Appendix B-3 Residual Beryllium Evaluations for Individual Facilities

FACILITY NAME: A.O. Smith Corporation
Milwaukee, Wisconsin

TIME PERIOD: 1948-1950

FACILITY DESCRIPTION:

DOE ES&H Website:
A.O. Smith studied methods for protecting beryllium carbide-matrix bodies for the Nuclear Energy for the Propulsion of Aircraft (NEPA) project.

DISCUSSION:
Telephone contacts were made with current company (A.O. Smith and Tower Automotive) officials. A. O. Smith officials could not locate any specific records for the listed dates. The Tower Automotive officials provided the following information: (1) Tower Automotive bought a Division of A.O. Smith in 1997, which is the location where the AEC/DOE contracts took place; (2) this is a 150 acre location, with numerous current buildings—over the years various buildings have been torn down; and (3) there is no way to determine in which buildings the AEC/DOE work took place. It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. No specific information could be found concerning decontamination activities after the contracts were terminated.

The documentation reviewed and the information provided by current company officials do not indicate that beryllium decontamination was ever performed, nor were there any records regarding whether or not the work areas for the AEC/DOE contracts and other clients were separate.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contacts with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1951-present

FACILITY NAME: AC Spark Plug
Flint, Michigan

ALSO KNOWN AS: AC Spark Plug

TIME PERIOD: 1946-1947

FACILITY DESCRIPTION:

DOE ES&H Website:
AC Spark Plug performed beryllium work for the AEC. Records indicate that approximately 10 men worked with beryllium at this location in 1947. Information about AC Spark Plug is found in health hazard surveys, shipping reports, and in a MED history. The company continued to receive hundreds of pounds of beryllium for use under government contract into the 1960s. It is possible that some or all of this beryllium was being used for other, non-AEC projects.

There was also a small amount of thorium procurement related to AC Spark Plug in the 1946-1947 time frame.

DISCUSSION:

The specific name of this site is AC Spark Plug Division of General Motors, Dort Highway Plant. The time period for AEC involvement with this site goes back as far as 1943, but it appears that activities involving beryllium did not start until the Fall of 1946. At this time, they were asked to research the possibility of fabricating beryllium oxide (BeO) into the form of hexagonal bricks. They were to get 5,000 pounds of SP grade BeO from the Brush Beryllium Company. It appears that between Fall 1946 and February 1947 small quantities were obtained for the purpose of conducting research to see if the fabrication of the bricks was possible. This research was conducted by three employees in what probably was a specialized area. In February 1947, an AEC site visit was conducted and various recommendations were made including the need for improvements in working conditions and reducing beryllium exposures. By March 1947, the site had received about 900 pounds of BeO. In May 1947, another AEC site visit was conducted, mainly dealing with a safety and health evaluation. After the May 1947 information, there is no further documentation of further work with the fabrication project, other AEC involvement, or decontamination efforts. There is documentation that in 1961 the site had obtained about 900 pounds of BeO from DOD. It can not be determined how this material was used.

Telephone contact with current company officials from General Motors provided the following information: (1) mention of the AEC beryllium contract work was found in their records but there was no documentation about decontamination or special work areas for the AEC contracts; and (2) the facility still exists on Dort Highway and is owned by Delphi (facility is know as Delphi Flint East)—it is not clear exactly when the facility was bought by Delphi.

The documentation reviewed indicates that the AEC/DOE beryllium contract work probably cannot be separated from the other beryllium work. No record of beryllium decontamination could be found or was provided by current officials at General Motors.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and contact with current General Motors officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the periods in which weapons-related production occurred.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1948-present

FACILITY NAME: Accurate Machine & Tool
Albuquerque, New Mexico

TIME PERIOD: 1987-2002

FACILITY DESCRIPTION:

DOE ES&H Website:
Accurate Machine & Tool provides machine shop services to Sandia National Laboratory, California. This work has included the use of beryllium-copper materials.

DISCUSSION:
Telephone contact with current company officials provided the following information: (1) Provided machine shop services on beryllium copper materials from 1985-2002 in an existing building (still used as a machine shop) at the current address of the company; (2) there is a difference in start date (1985 vs. 1987), and there possibly was AEC/DOE beryllium contract work conducted in the 1960-70s in a different location on Yale Boulevard; (3) beryllium work was only conducted for AEC/DOE and was not conducted in any special work area; and (4) no specific decontamination for beryllium took place after the contracts were terminated.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the periods in which weapons-related production occurred.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
2003-present

FACILITY NAME: Aeroprojects, Inc.
West Chester, Pennsylvania

ALSO KNOWN AS: Sonobond Ultrasonics

TIME PERIOD: 1951-1973

FACILITY DESCRIPTION:

DOE ES&H Website:
Beginning in 1951, Aeroprojects Inc. performed research and development for the AEC. The company's work included investigation of the use of ultrasonic energy in the areas of instrumentation, welding, filling of tubes with powders, extrusion, solidification and cleaning. Materials used by the company include alloys and compounds of aluminum, beryllium, mercury, thorium and uranium.

DISCUSSION:

In the AWE files, it was noted that the exact quantities of the materials mentioned above are not known. It was noted that work for the AEC decreased in the mid-1960s and that the site began doing research and development work under other government contracts. The AEC contracts were closed out in 1973, and there is no mention of decontamination activities. A report shows that workers: (1) in the late 1950s buried welding shavings and rags that were involved in an accident involving beryllium and other materials; (2) in 1966 buried in a concrete container air filters that were used to monitor beryllium and other welding activities; and (3) in 1976 buried in a glass jar small quantities of beryllium wire and other materials.

Telephone contact with current company officials (Sonobond Ultrasonics) provided the following information: (1) AEC/DOE contract work might not have extended until 1973 but no documentation could be located; (2) the facility where beryllium work was conducted was vacant from 1981-2001, at which time it was destroyed by fire in 2001; (3) beryllium work was conducted in a separate room with special ventilation; (4) no other beryllium work was conducted; and (4) at the end of the contracts all material, equipment, clothing, etc. was returned to AEC/DOE.

The documentation reviewed and information provided by current company officials indicate that, even though all beryllium contract equipment was returned to AEC/DOE, no record of beryllium decontamination was found after the contracts ended.

INFORMATIONAL SOURCES:

Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the periods in which weapons-related production occurred.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1974-2001

FACILITY NAME: American Beryllium Co.
Sarasota, Florida

TIME PERIOD: 1967-1992

FACILITY DESCRIPTION:
DOE ES&H Website:
American Beryllium Company machined parts for Y-12 and Rocky Flats. Generally, the beryllium for these parts was supplied by Kawecki Berylco Industries, Inc.

DISCUSSION:
OSHA measured beryllium at this location sometime between May 1979 and December 1999. No other records pertaining to beryllium could be identified.

The following information was obtained from newspaper articles and Federal and State documents. A more correct name for the facility at the time of the AEC/DOE contracts was Loral American Beryllium Company. In 1996, it was bought by Lockheed Martin; it closed shortly thereafter. However, it has been determined by sampling at the site, which still exists, by Federal and State agencies that significant beryllium contamination remains.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and current Federal and State agency documents.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the periods in which weapons-related production occurred.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1993-present

FACILITY NAME: Atomics International
Los Angeles County, California

ALSO KNOWN AS: Energy Systems Group

TIME PERIOD: 1955-1966

FACILITY DESCRIPTION:
DOE ES&H Website:
The Atomics International Division of North American Aviation is a statutory beryllium vendor under the EEOICPA. Atomics International worked with beryllium and radioactive materials under contract with the Atomic Energy Commission at numerous locations. These locations include, but are not necessarily limited to, Area IV of the Santa Susana Field Laboratory, portions of the Downey facility, the Vanowen Building at the Canoga facility and the De Soto facility.

DISCUSSION:
A beryllium inventory dated 1949 and a document dealing with beryllium hazards was all that could be found. It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. Even though DOE remediation ended in 1999, there is no indication this included beryllium decontamination.

Telephone conversations with current company officials (Boeing Company) provided the following information: (1) beryllium work involved research for and production of beryllium reflectors at three different sites—(a) Vanowen Building (#38)-demolished in 2004; (b) DeSoto Avenue Building (#101)-demolished in 2004; and Santa Susana site-most buildings demolished over the years; (2) no records were provided about beryllium decontamination; and (3) current remediation mainly deals with sodium.

Since there is no documentation regarding beryllium decontamination, the presence of residual beryllium contamination cannot be ruled out.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the periods in which weapons-related production occurred.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1967-present

FACILITY NAME: Battelle Laboratories - King Avenue
Columbus, Ohio

ALSO KNOWN AS: Battelle Columbus Laboratories-BCL
Battelle Memorial Institute-BMI

TIME PERIOD: 1943-1961; Department of Energy, 1986-2000

FACILITY DESCRIPTION:

Information As Printed On Worker Advocacy Website:
From 1943 to 1986, Battelle Memorial Institute performed atomic energy research and development as well as beryllium work for the Department of Energy and its predecessor agencies. The Battelle Laboratories have two separate locations in Columbus - King Avenue and West Jefferson. Battelle's research supported the government's fuel and target fabrication program, including fabrication of uranium and fuel elements, reactor development, submarine propulsion, fuel reprocessing, and the safe use of reactor vessels and piping.

The following activities were performed at the King Avenue location: processing and machining enriched, natural, and depleted uranium and thorium; fabricating fuel elements; analyzing radiochemicals; and studying power metallurgy. Beryllium work was conducted from 1943 until at least 1961.

DISCUSSION:

The reference to "beryllium work" in the foregoing description could not be further defined by a review of the available records. The following passages were noted: (1) This project concerned itself with developing methods for fabrication of beryllium oxide hexagons, research in making beryllium metal of high purity and the alloying of beryllium with uranium; (2) Research is conducted to furnish information on beryllium; (3) General metallurgical research and development is conducted; and (4) Beryllium and its compounds were supplied to the Manhattan Engineer District. The following information also was noted: (1) Beryllium deliveries were made in 1945/46; (2) There was a March 1947 beryllium inventory; (3) There was a February 1948 request to the AEC for various beryllium compounds; (4) Beryllium fabrication was briefly mentioned in an April 1948 document; (5) There was an August 1949 request to the AEC for beryllium compounds; and (6) There was a March 1950 inventory of beryllium stocks. No information was found on beryllium beyond 1950. In the 1986 DOE elimination report, beryllium concerns were not raised.

Current company officials did not provide any information about the AEC beryllium work and beryllium decontamination.

The fact that this facility is listed as an AWE facility between 1943 and 1986 and then is classified as a DOE facility from 1986-2000 indicates that work was being performed for the

weapons production program during these time periods. The documentation reviewed provides no evidence that beryllium decontamination has taken place.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the periods in which weapons-related production occurred.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1962-1985

FACILITY NAME: Beryllium Corp. of America-Hazelton
Hazelton, Pennsylvania

ALSO KNOWN AS: Cabot Corporation
Beryllium Corp.of America-Ashmore
Berylco
Kawecki-Berylco

TIME PERIOD: 1957-1979

FACILITY DESCRIPTION:
DOE ES&H Website:
The Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC) contracted with the facility for the production of beryllium metal, beryllium oxide, and beryllium powder. The AEC contracted with the facility for the refining and fabrication of beryllium. Later, the facility produced beryllium blanks for the Y-12 plant and Dow (Rocky Flats).

