operation
- Operational details and worker rosters available
  - Baseline and post-work analyses for main operator (<MDA)
  - Lapel air sample results
- Intakes can be calculated based on 8 day chronic intake for natural thorium using <0.99 μg/d urine sample result for machining operator
- Doses can be assigned for natural Thorium based on calculated intakes and solubility assumptions

De Soto - Feasibility Conclusion

- Fuel fabrication operations present no dose reconstruction infeasibility
- Bioassay is generally available after 1965
- ORAUT-OTIB-0080 coworker available for potential unmonitored internal exposures
- No operational americium exposures identified
- Thorium campaigns in 1970 and 1979 have thorium-specific personnel and workplace monitoring and doses can be bounded
- Lack of CEP data does not affect NIOSH's ability to perform sufficiently accurate internal dose reconstructions

De Soto Facility - Summary

Feasibility Findings for De Soto SEC-00246 after January 1, 1965

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