

# Carborundum EEOICPA Facility Listing

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- Listing as revised by DOL in July 2015
  - State: New York      Location: Niagara Falls
  - Atomic Weapons Employer (AWE)  
June – September 1943, 1959-1967
  - Residual Radiation  
1943-1958, 1968-1992



# EEOICPA Facility Listing

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- Carborundum Facility Description:

In June 1943 the Carborundum Company did experimental centerless grinding of uranium slugs.

From 1959 through 1967 the company manufactured uranium and plutonium carbide pellets for an AEC research program.



# SEC Petition Overview

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- Petition received November 19, 2014
- Petitioner requested class definition:

All employees who worked in any area of the Carborundum Company facility on Buffalo Avenue, Niagara Falls, NY from January 1, 1943 through December 31, 1976



# 1<sup>st</sup> AWE Period - 1943

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- Location of 1943 AEC work unknown
- Work limited to experimental grinding of uranium metal using a centerless grinder
- Total quantity of uranium at Carborundum:  
10 uranium slugs totaling 30 pounds
- Uranium slugs on site from June through September
- Internal and external doses estimated using TBD-6000



# Centerless Grinding

## Residual Contamination 1943-1958

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- Residual contamination based on estimates of airborne radioactivity using methods described in ORAUT-OTIB-070
- Internal dose based on resuspension of contamination
- External dose from residual contamination based on derived contamination levels and dose coefficients in Federal Guidance Report No. 12



## 2<sup>nd</sup> AWE Period 1959 - 1967

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- Carborundum was an AEC contractor and a subcontractor (United Nuclear) in the fuel development program
- Did work with uranium and plutonium in modern Research and Development Building (Building 1) that opened in 1953



# Second AWE Period, 1959-1967

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- Developed methods to synthesize fuels for breeder reactors
- Work in 1959 - 1961 involved synthesis of uranium refractory compounds
- Plutonium laboratory opened in 1961 to synthesize mixed carbide fuel pellets
- Plutonium Laboratory comprised a 555 ft<sup>2</sup> area fully contained and ventilated



# Second AWE Period, 1959-1967

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- Uranium laboratory produced small batches of monocarbide, mononitride, and uranium silicide, experimenting with methods to form pellets
- Plutonium laboratory was a small facility that developed methods and produced (UPu)C fuel pellets for use in Fermi Fast Breeder Reactor
- Work including studying physical properties of synthesized pellets, including use of X-ray diffraction techniques (XRD)



# Second AWE Period, 1959-1967

## Monitoring Data

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- Internal dose
  - Air samples results are available from uranium work in 1959 and 1961
  - Air samples from plutonium work in 1961 are available
- External dose
  - NIOSH has not identified any dosimetry data or external dose rate measurements



# Second AWE Period, 1959-1967

## Air Sampling Data

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- Uranium: general area air dust samples were taken in November 1959 and April 1961
  - Nine are legible in the documentation
  - All nine air sample results were positive
- Plutonium: sixteen air samples taken in June and April 1961
  - Includes general area and breathing zone samples
  - Nine of the sixteen samples were positive



# Second AWE Period, 1959-1967

## Internal Dose Estimates

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- Air sample data used to estimate intakes from uranium work and from plutonium work
- For uranium, the 95<sup>th</sup> percentile of the general area air samples used to estimate intakes by support workers, with operator intakes assumed to be double
- For plutonium, both general area and breathing zone sample results are available to estimate intakes
- Plutonium work involved a mixture of uranium and plutonium



# Second AWE Period, 1959-1967

## External Dose Estimates

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- For uranium work, TBD-6000 doses for machining uranium will be used to bound external dose
- For plutonium work in the gloveboxes, external photon and neutron doses modeled with MCNP
- Dose from XRD estimated based on measurements of dose rates from scatter reported from a survey of XRD units in Pennsylvania in 1966



# Second Residual Period, 1959 - 1976

## Dose Estimates

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- Residual contamination based on airborne radioactivity and estimates of surface contamination using methods described in ORAUT-OTIB-070
- Internal dose based on resuspension of contamination
- External dose from residual contamination based on dose coefficients in Federal Guidance Report No. 12