DISCUSSION:
Very little information about this facility was found. There was one reference in March 1960 to this site's specific activity at that time. It was stated that the operation included production of high grade metal and oxide from beryl ore, and the metal was used for vacuum cast billets and sintered compacts. Also, final machining of the metal was performed there. Two references were found (June 1961; 1970) that worker exposures to beryllium were extremely high and a serious problem. No information is presented regarding decontamination efforts after the MED/AEC contract period, nor is there any documentation that this work was conducted in areas separate from work for other customers.

Telephone contact with current company officials (Cabot Corporation) provided the following information: (1) the AEC/DOE contracts only went from 1957-1962, not through 1979 as listed on the Website; (2) the facility continued processing beryllium for other clients from 1962-1979; (3) the facility closed in 1980, was not used after that date, was torn down in 1995, and the land is currently vacant; (4) during the AEC/DOE contracts the beryllium work was not conducted in special areas of the facility; and (5) no records were available regarding beryllium decontamination after the AEC/DOE contracts ended.

No records of beryllium decontamination could be found or were provided by current company officials. The beryllium work conducted for the AEC/DOE cannot be separated from the beryllium work conducted for other clients. It should be noted that current company officials stated that the end date for AEC/DOE contract work was 1962.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1980-1995

FACILITY NAME: Beryllium Corp. of America-Reading
Reading, Pennsylvania

ALSO KNOWN AS: Kawecki-Berylco
Berylco
NGK Metals Corp.
Cabot Corporation
Beryllium Corp. of America-Tuckerton

TIME PERIOD: 1943-1979

FACILITY DESCRIPTION:
DOE ES&H Website:
In 1947, the Beryllium Corporation plant at Reading produced highly distilled and pure beryllium oxide on a small scale for the AEC. By 1960, the plant focused on alloy and oxide work. In 1961, the plant supplied beryllium parts to the Y-12 plant and produced beryllium powder for the AEC from government inventory beryllium ingots. Although all major Berylco Contracts (beyond 1961) and purchase orders reviewed to date show that the final product shipped from Hazelton, it has been clarified that but for the alloy and oxide work performed in Reading, the contracts and purchase orders fulfilled for the AEC by Hazelton could not have been completed.

DISCUSSION:
Very little information regarding this facility was found. There was one reference in March 1960 to this site's specific activity at that time. It was stated that the operation included alloying and oxide work. Two references were found (June 1961;1970) indicating that worker exposures to beryllium were extremely high and a serious problem. There was no indication that the MED/AEC contract work was conducted in an area separate from beryllium production for other customers and there was no information about decontamination activities after the contact periods.

Telephone contact with officials of the current company (NGK Metals Corporation), which bought the facility in 1986, provided the following information: (1) beryllium work was conducted for the AEC/DOE and other clients throughout the facility—no separate areas were used for the AEC/DOE work; (2) operations at the facility continued until 2000; (3) parts of the facility still exist; and (4) the site is currently undergoing environmental remediation for beryllium contamination.

ATSDR and EPA documents confirmed that beryllium remediation work is continuing.

The documentation reviewed and information provided by current company officials indicate that remediation is still ongoing, no record of beryllium decontamination after the contracts ended has been found, and the AEC/DOE work cannot be separated from beryllium work for other clients

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, telephone contact with current company officials, and ATSDR and EPA documents.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1980-present

FACILITY NAME: Beryllium Metals and Chemical Corp.
Bessemer City, North Carolina

ALSO KNOWN AS: BERMET

TIME PERIOD: 1962-1969

FACILITY DESCRIPTION:
DOE ES&H Website:
Purchase orders from Y-12 indicate that Beryllium Metals and Chemical Corp. (BERMET) did some beryllium work for Y-12, beginning in 1963 and continuing at least through 1965. Beyond that, records indicate BERMET was responsive to an invitation to submit 100 pounds of beryllium metal to the AEC in 1968 for purposes of qualifying for further work, as part of the AEC's beryllium metal study group. According to a May, 1969 memo, BERMET chose not to participate beyond this initial 100 pound qualifying round.

BERMET's corporate successor has indicated that the sale of beryllium to the AEC began in 1962 and continued through 1969.

DISCUSSION:
It appears that the specific time frame for BERMET's involvement in the beryllium metal study group was March 1968. Between July 1964 and April 1965, BERMET bought about 4,000 pounds of beryllium scrap from the AEC. The information about the work for Y-12 could not be confirmed.

Telephone contact with current company officials (FMC-Lithium Division) provided the following information: (1) Beryllium Metals and the Lithium Corporation of America (FMC bought the Lithium Corporation in 1985) conducted the AEC/DOE beryllium work as a joint venture from 1963 -1969, but beryllium work continued until 1971; (2) the beryllium work was conducted in a separate building at the site and there was no beryllium work for other clients; (3) once the AEC/DOE beryllium work ended (1971), the building was decontaminated; and (4) the building was torn down in 1980.

The documentation reviewed and information provided by current company officials indicates that AEC/DOE beryllium work continued through 1971. At this time beryllium decontamination took place. There was no documentation available to support this assertion therefore it is assumed that potential for residual contamination existed until demolition in 1980.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1970-1980

FACILITY NAME: Beryllium Production Plant (Brush Luckey Plant)
Luckey, Ohio

ALSO KNOWN AS: Brush Beryllium
Luckey Site

TIME PERIOD: BE 1949-1959; DOE 1949-1961; 1992-present (remediation)

FACILITY DESCRIPTION:

DOE ES&H Website:

From 1942 through 1945, National Lead operated a magnesium processing facility on the Luckey site for the U.S. Government. In 1949, the Atomic Energy Commission (AEC) built a beryllium production facility at the site. The government built the plant to replace the production that was lost when the Brush Beryllium Loraine plant was destroyed by fire. The Brush Beryllium Company (now Brush Wellman,) under contract to the AEC, produced beryllium pebbles at this site until 1958. Records indicate that the facility produced between 40,000 and 144,000 pounds of beryllium. In 1959, the AEC contracted with Brush to close down the facility. The site was sold to the Vulcan Materials Company in 1961.

In 1951, AEC sent approximately 1,000 tons of radioactively contaminated scrap metal to the Luckey site. This material was to be used by the Diamond Magnesium Company to resume magnesium processing at the idle facility. Former Brush Wellman employees report that the magnesium facility never resumed operations; however, some records indicate that the facility operated in the 1950s under contract by the General Services Administration (GSA). The radioactively contaminated scrap metal remained stored at the site.

DISCUSSION:

A 1991/1992 FUSRAP report provides a history of the ownership of the site—(1) in 1961 GSA transferred the property to Aluminum and Magnesium, Inc., (2) in 1967 the property was transferred to Vulcan Materials, (3) in 1968 the property was transferred to Goodyear Tire and Rubber, and (4) in 1987 the property was transferred to Motor Wheel Corporation. This report does not mention anything about beryllium decontamination efforts during the initiation of the remediation work. However, beryllium remediation work is ongoing by state and Federal officials.

There was AEC/DOE beryllium contracted work between 1949 and 1959, with DOE involvement during this time period and continuing into 1961. The AEC/DOE beryllium work conducted at this facility cannot be differentiated from beryllium work conducted for other clients. There is no indication that there was any beryllium decontamination after the 1959 or 1961 date. Remediation began in 1992 and is ongoing.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1962-1991

FACILITY NAME: Brush Beryllium Co.-Cleveland
Cleveland, Ohio

ALSO KNOWN AS: Brush Wellman Co.
Motor Wheel Corp.
Magnesium Reduction

TIME PERIOD: 1943-1967

FACILITY DESCRIPTION:

DOE ES&H Website:

The Brush Cleveland facility conducted research on a process for producing uranium metal (1942-1943) through magnesium reduction of molten green salt (uranium tetrafluoride). The facility later conducted research and development with uranium (1949-1953) and extruded thorium billets into slugs which were placed in Hanford production reactors (1952-1953).

The Brush Cleveland facility also produced beryllium metal and beryllium oxide for the MED (1943-1946) and later for the AEC (1947-1965?).

DISCUSSION:

References were made to high levels of worker exposures to beryllium. It could not be determined if the beryllium activities for the MED/AEC work were conducted in separate parts of the facility, away from work for other customers. There is no specific mention of decontamination activities after the MED/AEC contracts were terminated.

Telephone contact with current company (Brush Wellman) officials provided the following information; (1) the listed dates for production of beryllium (beryllium vendor) seemed accurate and the facility still exists; (2) the production work for the AEC/DOE contracts took place in separate areas of the facility along with beryllium work for other clients—these areas are still used for beryllium production for non-AEC/DOE clients; and (3) beryllium analytical work was conducted for DOE as recent as four years ago.

The documentation reviewed and telephone contact with current company officials indicate that AEC/DOE beryllium work cannot be separated from work for other clients, and this beryllium production continues to the present for non-AEC/DOE clients.

INFORMATIONAL SOURCES:

Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:

Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:

1968-present

Appendix B-3 Residual Beryllium Evaluations for Individual Facilities

FACILITY NAME: Brush Beryllium Co.-Elmore
Elmore, Ohio

TIME PERIOD: 1957-2001

FACILITY DESCRIPTION:
DOE ES&H Website:
Brush Beryllium plant in Elmore, Ohio was built in 1953. It began producing beryllium for the AEC in 1957 after operations at the Brush Luckey, Ohio, facility ended. (Prior to1957, it produced beryllium for the commercial market only.) The plant supplied beryllium to the Y-12 plant in 1990 and Brush purchase orders show that shipments from its Elmore location continued to Los Alamos and Sandia through April 2001.

DISCUSSION:
References were made to high levels of worker exposures to beryllium. It could not be determined if the beryllium activities for the AEC/DOE work were conducted in separate parts of the facility, away from work for other customers. There is no specific mention in the Beryllium Vendor files of decontamination activities after the DOE contracts were terminated, if in fact there is no longer DOE work there (i.e., beyond 2001). However, in the AWE files, there is a report dated December 2000 that states a 1987 evaluation of the site indicated there was little likelihood of contamination.

Telephone contact with current company (Brush Wellman) officials provided the following information; (1) beryllium production is still ongoing for DOE and the EEIOPC of DOE has issued EEOICPA Circular No. 03-01, dated October 1, 2002, that states that this facility currently still is a Beryllium Vendor; and (2) the production work for the AEC/DOE contracts takes place in separate areas of the facility along with beryllium work for other clients—these areas are still used for beryllium production for AEC/DOE work and non-AEC/DOE clients.

The listed period could well go through the present, rather than just 2001, since the current company officials substantiated that the facility still conducts beryllium production for DOE. For the issue at hand, the documentation reviewed and the information provided by current company officials indicate that AEC/DOE beryllium work cannot be separated from work for other clients, and beryllium production continues to the present for AEC/DOE work and non-AEC/DOE clients.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:

Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:

2002-present

FACILITY NAME: Brush Beryllium Co.- Loraine
Loraine, Ohio

TIME PERIOD: 1943-1948

FACILITY DESCRIPTION:
DOE ES&H Website:
The Loraine plant produced beryllium metal and beryllium oxide for the MED and the AEC. The plant was destroyed by fire in 1948.

DISCUSSION:
A report dated December 2000 states that a 1987 evaluation of the site indicated there was little likelihood of contamination. It is not clear what was evaluated since the facility was destroyed in 1948.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE.

EVALUATION FINDINGS:
Documentation reviewed indicates there is little potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

FACILITY NAME: Burns & Roe, Inc.
Maspeth, New York

TIME PERIOD: 1949-1950

FACILITY DESCRIPTION:
DOE ES&H Website:
In 1949, under AEC contract AT (30-1)438, Burns & Roe constructed a pilot plant in Maspeth on Long Island. The plant was constructed as a means of determining the potential value of the Sheer-Korman process in the manufacture of reactor materials. At least one test run involving beryllium was conducted in 1949. The New York Operations Office Health and Safety Laboratory sampled for beryllium in the air in 1949 and 1950, when the plant was dismantled.

