



SEC-00247- Evaluation Recap Superior Steel Co.

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Advisory Board on Radiation and Worker Health, 128th Meeting

Pittsburgh, PA

April 17, 2019

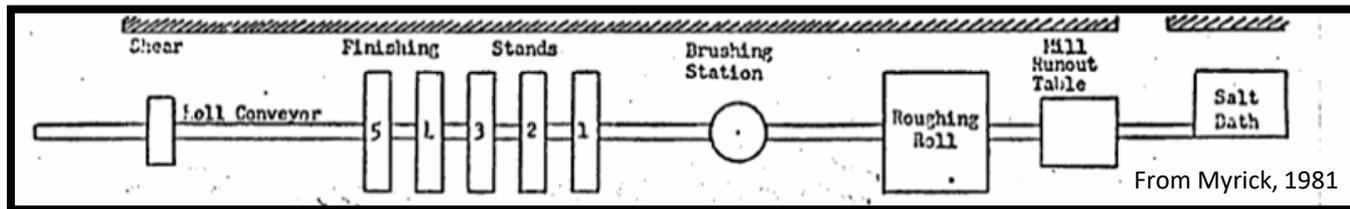
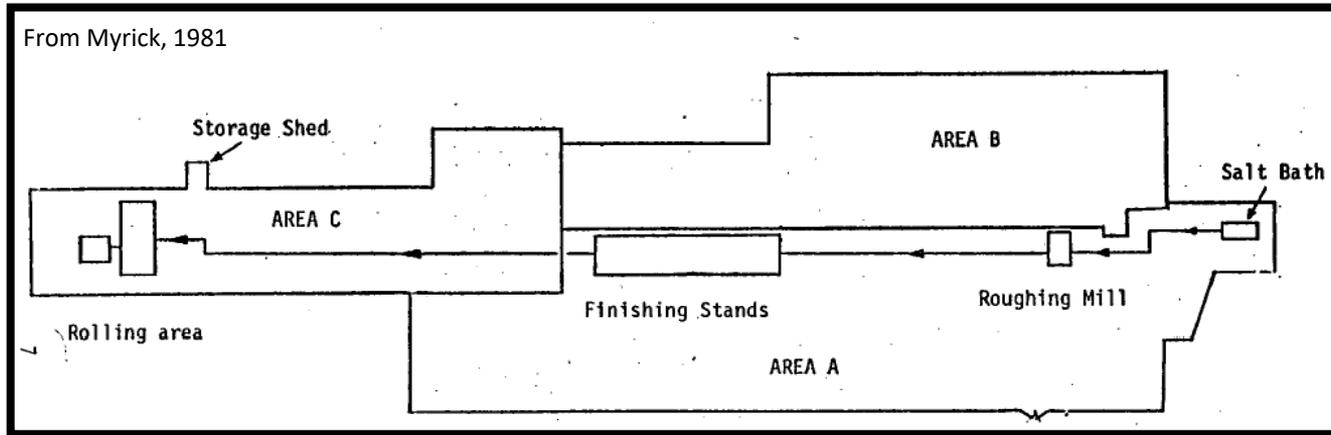
About Superior Steel Co. Site

- Carnegie, PA
 - 5 interconnected buildings
- Uranium rolling for AEC
- Covered Period
 - AWE: January 1, 1952 through December 31, 1957
 - Residual Radiation: January 1, 1958 through present



Photo from USACE, 2018

Superior Steel Co. Processing Areas



SEC-00247 Petition for Superior Steel Co.

- 83.13 (Form B) Petition Received May 1, 2018
 - Petitioner-requested class: *All workers who worked in any area at the Superior Steel Co. facility in Carnegie, PA, during the period from January 1, 1952 through December 31, 1957.*
 - (F.1) Basis: *Radiation exposures potentially incurred by members of the proposed class were not monitored either through personal monitoring or through area monitoring.*
- Petition qualified on July 19, 2018
 - Qualified class: *All atomic weapons employees who worked in any area at Superior Steel Co. in Carnegie, PA during the period from January 1, 1952 through December 31, 1957.*

Superior Steel Co. Exposure Time

- AEC contract [AT(30-1)-1412] effective date is June 27, 1952
- AEC contract end date is September 30, 1957
 - Evidence that the fission material accounting station authority was withdrawn on November 27, 1957
- AEC cost-plus-fixed-fee contract was for intermittent, on-demand rolling
 - Payments through fiscal year 1957 totaled \$356,849
- CATI information tells us overtime work was common

Radiological Sources at Superior Steel Co.

- Majority of AEC rolling campaigns were with natural uranium metal
- 1 AEC rolling campaign included 6 slabs of 1.5% enriched uranium metal
- *Since the Superior Steel Co. operations were after 1952, uranium metal could be recycled*
- 1 commercial, small-scale rolling campaign with 700 pounds of thorium metal

Monitoring Data Available- Internal Exposure at Superior Steel Co.

- Personal Monitoring: No in vitro or in vivo results and there is no indication of internal dosimetry monitoring program
- Area Monitoring: Four campaigns of air monitoring (e.g., BZ and area) performed by AEC Health and Safety Laboratory (HASL) during uranium rolling:
 - May 13, 1953
 - August 3, 1953
 - May 9, 1955
 - September 19, 1955

Monitoring Data and Information Available- External Exposure at Superior Steel Co.

- Personal Monitoring: No external dosimetry results and there is no indication of external dosimetry monitoring program
- Area Monitoring: No indication of area external dose monitoring program

- Information is available to NIOSH about the Superior Steel Co.'s AEC contract, radiological material licensing, processes, and the material processed

Dose Reconstruction Feasibility Conclusion

- NIOSH has sufficient air data and process information to bound internal and external dose from AEC uranium metal rolling operations
- NIOSH has sufficient process information to bound internal and external dose from the small-scale, commercial thorium metal rolling operation
- NIOSH Site Profile for Superior Steel Co. (effective date 2005) will be updated with the additional information captured and reviewed in this evaluation

Evaluation of Petition Basis- Internal Monitoring

- “Individual uranium urinalysis data are unavailable for Superior Steel workers and none are known to exist.” (ORAUT-TKBS-0034)
 - When personal internal monitoring data are unavailable, NIOSH uses air monitoring data from worker breathing zones and work areas, in accordance with NIOSH’s OCAS-IG-002, *Internal Dose Reconstruction Implementation Guideline*
 - Sufficient site-specific air monitoring data and process data to calculate estimates of worker internal uranium doses with sufficient accuracy
 - Airborne mass loading calculations using available uranium process air monitoring data to estimate worker internal thorium doses

Evaluation of Petition Basis- External Monitoring

- “No external dosimetry results are available for Superior Steel employees.” (ORAUT-TKBS-0034)
 - When personal and area external monitoring data are unavailable, NIOSH uses workplace information (e.g., source term, process) to estimate dose, in accordance with NIOSH’s OCAS-IG-001, *External Dose Reconstruction Implementation Guideline*
 - Sufficient applicable site-specific information, using the methods of Battelle-TBD-6000, to model potential external uranium exposures
 - Model thorium metal related exposures in accordance with the methods presented in Battelle-TBD-6000 using MCNP

Feasibility Findings for SEC-00247 Superior Steel Co. January 1, 1952 to December 31, 1957

Source of Exposure	Dose Reconstruction Feasible
Internal	Yes
Uranium	Yes
Thorium	Yes
External	Yes
Uranium	Yes
Thorium	Yes
Occupational Medical X-rays	Yes