DISCUSSION:
No additional documentation was found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE.

EVALUATION FINDINGS:
Documentation reviewed indicates there is little potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.
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FACILITY NAME: BWX Technologies, Inc.- Virginia
Lynchburg, Virginia

ALSO KNOWN AS: Tubular Products Div., Lone Star Tech
Babcock & Wilcox-Virginia
BWXT

TIME PERIOD: 1995-2001

FACILITY DESCRIPTION:
DOE ES&H Website:
Babcock and Wilcox Company's Nuclear Facilities Plant in Lynchburg, VA, performed work for a variety of AEC and DOE projects. Babcock and Wilcox Company's Nuclear Facilities Plant in Lynchburg, VA, participated in the AEC's Oxide Pellet Fabrication Program, which was managed by the New York Operations Office. Records indicate that shipments of enriched uranium were made to and from the Fernald facility during the years 1968-1972. The company also recovered highly enriched uranium from weapons scrap received from the DOE's Oak Ridge facility between 1985 and 1996. In 1997 the Babcock & Wilcox Company facility in Lynchburg, VA became the BWX Technologies facility. From 1998 to 2000, the company fulfilled a contract for the recovery of enriched uranium from scrap materials containing beryllium. The Lynchburg plant also participated in a DOE-sponsored program called Project Sapphire, under which the plant had responsibility from 1995 to 2001 for downblending enriched uranium obtained from the government of Kazakhstan.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation included the DOE ES&H Website, along with documentation provided by the DOE ES&H Group consisting of written communications by or for the DOE (including Reference: USAEC (NYOO) Health and Safety Laboratory - Occupational Exposure to radioactive Dust, Babcock and Wilcox Company, Lynchburg Va., Oct. 26, 1959).

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
2002-present

FACILITY NAME: C.L. Hann Industries
San Jose, California

TIME PERIOD: 1985-1994; 2000

FACILITY DESCRIPTION:
DOE ES&H Website:
C. L. Hann Industries provided machine shop services to Sandia National Laboratory, California. This work involved beryllium materials.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility, away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) machine shop services were provided to DOE as indicated in the Website for the listed dates of 1985-1994, but not for the year 2000; (2) the facility where the DOE contract work was conducted was vacated in 1997 and torn down in 2000—there is a soccer field there now; (3) beryllium work was not conducted for other clients; and (4) the DOE contract was not conducted in a specific area of the facility and there was no beryllium decontamination after the DOE contract work.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1995-2000

FACILITY NAME: Ceradyne, Inc.
Santa Ana, California

TIME PERIOD: 1977-1988

FACILITY DESCRIPTION:
DOE ES&H Website:
Ceradyne provided beryllium parts, and possibly powder, to the Y-12 plant.

DISCUSSION:
Only one reference to the listed time period was located consisting of a handwritten note. Also, there were three purchase/delivery orders for this time. It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility, away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) beryllium oxide ceramics were made for DOE during the listed dates on the Website; (2) Ceradyne vacated the facility in 1988 after the contract work was completed and beryllium decontamination was conducted; and (3) the facility still exists and houses two manufacturing companies.
No documentation of decontamination was available for review therefore it is assumed that the site continues to have the potential for residual contamination.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1989-present

FACILITY NAME: Ceradyne, Inc.
Costa Mesa, California

TIME PERIOD: 1987; 1990-1996

FACILITY DESCRIPTION:
DOE ES&H Website:
Ceradyne sold beryllium-graphite composite materials to the Y-12 plant in Oak Ridge in 1987 and between 1990 and 1996.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) ceramic materials were made for DOE and other clients during 1990-1996; (2) no mention was made of the 1987 date; (3) beryllium decontamination was conducted at the end of the DOE contract in 1996; and (4) the facility still exists and is used for production of ceramic materials.

The documentation reviewed and information provided by current company officials indicates that no record of beryllium decontamination could be found for the years between the 1987 contract work and the restart in 1990.

No documentation of decontamination was available for review therefore it is assumed that the site continues to have the potential for residual contamination.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1988-1989, 1997-present

FACILITY NAME: City Tool & Die Manufacturing
Santa Clara, California

TIME PERIOD: 1985-2001

FACILITY DESCRIPTION:
DOE ES&H Website:
City Tool is a precision machine shop that provided services to Sandia National Laboratory, California. The work involved machining beryllium-copper materials.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the correct name of the company is City Tool Die and Manufacturing; (2) machine shop services involving beryllium copper material were provided to DOE twice per year during 1985-2001 and the work was done in a separate area of the facility on one machine ; (3) no beryllium work was conducted for other clients; (4) no beryllium work was conducted for any clients after 2001; (5) no beryllium decontamination was conducted after the DOE contract work; and (6) the facility still exists as a machine shop.

The documentation reviewed and information provided by the current company officials indicate that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contacts with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
2002-present

FACILITY NAME: Clifton Products Co.
Painesville, Ohio

TIME PERIOD: 1942-1952

FACILITY DESCRIPTION:
DOE ES&H Website:
In the 1940s, Clifton had at least six large contracts with the AEC to supply beryllium products. By 1949, at least eight beryllium-related deaths had occurred at Clifton.

DISCUSSION:
There is a well-documented file on this facility that contains information on the production and process operations that were ongoing during the MED/AEC contract periods. (This site was one of the major producers for MED/AEC.) This file includes information on workplace conditions and worker exposures to beryllium. It apparently was a very hazardous place to work because of high exposure levels and documented cases of beryllium disease and fatalities. The contracts ended in 1952; however, information on a specific start date was not found, except that work was in progress in 1942. It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility, away from work for other customers. In 1952, after the contracts were terminated, a beryllium survey was conducted. Exposure levels were significantly lower than during production operations, but beryllium contamination was detected. It was mentioned that beryllium contaminated equipment was being removed from the site.

Telephone contact with current company (Lubrizol Corporation) officials provided the following information: (1) Lubrizol bought the Clifton Products Company in 1956; (2) the facility still exists; and (3) there is no record that either company conducted any beryllium decontamination at the facility.

The documentation reviewed and information provided by current company officials indicate that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1953-present

FACILITY NAME: Connecticut Aircraft Nuclear Engine Laboratory-CANEL
Middletown, Connecticut

ALSO KNOWN AS: Pratt and Whitney Corp.
Connecticut Advanced Nuclear Engineering Lab.
United Aircraft Corp.

TIME PERIOD: 1958-1965

FACILITY DESCRIPTION:

DOE ES&H Website:

The Connecticut Aircraft Nuclear Engine Laboratory (CANEL) worked on an AEC program to develop a nuclear reactor with which to propel aircraft. Specifically, CANEL worked on developing high temperature materials, fuel elements, and liquid metal components and coolants. CANEL consisted of a hot laboratory facility, a nuclear physics laboratory, a fuel element laboratory, a nuclear materials research and development laboratory, and other buildings. The AEC Annual report for 1959 indicates that approximately $4 million in AEC equipment was at CANEL. Plutonium, mixed fission products, and probably uranium were handled at CANEL. A former ORNL employee who had worked at CANEL stated that beryllium metal and oxide in a powdered form were also handled at CANEL. Although President Kennedy canceled the aircraft nuclear propulsion program in 1961, AEC work apparently continued at CANEL until 1965.

DISCUSSION:

Telephone contact was made with the Army of Corps of Engineers, New England District, and they indicated they had no active information, except the information presented in the FUSRAP Considered Sites Database. This Database indicated the site was eliminated from consideration by FUSRAP based on the fact that the AEC removed all contaminated equipment from the facility in 1966. This included the removal of equipment and ventilation systems. This likely refers to radioactive contamination.

INFORMATIONAL SOURCES:

Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, telephone contact with the Corps of Engineers.

EVALUATION FINDINGS:

Information discussed herein indicates that there is little potential for significant beryllium residual contamination outside the periods in which weapons-related production occurred.

FACILITY NAME: Coors Porcelain
Golden, Colorado

ALSO KNOWN AS: Coors Ceramic

TIME PERIOD: 1947-1975

FACILITY DESCRIPTION:
DOE ES&H Website:
Coors Porcelain performed beryllium work for the Atomic Energy Commission. An early AEC document makes reference to Coors Porcelain's involvement in beryllium work during the period from 1947-1948. Coors Porcelain had an earlier contract with the Clinton Engineer Works but it is unclear whether beryllium was involved.

From 1957 through 1964, the company worked with Lawrence Livermore National Laboratory on Project Pluto, a project undertaken to determine the feasibility of using heat from reactors as the energy source for ramjet engines. Coors developed fuel elements from beryllium ceramics for the project, which began in 1957 and ended in 1964.

Coors Porcelain performed other beryllium work for DOE after the completion of Project Pluto. A 1993 health study of Coors workers indicated that the company produced beryllia ceramics though 1975, presumably for the AEC/DOE.

DISCUSSION:
Air samples for beryllium were taken in 1961 and the levels were low at that time. In the 1987 DOE evaluation of this site, including a site visit, no mention is made of beryllium contamination. It is important to note that the 1993 health study mentioned above does show that workers from this facility had chronic beryllium disease. It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility, away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials (Coors Tek) provided the following information: (1) beryllium ceramics were produced from beryllium oxide in Building 16 and beryllium work was not conducted for other clients; (2) Building 16 was used for research and development from 1975-1983; (3) during 1983-1984 , the building was decontaminated, torn down and disposed of as hazardous material; and (4) no other records were provided about beryllium decontamination between 1976 and 1984.

The documentation and information provided by current company officials indicate that no record of beryllium decontamination could be found for 1976-1984.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1976-1984

FACILITY NAME: Eagle-Picher Industries, Inc.
Quapaw, Oklahoma

TIME PERIOD: 1988-1996

FACILITY DESCRIPTION:
DOE ES&H Website:
Eagle-Picher's Quapaw, Oklahoma plant machined beryllium-alloy parts for the Department of Energy's Y-12 facility in Oak Ridge, Tennessee, during the 1980s and the 1990s.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the facility still exists (2) the DOE beryllium work was conducted in a separate area of the facility; and (3) decontamination took place in 1996 after the DOE beryllium contracts ended.

No documentation of decontamination was available for review therefore it is assumed that the site continues to have the potential for residual contamination.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1997-present

FACILITY NAME: EDM Exotics
Hayward, California

TIME PERIOD: 1990-1997

FACILITY DESCRIPTION:
DOE ES&H Website:
EDM Exotics provided machine shop services to Sandia National Laboratory, California, working with beryllium-copper materials using an electrical discharging process.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the DOE contract work was not done in a separate area of the facility and beryllium copper materials were/are done for other clients—this work for other clients has continued since 1997 on an intermittent basis; and (3) decontamination was not conducted after the 1997 DOE contract was completed.

The documentation reviewed and the information provided by current company officials indicate that no record of beryllium decontamination could be found, and the DOE beryllium work was not conducted in a separate area of the facility; nor away from beryllium work for other clients.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1998-present

FACILITY NAME: Electrofusion Corporation
Fremont, California

ALSO KNOWN AS: Brush Wellman Electrofusion Products

TIME PERIOD: 1986-2002

FACILITY DESCRIPTION:
DOE ES&H Website: *Electrofusion Corporation provided beryllium products to Sandia National Laboratory, California. Electrofusion was acquired by Brush Wellman in 1990 and is currently part of the Brush Wellman Engineered Products Division.*

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. It could not be determined if contract work continues beyond 2002. There is no specific mention of decontamination activities.

Telephone contact with current company officials (Brush Wellman, Inc.) provided the following information: (1) between 1986 and 1995, the DOE beryllium work was conducted in two facilities at different addresses (South Grimmer Boulevard and Ardenwood Boulevard)-in 1995 the Ardenwood facility was no longer used and it was decontaminated when the company moved out that year; and (2) in both facilities the DOE contract work was(is) not conducted in separate areas and the beryllium work areas are continually decontaminated.

The documentation reviewed and information provided by current company indicates that the Ardenwood Blvd facility was decontaminated in 1995. However, it should be noted that current company officials stated that the South Grimmer facility still conducts beryllium work for DOE.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
2003-present

FACILITY NAME: Ethyl Corporation
Baton Rouge, Louisiana

TIME PERIOD: 1967-1971

FACILITY DESCRIPTION:
DOE ES&H Website:
Lawrence Livermore National Laboratory purchased beryllium from the Ethyl Corporation, Baton Rouge, LA. The beryllium was used in laboratory research work.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) they have no record of this facility in Baton Rouge (which was part of the administrative headquarters) having ever handled beryllium; if they did it might have been as a purchasing agent only; and (2) the facility shut down in the early 1980s and was demolished in the mid 1980s.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1972-1989

FACILITY NAME: Fairchild Hiller Corporation
Farmingdale, Long Island, New York

ALSO KNOWN AS: Republic Aviation Division
Fairchild Industries

TIME PERIOD: 1969-1970

FACILITY DESCRIPTION:
DOE ES&H Website:
The Republic Aviation Division of the Fairchild Hiller Corporation produced beryllium products for the AEC's Rocky Flats facility in 1969 and 1970.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) no documentation was provided about the AEC/DOE beryllium contract work; and (2) the facility closed in 1986 and there currently is a shopping center at that location.

The documentation reviewed and information provided by current company officials indicate that no record of beryllium decontamination could be found. It is reasonable to conclude that there was no beryllium residual contamination after 1986 because of the unknown use of the site at that time and the fact that there currently is a shopping center at the location.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1971-1986

FACILITY NAME: Fansteel Metallurgical Corp.
North Chicago, Illinois

TIME PERIOD: 1944; 1950

FACILITY DESCRIPTION:
DOE ES&H Website:
Fansteel Metallurgical Corp. performed beryllium work for the Manhattan Engineer District under Contract No.W-7425 eng-27 for the fabrication of beryllium into sintered shapes and for the manufacture of 600 bricks for delivery to Los Alamos. Fansteel also worked with "approximately 150 pounds of nominal grade beryllium carbide powder" for use in the Nuclear Energy for the Propulsion of Aircraft (NEPA) project. This work is reported to have occurred between April and June of 1950.

DISCUSSION:
A report was filed in December 2000 describing that an evaluation of the site (without a site visit) had been conducted in 1987 and contamination (undefined) was not listed as a problem. A more specific description of the site and its operations also was documented in these files. The site was under contract with the University of Chicago from June 1944 through June 1945. The facility conducted studies and experimental investigations and developed processes for making chemicals and fabricating metal powder. They were the sole source of columbium metal for MED/AEC. Tantalum, tungsten and beryllium products were also purchased. No information was found regarding whether the beryllium activities for the contract work were conducted in separate parts of the facility, away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) there is one large building and various connecting smaller buildings at this location; (2) most of the AEC/DOE contract work during these time periods dealt with tantalum and tungsten, with smaller amounts of beryllium; (3) during these time periods work was not done with these materials for other clients; (4) no information was available concerning beryllium decontamination; (5) all operations ceased in 1990; only corporate offices still exist there; and (6) the City of North Chicago purchased the facility in March 2005, as part of a 40 acre development site, and currently leases the office space back to Fansteel.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1945-1949; 1951-present

FACILITY NAME: Foote Mineral Co.
East Whitehead Twp., Pennsylvania

ALSO KNOWN AS: Exton Cyrus Foote Mineral Co.
Formil
Cyprus Foote Mineral Company

TIME PERIOD: 1947

FACILITY DESCRIPTION:
DOE ES&H Website:
Foote Mineral had a pilot plant at its East Whiteland Township location which processed monazite sands. Monazite sands are known to have a very high thorium content. Because the AEC needed fairly large quantities of thorium, they were very interested in different methods of extracting it from monazite sands.
Other work performed by Foote Mineral on behalf of the Atomic Energy Commission, including their work with zirconium, is not covered under EEOICPA.
Foote Mineral Company was also a major importer of beryl ore from Brazil. Under contract to the Atomic Energy Commission, Foote Mineral Company procured 500 tons of beryl ore in 1947.

DISCUSSION:
The only reference to beryllium is the purchase of beryl ore by the AEC in 1947. The DOE elimination report of 1987 indicates there would have been little likelihood of contamination at that time. No documentation is provided about decontamination efforts after the AEC/DOE contracts, nor is information provided regarding where the AEC/DOE work was conducted in relation to work for other customers.

This is a U.S. EPA Superfund Site. In their proposed plan for dealing with this site, dated October 2005, it is stated the Foote Property had 52 buildings during the height of operations. The facility closed in 1991 and the buildings remaining at that time were demolished down to the foundation slabs. EPA is still remediating the site in regard to radiation-contaminated soil and water and various other hazardous wastes. However, no mention of beryllium is made.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE' and US EPA Superfund documents.
EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1948-1991

FACILITY NAME: Franklin Institute
Boston, Massachusetts

TIME PERIOD: 1962

FACILITY DESCRIPTION:
DOE ES&H Website:
The Franklin Institute conducted a study for the Division of Reactor Development in 1962. No information has been located on this facility to date.

DISCUSSION:
There are several documents relating to contracts with the AEC in the 1950s and 1960s dealing with reactor and rotor bearings. No mention is made of beryllium work.

Telephone contact with current Institute officials indicated that they have no records that indicate any such study was conducted by them.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current Institute officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is little potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

FACILITY NAME: General Astrometals
Yonkers, New York

TIME PERIOD: 1963-1965; 1970

FACILITY DESCRIPTION:
DOE ES&H Website:
General Astrometals supplied beryllium metal and parts to the Y-12 plant and to Lawrence Livermore National Laboratory. It also purchased beryllium chips and contaminated powder from Oak Ridge. In 1970 they analyzed some beryllium samples for Rocky Flats.

DISCUSSION:
A September 1965 trip report indicates that the AEC was considering further production work for this company; however, it apparently never came to pass. The trip report mentions that this company was being supported by Anaconda and was also doing other beryllium work with NASA, Franklin Institute, Watertown Arsenal and Pratt and Whitney. This report states the facility was crowded and limited in terms of production. No specific information was found regarding whether the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

No current company contact could be located. DOE, State and Federal EPA, and ATSDR Websites were reviewed and no information was found. Using the Thomas Registry, it was determined that the company at a Yonkers, New York address existed until at least 1974. Based on information provided by the Yonkers Public Library and the current occupant, the building is old and probably is the original facility. Currently the facility houses a night club, which started in 2003. Prior to that it was a skating rink and a steak house; there could have been other occupants.

No record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, the Thomas Registry, Federal and State agency databases, local telephone directories, and contact with the Yonkers Public Library and the current occupant of the facility.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1966-1969; 1971-present

Appendix B-3 Residual Beryllium Evaluations for Individual Facilities

FACILITY NAME: General Atomics
La Jolla, California

ALSO KNOWN AS: GA
Division of General Dynamics
John Jay Hopkins Laboratory for Pure and Applied Science

TIME PERIOD: 1959-1967; DOE 1996-1999 (remediation)

FACILITY DESCRIPTION:

DOE ES&H Website:

General Atomics was one of a number of private contractors that processed unirradiated scrap for the Atomic Energy Commission in the 1960s. In addition, the Hot Cell Facility was used for numerous post-irradiation examinations of Department fuels, structural materials, reactor dosimetry materials, and instrumentation. The Department-sponsored activities at the General Atomics Hot Cell Facility primarily supported the High Temperature Gas Cooled Reactor and the Reduced-Enrichment Research Test Reactor programs. In December 1994, General Atomics notified the Nuclear Regulatory Commission and the State of California Department of Health Services of its intent to cease operations in the Hot Cell Facility.

General Atomics was also the operating contractor for the AEC's Experimental Beryllium Oxide Reactor (EBOR). General Atomics manufactured EBOR fuel elements (UO_2-BeO) on site and examined them in the site's hot cell.

DISCUSSION:

It appears that the research effort regarding EBOR can be better defined. Initial planning started in late 1950s, active work was ongoing in 1964, and the project was terminated in the Fall/Winter of 1966. No information was found regarding whether the EBOR work was conducted in separate parts of the facility away from other activities. There is a considerable amount of discussion about decontamination activities for radiation, but little about beryllium.

Since no evidence of decontamination could be found, the potential for significant residual contamination exists outside of the periods in which weapons-related production occurred until the DOE remediation began, specifically between 1968 and 1995.

INFORMATIONAL SOURCES:

Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE.

EVALUATION FINDINGS:

Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1968 -1995

FACILITY NAME: General Electric Company-Ohio
Cincinnati/Evendale, Ohio

ALSO KNOWN AS: GE Evendale
GE Cincinnati
GE Lockland
Air Force Plant 36

TIME PERIOD: 1951-1970

FACILITY DESCRIPTION:
DOE ES&H Website:
The Evendale Plant's major mission is to build aircraft engines. The AEC used this facility to work with a variety of radioactive materials, including uranium and thorium. This facility was also involved in the refining or fabrication of beryllium or beryllium oxide.

DISCUSSION:
This was a facility that was operated by the AEC and the Air Force. Very little information on beryllium was found in the Beryllium Vendor files. In the AWE files, it was stated that the facility was involved in the refining or fabrication of beryllium or beryllium oxide, but no details were given. In 1970, the facility was turned over to the Air Force, since the AEC work terminated.

Written correspondence from current company officials provided the following information: (1) beryllium metal and beryllium oxide obtained from Brush Beryllium were processed for the AEC in specific labs in the Laboratory Area of Plant 36, referred to as Building D, which was isolated from the rest of the Evandale complex; (2) the AEC beryllium work was concluded in 1970; (3) beryllium decontamination was conducted in 1970 at the end of the AEC contract and continued through 1983 as necessary; (4) in 1983 researchers from the National Institute for Occupational Safety and Health conducted a health hazard evaluation of Building D and found no hazards in excess of current evaluation criteria; and (5) Building D was demolished in 1995.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and written correspondence from current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1971-1983

FACILITY NAME: Gerity-Michigan Corp.
Adrian, Michigan

ALSO KNOWN AS: Successor to Canton Drop Forging and Manufacturing

TIME PERIOD: 1949-1950s

FACILITY DESCRIPTION:
DOE ES&H Website:
Gerity-Michigan operated a 2200/550 ton tube and rod extrusion press and performed the first extrusion of beryllium there on May 11, 1949 for the AEC. Documentation, specifically accountability reports, indicates that work continued there through the 1950s.

Gerity-Michigan was also under contract to the AEC to put extrusion presses into operating condition at the Adrian, Michigan facility.

DISCUSSION:
Information was found for a contract with AEC to conduct extrusion of beryllium and other reactor materials for April 11, 1949-November 30, 1949. No other contract information was found for later dates, but there was an inventory for beryllium dated June 30, 1950. It is not clear whether this inventory pertained to this facility or to work being done at MIT. No specific information was found regarding whether the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. Concerns about national security were mentioned in one document regarding how and where the beryllium work should be done. There is no specific mention of any decontamination activities.

Telephone contact with a former employee of Gerity-Michigan and employees of the current owner of the facility where the AEC beryllium work was conducted; use of the Thomas Registry; and review of newspaper articles and current literature provided the following information: (1) the facility still exists; (2) there have been several occupants of the facility since the AEC contracts ended, and it probably stood vacant for several years in the late 1950s or early 1960s; and (3) no records are available regarding beryllium decontamination.

The documentation reviewed and contacts with several individuals indicate that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, a former employee, employees of the current owner of the facility, newspaper articles, current literature and the Thomas Registry.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1950s-present

FACILITY NAME: Hafer Tool
Oakland, California

TIME PERIOD: 1965-1985

FACILITY DESCRIPTION:
DOE ES&H Website:
Hafer Tool is a machine shop that provided services to Sandia National Laboratory, California. Some of this work involved the use of beryllium materials.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the facility still exists, as a machine shop, at the address where the AEC/DOE beryllium contract was conducted; (2) the facility is a small one-person shop that provided limited services involving beryllium to AEC/DOE from 1965-1985. Beryllium work was not done in a separate area of the facility and was not conducted for other clients; and (3) no decontamination was conducted after the contracts ended in 1985.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1986-present

FACILITY NAME: Hexcel Products, Inc.
Berkeley, California

TIME PERIOD: 1964-1965

FACILITY DESCRIPTION:
DOE ES&H Website:
Hexcel produced a small number of corrugated beryllium sheet panels for the AEC in the mid-1960s. The finishing process involved vapor blasting and scrubbing of the beryllium panels with steel wool and cleansing powder. At the termination of the experimental project in 1965, the company sent the sheet panels and all related equipment to the AEC's Lawrence Livermore Laboratory.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the facility performed a quality control role which involved checking the finish of the sheet panels, but they had no record that the panels were produced at the facility; (2) the work was not performed in a separate area of the facility nor was there any beryllium work conducted for other clients; (3) no records are available about decontamination efforts; and (4) no records are available about the disposition of the facility or what is now located at the address of the facility at the time of the contracts.

Using the Thomas Registry and information provided by the Berkeley Public Library, it was determined that the company at a Berkeley, California address could have existed until 1969, but maybe only to 1966. Currently there appears to be a commercial building at this location.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, telephone contact with current company officials, the Thomas Registry, the Berkeley Public Library, and local telephone directories.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1966-present

FACILITY NAME: Jerry Carroll Machining, Inc.
San Carlos, California

ALSO KNOWN AS: Electrocut Pacific

TIME PERIOD: 1985-1991

FACILITY DESCRIPTION:
DOE ES&H Website:
Jerry Carroll Machining provided machine shop services to Sandia National Laboratory, California, including the machining of beryllium-copper materials.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the facility machined beryllium copper materials for DOE from 1985-1991, although the volume of work was small; (2) they also may have conducted beryllium work for DOE from 1991-1995; (3) the work was not conducted in separate areas of the facility; (4) no specific decontamination was conducted since they didn't believe there would be any hazard because there was no grinding of the materials; and (5) the facility was sold in 1995 and currently has five tenants.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1992-present

FACILITY NAME: Kettering Laboratory, University of Cincinnati
Cincinnati, Ohio

TIME PERIOD: 1947-1950

FACILITY DESCRIPTION:
DOE ES&H Website:
The AEC funded a Kettering Laboratory researcher's investigation of the biological effects of beryllium and its compounds. Kettering was also working on analytical methodology for beryllium for the AEC.

DISCUSSION:
Telephone contact with current University officials provided the following information: (1) the AEC contracts dealing with animal research did not end in 1950 but went into the 1960s; and (2) upon completion of the contracts, the research areas were decontaminated.

The nature of the work performed would have involved small quantities of material and would have been controlled in a laboratory setting. Because of this, it is determined that the potential for residual contamination is low.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current University officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is little potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

FACILITY NAME: Ladish Co.
Cudahy, Wisconsin

TIME PERIOD: 1959-1965

FACILITY DESCRIPTION:
DOE ES&H Website:
Ladish supplied beryllium metal and parts to the Y-12 plant.

DISCUSSION:
No specific information about the exact work that was done, contract dates, facility description, or decontamination efforts were found. However, there is a brochure in the files about the company which is dated 2001. This brochure indicates that the company has been in business since 1905 and has conducted extensive work in metal working.

Written communication from current company officials provided the following information: (1) medical and industrial hygiene programs and beryllium air monitoring took place during the AEC/DOE contract work; (2) nothing was presented about beryllium decontamination after the AEC/DOE contracts ended; and (3) the facility still exists.

The documentation reviewed does indicates that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE and current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1966-present

FACILITY NAME: Lebow
Goleta, California

TIME PERIOD: 1977-2002

FACILITY DESCRIPTION:
DOE ES&H Website:
The Lebow Company produces ultra-thin metal foils for Sandia National Laboratory, California, some of which contain beryllium.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. It could not be determined if contract work continues beyond 2002. There is no specific mention of decontamination activities.

Telephone contact with current company officials provided the following information: (1) the company cut metal foils (some of which contained beryllium) sent to them by various companies with special equipment; (2) the AEC/DOE work was not conducted in separate areas from work for other clients; (3) the company still does this work for DOE; (4) the company never conducted any special beryllium decontamination because they believe the potential for exposure is low; and (5) the AEC/DOE beryllium work was conducted at two different facilities during the listed dates—Facility 1 operated during 1977-1990; during 1991-1995 it was owned by someone else; in 1995 it was demolished. Facility 2 still exists and conducted the beryllium work for the rest of the years of the listed dates, and still does the same work for DOE to the present.

The documentation reviewed indicates that no record of beryllium decontamination could be found or was provided by current company officials.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
2003-present

FACILITY NAME: Machlett Laboratories
Springdale, Connecticut

TIME PERIOD: 1952

FACILITY DESCRIPTION:
DOE ES&H Website:
Beginning in the 1940s, Machlett Laboratories worked with beryllium in its commercial business as a supplier of x-ray and electron vacuum tubes. Machlett produced a handful of brazed beryllium window assemblies in 1952 under an AEC contract.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials (Raytheon) provided the following information: (1) listed dates could not be confirmed; (2) beryllium was handled in a separate area of the facility; (3) the facility was 60% demolished in 1990 and equipment was decontaminated and sent to a landfill; and (4) the remaining structure served as a skeleton for a new building which houses an ice skating rink.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1953-1990

FACILITY NAME: Manufacturing Sciences Corporation
Oak Ridge, Tennessee

TIME PERIOD: 1992-1994

FACILITY DESCRIPTION:
DOE ES&H Website:
Manufacturing Sciences Corporation performed beryllium work for Los Alamos National Laboratory.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the listed dates are correct, at which time they performed casting, rolling and sizing of beryllium stock from another company; and (2) beryllium decontamination was conducted pursuant to the DOE contract.

No documentation of decontamination was available for review therefore it is assumed that the site continues to have the potential for residual contamination.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

No documentation of decontamination was available for review therefore it is assumed that the site continues to have the potential for residual contamination.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1995-present

FACILITY NAME: Massachusetts Institute of Technology
Cambridge, Massachusetts

ALSO KNOWN AS: MIT, Hood Building

TIME PERIOD: 1942-1963

FACILITY DESCRIPTION:
DOE ES&H Website:
The Massachusetts Institute of Technology (MIT) was one of the institutions that contributed to early nuclear physics research in the United States. In addition to their research efforts, they also sent scientists to work at Los Alamos. For example, in 1942, MIT experimented on the process of melting and casting uranium metal, extracted uranium from low grade ores, studied the element beryllium, and experimented with nuclear propulsion systems. MIT also explored the coordination and the quality control of these processes. The building in which the research was done, was demolished in 1963.

Records indicate that workers at MIT suffered from beryllium-related illnesses as early as 1947.

DISCUSSION:
A more detailed description of beryllium activities was found in a May 1947 document. It indicates that MIT was studying the characteristics of beryllium metal and attempting to make a satisfactory beryllium-uranium alloy. In addition beryllium oxide crucibles were made for use in the MIT activities. There were apparently over-exposures to beryllium because a number of the AWE files dealt with worker claims for beryllium disease. These cases supposedly were the result of the fact that the work had been conducted in buildings (not specified) scattered throughout MIT. The operations were consolidated into one building (Hood Building?) in the fall of 1946 that had been "carefully ventilated." Other documents corroborate the fact that the last MED/AEC work was completed in 1958, and the contractor moved out at that point with the building remaining vacant until it was demolished in 1963. There is no mention of any decontamination activities in the other areas of MIT where beryllium work was being conducted or in 1958 at the Hood Building.

Telephone contact with current Institute officials provided no additional information.

There is a potential for significant beryllium residual contamination outside the period in which weapons-related production for areas (not specified) of MIT outside the Hood Building.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and contacts with current Institute officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1947-present

FACILITY NAME: McDanel Refractory Co.
Beaver Falls, Pennsylvania

ALSO KNOWN AS: Vesuvius McDanel
Vesuvius Division of Cookson Group

TIME PERIOD: 1942-1949

FACILITY DESCRIPTION:
DOE ES&H Website:
The Manhattan District History indicates that the McDanel Refractory was used to fabricate oddly shaped beryllium crucibles or beryllium crucible stopper rods for the Manhattan Project, but was not used on a large-scale production basis.

DISCUSSION:
No additional specific information about the exact work that was done, facility description or decontamination efforts were found. It appears that the contracts for this site were from the mid-1940s.

Telephone contact with current company (McDanel Ceramics) provided the following information: (1) the facility has changed ownership three times since the 1940s and the original two buildings from the 1940s are still in use to produce ceramics; and (2) they have no records regarding AEC/DOE beryllium work.

The documentation reviewed indicates that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1950-present

FACILITY NAME: Metallurgical Laboratory
Chicago, Illinois

ALSO KNOWN AS: Eckhardt Hall
West Stands
New Chem. Lab and Annex
Ryerson Physical Lab
Kent Chem. Lab

TIME PERIOD: 1942-1946; Department of Energy, 1982-1983;
1987 (remediation)

FACILITY DESCRIPTION:

DOE ES&H Website:

The University of Chicago Metallurgical Laboratory was involved in early uranium metallurgical work in 1942-1943. The first self-sustaining nuclear chain reaction was achieved at the university in a "pile" called the Chicago Pile 1, built by Enrico Fermi and his Met Lab colleagues. The Met Lab is the direct predecessor of Argonne National Laboratory The University of Chicago continued to perform research and metallurgical work for Atomic Energy Commission until the early 1950s. The University of Chicago site includes seven buildings that were associated with Manhattan Engineer District/Atomic Energy Commission nuclear research and development between 1942 and 1952. These include the new Chemistry Laboratory and Annex, West Stands, Ryerson Physical Laboratory, Eckhart Hall, Kent Chemical Laboratory, Jones Chemical Laboratory, and Ricketts Laboratory. Under the direction of DOE, decontamination activities at the Univeristy of Chicago were conducted by Argonne National Laboratory in 1982 and 1983 and by Bechtel National, Inc. (BNI) in 1987. Cleanup of the sites where this work was performed was certified complete in 1989. Beryllium use at the Metallurgical Laboratory is linked with experimental studies in determining whether to use graphite, heavy water or beryllium as a pile moderator. Graphite was the ultimate choice for Fermi's pile.

DISCUSSION:

These files confirmed the general research and development work that is presented on the Website. There is no mention that the work was performed in separate areas from other research and development. It was also mentioned that there was beryllium disease and deaths in workers at this site in the 1940s/1950s. The final FUSRAP report, dated 1989, does not specifically mention beryllium decontamination, but other DOE documents indicate that non-radiological impacts for the 1987 remediation were expected to be minimal.

Telephone and written correspondence from the current (Argonne National Laboratory-ANL) group of interest provided the following information: (1) all activities were transferred to ANL, which is located 30 miles from this facility, but no records could be found that documented AEC work continued until 1952—the facility had closed in 1946; (2) extensive beryllium work for the AEC did occur at this facility, but there are no records available about the specific nature of this work, in which buildings the work occurred, and if beryllium

decontamination was conducted; (3) documents regarding the 1987 DOE remediation do not mention beryllium; and (4) of the buildings where the AEC work was conducted, Eckhardt Hall, Ryerson Physical Laboratory, Kent Chemical Laboratory and Jones Laboratory are still buildings listed as currently being used by the University of Chicago, and were part of the DOE remediation. The West Stands were demolished in 1957 (a plaque and sculpture are at that location), the Chemistry Building is now a Historic Landmark with a plaque and interpretive display, and Ricketts Laboratory is no longer listed as a University of Chicago building, but a demolition date could not be determined.

While no information was found regarding beryllium decontamination, the documentation in the DOE files indicates that non-radiological impacts for at least the 1987 remediation were expected to be minimal.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contacts and written correspondence from ANL

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1947-1981; 1984-1986

FACILITY NAME: National Beryllia
Haskell, New Jersey

ALSO KNOWN AS: Cercom Quality Products
General Ceramics

TIME PERIOD: 1968-1973; 1983-1986

FACILITY DESCRIPTION:
DOE ES&H Website:
National Beryllia performed a demonstration of its capabilities for production of parts for Y-12 beginning in late 1968, with delivery in March 1969. Additionally, National Beryllia delivered some parts to Union Carbide (Y-12), though the records indicate that there was only partial performance for this purchase order, which was terminated in April of 1973.

Between 1984-1986 the National Beryllia division of General Ceramics had a series of purchase orders through Martin Marietta, which was operating Y-12 at the time. These contracts involved the shipment of beryllium from Brush Wellman to National Beryllia with Y-12 being the ultimate customer.

DISCUSSION:
The documents in the Beryllium Vendor files indicated that an AEC contract to produce beryllium parts was let in April 1969 after a successful demonstration project. This contract was in place until Fall 1973. In terminating the contract, AEC agreed in a "settlement" to pay for beryllium decontamination to meet EPA standards and facility restructuring (i.e., to return the facility to its former status before the AEC security requirements). No documents concerning activities between 1983-1986 were found.

Telephone contact with current company (American Beryllia) and a former worker provided the following information. This facility always has been a beryllium oxide producer, with the following history: (1) National Beryllia conducted work for the AEC/DOE from 1968-1973 in separate areas of the facility along with beryllium oxide work for other clients—no records are currently available concerning beryllium decontamination at the end of these contracts; (2) National Beryllia continued to produce beryllium oxide, including AEC/DOE work from 1983-1989—then in 1989 a Japanese company (Tokuyama) bought the facility and the AEC/DOE work was contracted out to Cercom Quality Products because Tokuyama was not a U.S. company—the AEC/DOE contract work ended in 1992 and the areas of interest were decontaminated and some equipment was sent to DOE/Oak Ridge, while beryllium oxide production continued for other clients; and (3) in 2000, American Beryllia bought the facility and continued beryllium oxide production.

The information provided indicates a potential for significant beryllium residual contamination between 1974-1982 and 1987- present.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials and former employees.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1974-1982; 1987-present.

FACILITY NAME: Northwest Machining and Manufacturing
Meridian, Idaho

ALSO KNOWN AS: Santa Clara Machining

TIME PERIOD: 1996-2000

FACILITY DESCRIPTION:
DOE ES&H Website:
Northwest Machining provided machine shop services to Sandia National Laboratory, California. This work involved beryllium materials.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the facility still exists; and (2) no specific beryllium decontamination was conducted since there was no grinding of the materials.

The documentation reviewed and information provided by company officials indicates that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
2001-present

FACILITY NAME: Norton Co.
Worcester, Massachusetts

TIME PERIOD: 1944-1956

FACILITY DESCRIPTION:
DOE ES&H Website
Norton manufactured refractory products from boron, beryllium, uranium, thorium, and magnesium oxide for the MED and the AEC.

As early as 1943, Norton was providing boron to the SAM laboratory. Documents show that Norton began working with beryllium for the MED in approximately September 1944 and that work with beryllium continued through 1956. Work with thorium and uranium continued through 1957 at Norton's Worcester location.

Norton continued to manufacture refractory products until at least 1965 for the AEC weapons complex, including Rocky Flats, Hanford and Y-12. However, after 1957 these contracts specified that the refractory products were to be made out of magnesium oxide. Since magnesium oxide is not radioactive, Norton's work with it does not qualify it as an Atomic Weapons Employer for these years.

DISCUSSION:
Files reviewed contained a considerable amount of information about over-exposures to beryllium and potential beryllium disease. No specific information was found regarding whether the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers, nor was there any mention of any decontamination activities.

Telephone contact with current company (St. Gobain Abrasives) officials provided the following information: (1) the facility still exists; (2) grinding and beryllium oxide work was conducted in their research area; (2) no information was provided about beryllium decontamination after the AEC/DOE contracts; and (3) they are currently still sampling for beryllium to identify any problem areas.

The documentation reviewed indicates that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1957-present

FACILITY NAME: Nuclear Materials and Equipment Corp. (NUMEC)-Apollo
Apollo, Pennsylvania

ALSO KNOWN AS: Babcock & Wilcox
Atlantic Richfield Corp. (ARCO)

TIME PERIOD: 1960-1968

FACILITY DESCRIPTION:

DOE ES&H Website:

The Nuclear Material and Equipment Company (NUMEC) began operations at the Apollo and Parks Township facilities in the late 1950s. The Atlantic Richfield Company (ARCO) purchased the stock of NUMEC in 1967. In 1971, Babcock & Wilcox (B&W) purchased NUMEC and is the current owner of the Apollo and Parks Township facilities.

NUMEC processed unirradiated uranium scrap for the AEC in the 1960s. This facility also provided enriched uranium to the naval reactors program and included a plutonium plant, plutonium plant storage area, highly enriched uranium fuel facility, metals and hafnium complex and a uranium hexafluoride storage area. The facility also fabricated plutonium-beryllium neutron sources.

The B&W Apollo facility ceased manufacturing nuclear fuel in 1983.

DISCUSSION:

No information was found about the fabrication of plutonium-beryllium sources. Instead, there was documentation about conducting research on using beryllium (and other metals) to coat uranium oxide spheres. Information also was presented about beryllium powder metallurgy. There was no mention of decontamination efforts after the AEC contract periods, nor was there any indication that the AEC work was being conducted in separate areas of the facilities away from work for other customers. A 1960 document indicated that the company was doing beryllium work at that time in a restricted area because of concerns for worker safety.

NRC decommissioned the Apollo site in 1995

The documentation reviewed indicates that no record of beryllium decontamination could be found, until the NRC decommissioning was completed in 1995.

INFORMATIONAL SOURCES:

Sources of information reviewed during this evaluation included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE (including NRC document SECY-97-015, *Removal of the Babcock & Wilcox Apollo Site from the Site Decommissioning Management Plan, January 17, 1997.*

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1969-1995

FACILITY NAME: Nuclear Materials and Equipment Corp. (NUMEC)-
Parks Township
Parks Township, Pennsylvania

ALSO KNOWN AS: Babcock & Wilcox
Atlantic Richfield Corp. (ARCO)

TIME PERIOD: 1960-1968

FACILITY DESCRIPTION:
DOE ES&H Website:
The Nuclear Material and Equipment Company (NUMEC) began operations at the Apollo and Parks Township facilities in the late 1950s. The Atlantic Richfield Company (ARCO) purchased the stock of NUMEC in 1967. In 1971, Babcock & Wilcox (B&W) purchased NUMEC and is the current owner of the Apollo and Parks Township facilities.
The primary function of the NUMEC Parks Township facility was the fabrication of plutonium fuel, the preparation of high-enriched uranium fuel, and the production of zirconium/hafnium bars. The Parks Township facility ceased fuel fabrication activities in 1980.

DISCUSSION:
All operations and cleanup apparently ceased in 1980, but there was no mention of beryllium decontamination.

The documentation reviewed indicates that no record of beryllium decontamination could be found. NRC decommissioning was completed in 2004.

INFORMATIONAL SOURCES:

Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE (including U.S. NRC document, SECY-04-0163, *Weekly Information Report - Week Ending August 27, 2004*.)

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1969-2004

FACILITY NAME: Nuclear Metals, Inc.
West Concord, Massachusetts

ALSO KNOWN AS: NMI
Starmet, Inc.
MIT Met Lab
Whittaker Corp., Nuclear Metals Division

TIME PERIOD: 1954-1986

FACILITY DESCRIPTION:
DOE ES&H Website:
Nuclear Metals, Inc. was incorporated in 1954. It's work evolved out of the MIT Metallurgical Laboratory. In 1958, the company moved from Cambridge (where the MIT lab had been) to Concord. The company's current name is Starmet.

In 1958, Nuclear Metals began operating as a facility that produced depleted uranium products, primarily as penetrators for armor-piercing ammunition. It also supplied copper-plated uranium billets that were used to fuel Savannah River's production reactors. Other work at this facility included the manufacture of metal powders for medical applications, photocopiers and other applications. Thorium and thorium oxide were also handled at the site under license to the NRC.

During the period from 1962-1986, Nuclear Metals was the sole source supplier for beryllium alloy end closure fuel element rings used in the "N" Reactor in Richland.

DISCUSSION:
The location of the facility seems to be in Concord, not West Concord. There was and is work going on at this site for DOD and other groups. There was no indication that the AEC work was conducted in separate areas, nor that any decontamination took place.

This site is on the EPA National Priority List and final remedial action started in 2004 and is still underway.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, including information from the U.S. EPA Waste Site Cleanup and reuse in New England, Nuclear Metals.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1987-present

FACILITY NAME: Philco-Ford Corporation
Newport Beach, California

ALSO KNOWN AS: Ford Aeronutronic

TIME PERIOD: 1967-1972

FACILITY DESCRIPTION:
DOE ES&H Website:
The Aeronutronic Division of the Philco-Ford Corporation engaged in research on beryllium manufacturing techniques for the AEC between 1967 and 1972. The overriding goal of the program was to demonstrate the feasibility of shear spinning technology for beryllium production. The production process involved drilling and grinding of beryllium cones.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Current company (Space Systems/Loral) officials could not provide any records involving the AEC/DOE beryllium contracts.

Information found in the Thomas Registry and in newspaper articles provided by the Newport Beach Public Library showed that the facility/site in question was demolished around the end of 1995. The property was then converted to residential zoning, with construction beginning sometime in 1996. No records were found dealing with beryllium decontamination.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, the Thomas Registry, and six newspaper articles.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1973-1995

FACILITY NAME: Pleasanton Tool and Manufacturing
Pleasanton, California
ALSO KNOWN AS: Thomas Tool & Die

TIME PERIOD: 1989-2002

FACILITY DESCRIPTION:
DOE ES&H Website:
Pleasanton Tool provides machine shop services to Sandia National Laboratory, California.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. It could not be determined if contract work continues beyond 2002. There is no specific mention of decontamination activities.

Telephone contact with current company officials provided the following information: (1) they had no comments about listed dates, except they conduct machine shop work for DOE but had no indication from DOE that the materials contained beryllium; (2) the DOE work was not conducted in separate area of the facility; (3) they still do small machining jobs for DOE.

The documentation reviewed and information provided by current company officials indicate that no record of beryllium decontamination could be found. The facility still is a DOE contactor.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
2003-present

FACILITY NAME: Poltech Precision
Fremont, California

TIME PERIOD: 1999

FACILITY DESCRIPTION:
DOE ES&H Website:
Poltech Precision did machining work for Sandia National Laboratory, California.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with company officials provided the following information: (1) the correct name of the facility is Pol-Tech Precision; (2) the listed dates are correct; (3) beryllium copper machining work was not conducted in separate areas of the facility; and (4) and there was no beryllium decontamination work after the contract because they believed their collection techniques prevented any beryllium contamination.

The documentation reviewed and information provided by current company officials indicate that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
2000-present.

FACILITY NAME: Radium Chemical Co.
New York, New York

ALSO KNOWN AS: Joseph J. Kelly

TIME PERIOD: 1943-1950

FACILITY DESCRIPTION:
DOE ES&H Website:
Beginning in 1943, the Radium Chemical Co. supplied most of the radium required for the Manhattan Engineer District. Combinations of material supplied and/or mixed by the Radium Chemical Company included radium bromide and radium bromide mixed with powdered beryllium. Brass was also used.

DISCUSSION:
A site disposition report dated December 15, 2000 does not mention beryllium. It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

From the mid-1950s through 1983, the facility remained an active source for specially packaged radium for hospitals. Starting in 1983, New York State required the company to conduct cleanup activities. In 1989, the US EPA became involved, and dismantling and disposing of the appropriate buildings was completed in 1994. While no mention is made of beryllium, it is reasonable to conclude that 1994 is an appropriate end date for residual beryllium contamination.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and the US EPA Region 2 Superfund Radium Chemical Company data sheet.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1951-1994

FACILITY NAME: Rensselaer Polytechnic Institute
Troy, New York
TIME PERIOD: 1951-1952; 1963

FACILITY DESCRIPTION:
DOE ES&H Website:
Under an AEC contract in the early 1950s, researchers at the Rensselaer Polytechnic Institute investigated methods for improving the ductility of beryllium by coating the material with copper. The Brush Beryllium Company supplied the beryllium powder for the project. RPI also borrowed 400 lbs. of beryllium for AEC-sponsored research from Oak Ridge National Laboratory in 1963.

Scientists at RPI conducted a number of AEC-sponsored research studies in the 1950s and 1960s using enriched uranium obtained from commercial sources. Available records provide no evidence of a link between RPI research and the AEC weapons program.

DISCUSSION:
A site disposition report dated January 2000 does not mention beryllium. It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Documentation from current Institute officials provided no information on the AEC/DOE contracts and beryllium decontamination, other than a few references about powder metallurgy research.

The documentation reviewed indicates that the contract work involved sources of beryllium that could be airborne and deposited on surfaces and no record of beryllium decontamination could be found

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and current Institute officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1953-1962; 1964-present

FACILITY NAME: Revere Copper and Brass
Detroit, Michigan
TIME PERIOD: 1946-1950

FACILITY DESCRIPTION:
DOE ES&H Website:
Between 1943 and 1946, Revere Copper and Brass extruded uranium rods in its Detroit plant. During the late 1940s and early 1950s Revere rolled or extruded uranium rods.

Revere also extruded beryllium ingots and billets into rods at its Detroit plant between 1946 and 1950. Revere had a contract with the AEC for beryllium work, but not with the MED. Revere also worked with beryllium alloys. Some of the beryllium work was done on parts or components for the Materials Testing reactor.

DISCUSSION:
A DOE FUSRAP elimination report was completed in 1990 which indicated the facility was eliminated from FUSRAP actions based on 1981 preliminary survey results and the fact the facility closed in 1984 and was demolished sometime prior to 1989. There is also a document that indicates the beryllium contract work extended into 1951. There is no documentation about any decontamination work in 1950/1951, after the beryllium contracts ended, nor after 1954 when the AWE work ended. Also, there is no indication that the AEC work was conducted in separate areas of the facility.

The documentation reviewed indicates that no record of beryllium decontamination could be found. It is reasonable to conclude that the beryllium hazard was removed upon demolition of the facility in 1984.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1951-1989

FACILITY NAME: Robin Materials
Mountain View, California
TIME PERIOD: 1985-1997

FACILITY DESCRIPTION:
DOE ES&H Website:
Robin Materials provided metal materials to Sandia National Laboratory, California. This material included beryllium-copper.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the facility still exists and the company may still have contracts with DOE; (2) the company did and still purchases and sells beryllium-containing material to DOE; however, processing or machining of the material is not conducted; and (3) contact with the purchased material is not limited to one area of the facility, nor is any decontamination work conducted.

The documentation reviewed and information provided by current company indicates that beryllium decontamination is not conducted.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and information provided by current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1998-present

FACILITY NAME: Ron Witherspoon, Inc.
Campbell, California

ALSO KNOWN AS: RWI

TIME PERIOD: 1990-1995

FACILITY DESCRIPTION:
DOE ES&H Website:
Ron Witherspoon, Inc. produced beryllium springs for Sandia National Laboratory, California.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the facility still exists; (2) beryllium work was conduced on EDM machines under water—machines were cleaned after the termination of the DOE contract, and all materials and filters were disposed of as hazardous waste; (3) some testing for beryllium was conducted with negative results—no records are available to confirm this; (4) no beryllium work was conducted for other clients.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and information provided by current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates that there is little potential for significant beryllium residual contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

FACILITY NAME: Speedring Systems, Inc.
Detroit, Michigan

ALSO KNOWN AS: Axsys Technologies
Speedring Systems Inc.

TIME PERIOD: 1963; 1968; 1973-1975; 1992

FACILITY DESCRIPTION:
DOE ES&H Website:
Speedring machined beryllium-containing parts for Rocky Flats and Y-12. The Detroit Speedring office designation covers both of the locations to which the Detroit forwarding office sent work, including their locations in Warren, MI and Rochester Hills, MI. There is a separate Speedring facility in Culman, Alabama.

DISCUSSION:
Nothing of significance was found in the Beryllium Vendor files. There was a brief mention of the 1968 AEC work in the AWE files; however, nothing was found about the 1963 date. There was no DOE elimination report and no documentation of decontamination activities or where in the facility the beryllium work for the AEC was conducted.

Telephone contact with current company (Axsys Technologies) officials and a former employee provided the following information: Warren facility--(1) the facility still exists—Axsys sold the facility in 1975 and the owner has leased it to two different occupants since then; (2) there is no information about beryllium decontamination between 1964 and 1968 and between 1969 and 1973; (3) there was cleanup performed when the facility was sold in 1975; and (4) AEC/DOE beryllium work was conducted in the same area as work for other clients.

Rochester Hills facility--(1) the facility still exists; and (2) the work (1992) probably involved polishing activities and would have been conducted in a well controlled area, where similar work was/is done for other clients.

The documentation reviewed and information provided by current company officials and a former worker indicate that no record of beryllium decontamination could be found for all of the non-covered time periods. Therefore it is assumed that the potential for residual contamination continues to exist.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials and a former worker.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1964-1967; 1969-1972; 1976-1991;1993-present

FACILITY NAME: Speedring, Inc.
Culman, Alabama

ALSO KNOWN AS: Axsys Technologies

TIME PERIOD: 1971-2005

FACILITY DESCRIPTION:
DOE ES&H Website:
Speedring has performed work using beryllium for Rocky Flats, Sandia National Laboratory, Idaho National Engineering Laboratory and Oak Ridge National Laboratory. There was another Speedring facility in Detroit, MI.

DISCUSSION:
Documentation indicates that this facility has a history of worker exposures and beryllium disease. For example, OSHA has measured beryllium exposures in this facility sometime between May 1979 and December 1999 and there is a document in the AWE files relating to chronic beryllium disease in workers from this facility. No mention is made about whether the beryllium production activities for DOE take place in areas separate from other customers.

Telephone contact with current company (Axsys Technologies) officials provided the following information: (1) the facility continues to operate at the same location; (2) the AEC/DOE beryllium work started in the late 1960s and the facility still conducts beryllium work for numerous DOE sites; (3) the company conducts this work in separate areas of the facility if required for security reasons; and (4) the company meets OSHA standards for beryllium.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
2005 to present

FACILITY NAME: Stevens Institute of Technology
Hoboken, New Jersey

TIME PERIOD: 1959-1960

FACILITY DESCRIPTION:
DOE ES&H Website:
The Stevens Institute of Technology performed beryllium research and development for the AEC. Researchers at the school's Powder Metallurgy Laboratory experimented with slip casting production techniques as a replacement for the conventional vacuum-hot-pressed block process. Beryllium powder was the primary ingredient in the production process. The laboratory's working inventory during the course of the contract included approximately 50 pounds of beryllium metal powder produced by the Brush Beryllium Company.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current Institute officials provided no records pertaining to the AEC/DOE beryllium contracts.

The documentation reviewed and information provided by current Institute officials indicate that the contract work involved sources of beryllium that could be airborne and deposited on surfaces, and no record of beryllium decontamination could be found

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current Institute officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1961-present.

FACILITY NAME: Sylvania Corning Nuclear Corp.-Bayside Laboratories
Bayside, New York

ALSO KNOWN AS: Sylvania Corning Nuclear Corp.-Bayside Laboratories; Sylvania Electric Products, Inc.; Metallurgical Laboratory; Sylvania Electric Company, Atomic Energy Division; Sylvania Bayside Laboratories; Sylcor

TIME PERIOD: 1947-1962

FACILITY DESCRIPTION:
DOE ES&H Website:
The Metallurgical Laboratory of the Sylvania Electric Company investigated uranium and thorium powder metallurgy. It also produced powdered metal slugs, developed bonding techniques, and plated uranium slugs with nickel. The work with slugs included the conversion of uranium metal to uranium hydride using hydrogen. A February 1948 AEC Monthly Summary of Activities indicates that the Lab's "initial program will involve determining the physical properties and the health hazards of beryllium and uranium powders and the applications of powder metallurgy to these metals and their alloys." In 1948, the work required 315 pounds of raw beryllium metal. Beryllium was handled first in the regular metallurgical building and then, after the objections of the AEC medical division, in a special AEC metallurgical development laboratory.

DISCUSSION:
At some point (no dates were given), the beryllium work was isolated in a "metallurgical building." There is no mention of decontamination at the point when the AEC contracts were terminated, nor are there documents that provide insight as to whether the AEC work was isolated from that of other customers. The site was declared decontaminated by the State of New York in 1985; nothing is mentioned about beryllium, just radioactivity. All original buildings were destroyed by 1980 and condos were built on the site by 1986.

The documentation reviewed indicates that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1963-1980

FACILITY NAME: Tapemation
Scotts Valley, California

TIME PERIOD: 1990-1995

FACILITY DESCRIPTION:
DOE ES&H Website:
Tapemation is a machine shop that provided services to Sandia National Laboratory, California. Several small jobs involved the precision machining of beryllium-copper materials.

DISCUSSION:
It could not be determined if the beryllium activities for the contract work were conducted in separate parts of the facility away from work for other customers. There is no specific mention of decontamination activities after the contracts were terminated.

Telephone contact with current company officials provided the following information: (1) the facility still exists and still does occasional beryllium-copper work for DOE; and (2) the company does not conduct the DOE beryllium work in separate areas of the facility nor is any special beryllium decontamination performed since they do not believe there is a potential for beryllium exposures

The documentation reviewed and telephone contact with current company officials indicates that no record of beryllium decontamination could be found. The company officials indicated they still conduct beryllium work for DOE.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1996-present

FACILITY NAME: Trudeau Foundation
Saranac Lake, New York

TIME PERIOD: 1950-1957

FACILITY DESCRIPTION:
DOE ES&H Website:
The AEC Division of Biology and Medicine supported beryllium research studies at the Trudeau Foundation.

DISCUSSION:
The specific research that was conducted dealt with Experimental and Clinical Studies Involving Beryllium and Berylliosis (1950-1954), Biochemical Aspects of Pulmonary Granulomatosis (1955-1957), and Studies on the Experimental Pathology and Biochemistry of Pulmonary Granulomatosis of Beryllium Workers (1954-1957). There was no documentation about decontamination activities after the research was ended or if the research was conducted in areas separate from research.

Documentation provided by current Institute (Trudeau Institute) indicated that: (1) the listed dates appear to be correct but they could find no records concerning beryllium decontamination; (2) in 1964, they moved from the laboratory where the research would have been done to their current location; and (3) the laboratory building still exists but has been renovated several times for different uses and is no longer owned by the Institute.

It is likely that this research was conducted in an appropriate laboratory setting with necessary controls and thus it would limit the potential for significant beryllium residual contamination. Therefore, the documentation reviewed does support the end date on the Website.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE and current Institute officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is little potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

FACILITY NAME: U.S. Pipe and Foundry
Burlington, New Jersey

TIME PERIOD: 1943

FACILITY DESCRIPTION:
DOE ES&H Website:
A small amount of beryllium mesh (15 pounds) was sent to U.S. Pipe and Foundry by the MED. Some work was done, but it is unclear whether a satisfactory technique was ever developed beyond this initial attempt to manufacture beryllium tubes.

DISCUSSION:
Very few documents were located. The specific dates of MED/AEC involvement were listed as 1943-1944. No information was located on decontamination of the site after the MED/AEC work, or whether this work was conducted in areas separate from activities for other customers.

Telephone contact with current company (U.S. Pipe) officials and a former employee provided the following information: (1) the general location of the original site still exists; (2) the beryllium work would have been a research project (based on the amount of material mentioned on the Website) conducted in an attachment to the original owner's mansion at the current site; and (3) since it was a research project, the area would have been decontaminated at the end of the project.

Documents reviewed indicate that the period in which beryllium work occurred is 1943-1944.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials and a former employee.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1944

FACILITY NAME: United Lead Co.
Middlesex, New Jersey

ALSO KNOWN AS: United Lead Co.

TIME PERIOD: 1950-1967

FACILITY DESCRIPTION:
DOE ES&H Website:
From 1950 to 1955, United Lead, a subsidiary of National Lead Company, was the AEC's operating contractor for the Middlesex Sampling Plant. The Middlesex Sampling Plant sampled, assayed, stored, and shipped uranium, thorium, and beryllium ores. The plant discontinued uranium and beryllium assaying and sampling activities in 1955. Until 1967, the site was used as a thorium storage and sampling site.

DISCUSSION:
Documents reviewed indicate that: (1) the Department of the Navy was given the site by GSA in 1967 and there were ongoing Navy/Marine activities there until 1978 when DOE became the custodian of the property; and (2) remedial activities started in 1981. No decontamination activities are mentioned for the time period of the Navy activity (1967-1978).

An ATSDR Public Health Assessment and the EPA National Priorities List also were used as source documents. This documentation indicated that the site was leveled in the 1947/1948 time period, but that the AEC continued to use the area for sampling, analysis, storage and shipment of uranium, thorium and beryllium ores until 1967. In 1968, the Navy took control of the site; and the site transferred hands several times through 1997. In 1976, concerns about soil and waste contamination by radiological materials again became an issue. After the decontamination effort in 1967, no mention is made of beryllium contamination. Remediation continues at this site.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE and EPA and EPA Superfund Site Progress Profile Middlesex Sampling Plant.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1968-present

FACILITY NAME: University of Denver Research Institute
Denver, Colorado

TIME PERIOD: 1963-1965

FACILITY DESCRIPTION:
DOE ES&H Website:
The University of Denver Research Institute is listed as a processor of radioactive materials for National Lead of Ohio (Fernald). It appears that the University of Denver handled test quantities of radioactive metal in February 1965.

In 1963, a University of Denver Research Institute researcher (F. Perkins) held an AEC contract for work on intermediate-temperature oxidation of beryllides.

DISCUSSION:
There is no documentation about the AEC beryllides contract other than a bibliographical citation.

It is likely that this research was conducted in an appropriate laboratory setting with necessary controls, which would limit the potential for significant beryllium residual contamination.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE.

EVALUATION FINDINGS:
Documentation reviewed indicates there is little potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

FACILITY NAME: University of North Carolina
Chapel Hill, North Carolina

TIME PERIOD: 1949-1954

FACILITY DESCRIPTION:
DOE ES&H Website:
The *AEC Division of Biology and Medicine supported beryllium research at the University of North Carolina.*

DISCUSSION:
The specific research was a Radioautographic Study of Distribution and Retention of Be in the Rat. No documentation was found regarding decontamination activities subsequent to the AEC contracts, nor was information presented about where the research was conducted.

Written correspondence from current University officials provided the following information: (1) the covered dates appear to be correct; and (2) no records could be found pertaining to where the research was conducted or if beryllium decontamination activities took place after the AEC contract work was completed.

It is likely that this research was conducted in an appropriate laboratory setting with necessary controls, which would limit the potential for significant beryllium residual contamination. Therefore, the documentation reviewed does support the end date on the Website.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and written correspondence from current University officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is little potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

FACILITY NAME: Vitro Corporation of America (Tennessee)
Chattanooga, Tennessee

ALSO KNOWN AS: Chattanooga Site now owned by W.R. Grace
Vitro Chemical is Subsidiary of Vitro Corp.
Heavy Minerals Co.

TIME PERIOD: 1959-1965

FACILITY DESCRIPTION:
DOE ES&H Website:
Records indicate that "Vitro Corporation" of Chattanooga, TN performed some beryllium work for Y-12 during the period 1959-1965. A 1962 document also mentions that the AEC met with members of the beryllium industry, including representatives from "Vitro Chemical" (no address), but does not mention whether any contracts were involved in these discussions. The original owner of this site was Heavy Metals Inc. and possessed an AEC license to process uranium and thorium products beginning as early as 1957. Documentation indicates that the company provided price quotes to the AEC for thorium products as early as 1954, but there is no indication that it received a contract for that work. Vitro Chemical of Chattanooga, TN, a subsidiary of Vitro Corporation, took over the site at the end of 1959 and was under contract to the AEC to produce thorium metal, thorium fluoride and thorium oxide. The current owner, W.R. Grace, purchased the site in 1965 and continued operations until 1983, but records do not reveal any weapons-based link after 1968. The State of Tennessee took over licensing of this site in 1968.

DISCUSSION:
There is no information on decontamination activities or work locations within the facility, nor did the FUSRAP documentation provide any useful information.

The facility still exists and the documentation reviewed indicates that no record of beryllium decontamination could be found.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1966-present

FACILITY NAME: Vitro Manufacturing (Canonsburg)
Canonsburg, Pennsylvania
ALSO KNOWN AS: Vitro Rare Metals Co.; Vitro Manufacturing (Canonsburg)

TIME PERIOD: 1948

FACILITY DESCRIPTION:
DOE ES&H Website:
Starting in 1948, Vitro was under contract to recover uranium from scrap. In the period from 1954-1956, Vitro had a contract to process production quantities of radioactive material (UF_4) for National Lead of Ohio (Fernald). Vitro also received uranium scrap from the Tyson Valley Powder Farm sometime in 1949. After 1957 the site was used only for storage.

Canonsburg was a major uranium milling facility and although the EEOICPA definition of an Atomic Weapons Employer excludes mining and milling, this site is covered because of its scrap processing activities performed under contract to the Atomic Energy Commission.

A 1948 document indicates that General Electric shipped scrap containing beryllium to the Canonsburg site. The Canonsburg site is one of 24 former uranium mill sites designated for Department of Energy remediation by the Uranium Mill Tailings Radiation Control Act (UMTRA).

DISCUSSION:
There is no information on decontamination activities or work locations at the facility. DOE UMTRA and NRC Reports were reviewed and beryllium contamination problems were not mentioned.

This was a reception point for scrap containing beryllium and there is no evidence of processing. There is no mention of beryllium contamination in the DOE or NRC documents.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE and NRC.

EVALUATION FINDINGS:
Documentation reviewed indicates there is little potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

FACILITY NAME: Wolverine Tube Division
Detroit, Michigan

ALSO KNOWN AS: Div. Of Calumet Hecia Consolidated Copper Co.
Hermes Automotive
Mamif Corp.

TIME PERIOD: 1943-1946

FACILITY DESCRIPTION:
DOE ES&H Website:
In 1943, the University of Chicago subcontracted to Wolverine Tube of Detroit, Michigan, for help in extrusion of metals that were needed as part of the Manhattan Project. Wolverine Tube performed research on the fabrication of aluminum slugs and the process of aluminum canning and also experimented with thorium and beryllium. This contract ended in 1946. Wolverine Tube received other AEC contracts because of its extrusion expertise.

DISCUSSION:
A 1990 elimination report mentions no contamination, but does not clarify if this includes beryllium. It is mentioned that the facility where the AEC work was conducted was occupied by several companies after the AEC contracts; it currently is a warehouse. Of specific importance is the notation that the subcontracting with the University of Chicago did end in 1946, but this company probably continued work in the extrusion area through 1955 as a sub-contractor with DuPont (Savannah River). No documentation is provided about decontamination activities subsequent to the end of the AEC work, nor is any mention made of whether or not this work was conducted in areas separate from work for other customers However, a DOE FUSRAP report indicates that as of 1989 beryllium residual contamination was of no consequence.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, along with documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, including the *FUSRAP Elimination Report for the Former Wolverine Tube Division*, June 1990.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1947-1989

Appendix B-3 Residual Beryllium Evaluations for Individual Facilities

FACILITY NAME: Wyman-Gordon Inc.
Grafton, North Grafton Massachusetts

TIME PERIOD: 1959-1965

FACILITY DESCRIPTION:
DOE ES&H Website:
Wyman-Gordon supplied beryllium powder forgings and beryllium blanks to the Rocky Flats plant and beryllium metal and parts to the Y-12 plant.

DISCUSSION:
Nothing substantial could be found in either the Beryllium Vendor or AWE files. A 1961 document states that approximately 50% of the beryllium work at this site is for the AEC, while the remainder is for DOD. No information is provided about decontamination activities after the AEC contracts, nor is there any mention of the AEC work being conducted in work area separate from work for other customers.

Telephone contact with current company officials provided the following information: (1) the Air Force owned the facility and Wyman-Gordon served as an on-site contractor for both DOE and DOD; (2) the listed dates seemed to be correct and the work (forging and grinding) for DOD and DOE was conducted in a separate area of the facility; (3) after the DOE and DOD work was completed in 1965, the area was decontaminated; and (4) Wyman-Gordon bought the facility in 1981 from the Air Force and forging activities still take place.

INFORMATIONAL SOURCES:
Sources of information reviewed during this evaluation, as shown above, included the DOE ES&H Website, documentation provided by the DOE ES&H group consisting of written communications by or for the DOE, and telephone contact with current company officials.

EVALUATION FINDINGS:
Documentation reviewed indicates there is a potential for significant residual beryllium contamination outside the period in which beryllium metal was processed, produced, or provided to DOE.

PERIOD OF POTENTIAL RESIDUAL CONTAMINATION:
1966-present