

United States Government

Department of Energy

# memorandum

DATE: **SEP 25 1992**

REPLY TO  
ATTN OF: EM-421 (W. A. Williams, 903-8149)

SUBJECT: Designation for Remedial Action at the Former Beryllium Production Facility in Luckey, Ohio

TO: L. Price, OR

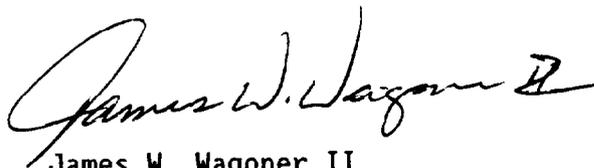
The site of the former beryllium production facility in Luckey, Ohio, which is currently owned by Motor Wheel Corporation, is designated for inclusion in the Formerly Utilized Sites Remedial Action Project (FUSRAP). This designation is based upon the results of environmental surveys and review of other information described in the Designation Summary.

Pertinent references are attached:

- o Designation Summary
- o Authority Determination (2/6/91)
- o Survey report ORNL/TM-11182 (2/90)
- o Policy regarding chemical contamination (8/24/89)

Based on our analysis of the site contamination and present site use, the site has been assigned a medium priority under the FUSRAP protocol. The priority may be adjusted as warranted for beryllium and other chemicals at the site. The site has extensive surface contamination from beryllium; the need for remedial action for beryllium is not known. This site has several lagoons and landfills which were utilized by the Atomic Energy Commission during the beryllium production operations. The need for remedial action at these areas is not known. Both the Ohio State Environmental Protection Agency and the Ohio Department of Health have expressed an interest in the site.

The effect of this designation on the FUSRAP baseline should be evaluated, documented, and submitted for approval under the baseline change control procedures.



James W. Wagoner II  
Director  
Division of Off-Site Programs  
Office of Eastern Area Programs  
Office of Environmental Restoration

Attachments

CC:  
J. Wagoner, EM-421  
W. A. Williams, EM-421

bcc:  
Weston

Distribution:

EM-40 (2)  
EM-42 (3)  
EM-GTN  
EM-FOR  
Pat Suspense  
Williams Reader



EM-421:wagoner:djn:903-8145:9/18/92:brush.des

P. Hevner Review: ph 101  
M. White Review: MLW 101

Williams <sup>WA</sup>  
EM-421  
9/17/92  
Wagoner  
EM-421  
9/25/92

Fulmer  
EM-42  
10/1/92

Rone  
EM-42  
10/1/92

Baoblitz  
EM-40  
10/5/92

Whitfield  
EM-40  
10/7/92

**FORMERLY UTILIZED SITES  
REMEDIAL ACTION PROGRAM**

**DESIGNATION SUMMARY  
FOR THE FORMER  
BERYLLIUM PRODUCTION FACILITY  
IN LUCKEY, OHIO**

**September 1991**

**U.S. Department of Energy  
Office of Environmental Restoration**

Designation Summary  
Former Beryllium Production Facility in Luckey

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3/8/91

## INTRODUCTION

The Department of Energy (DOE), Office of Environmental Restoration, has reviewed the past activities of the Atomic Energy Commission (AEC) at the former beryllium production facility in Luckey, Ohio, and has completed a radiological and chemical survey of the site (Foley and Crutcher, 1990). DOE has determined that residual beryllium levels in the soil exceed background and that residual radioactive materials in the soil exceed current DOE radiological guidelines (DOE, 1987, 1990) for release of facilities to the general public without radiological restrictions.

However, the survey results indicated that there is no immediate risk to workers or the general public from the residual contamination at the facility.

Based on a review of the available historical information and the results of the survey, the DOE has concluded that this site be designated for remedial action under the Formerly Utilized Sites Remedial Action Program (FUSRAP) and assigned a medium priority. The remainder of this report summarizes the site information and the designation decision.

## BACKGROUND

### Site Function (Williams, 1991)

In 1942, a magnesium reduction facility was constructed at the Luckey, Ohio, site on land purchased by the Defense Plant Corporation (U.S. Government). The facility was operated for the government by National Lead (assignee, Magnesium Reduction Company) during World War II. The facility was closed in 1945.

In 1949, a beryllium production facility was constructed at the site by the AEC. This plant was owned by the AEC and operated from 1949 to 1958 by Brush Beryllium Company (later changed to Brush Wellman), which was also asked to maintain the inactive magnesium facility in a stand-by status. The beryllium plant had a capacity to produce 4,000 pounds of beryllium per month from ore. The waste solutions and precipitated sludge from the beryllium operation were impounded on the plant property in lagoons approximately 1.2 meters deep. All or part of the beryllium production plant may have been in stand-by mode by 1954.

In October 1951, the General Service Administration (GSA) asked the AEC to transfer ferrous metal scrap to the GSA for use in control of chlorine fumes in producing magnesium. The ferrous metal scrap was present at the AEC's Lake Ontario Storage Area. In December 1951, 1,000 tons of scrap steel (contaminated by fission products, yellow-salt, and concrete flooring) were allegedly sold to Diamond Magnesium for use in the

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Former Beryllium Production Facility in Luckey

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processing of magnesium at the Luckey Plant. However, former employees of Brush Wellman indicate that the magnesium plant never operated. They indicated that the scrap steel was received at the plant, but was never used in magnesium or beryllium production processes.

In 1959, the Luckey plant was closed. AEC contracted with Brush Wellman to close the plant according to a closure plan.

Site Description

The beryllium facility, now occupied by the Motor Wheel Corporation, is located in Luckey, Ohio, approximately 22 miles southeast of Toledo, at 21200 Luckey Road. The site is bounded on the south by Gilbert Road, on the east by Conrail (formerly New York Central Railroad), and on the north by the Toussaint Creek. The facility location (about 1 mile north of the Luckey town center) is mostly open farm land, with quarries south of the site.

The generally L-shaped site encompasses about 40 acres. The portion to the north is leased for farming. The facility structures at the site include large production, warehouse, and related buildings; transportation systems; and utility buildings. Several active/inactive lagoons and spoil areas are present. Numerous open areas are vegetated, mostly with grasses and brush.

Owner History

From 1942 to 1948, the facility was owned by the Reconstruction Finance Corporation (successor to the Defense Plant Corporation). The facility was transferred to the U.S. Government in 1948, and assigned to the General Services Administration in 1949. In 1961, the facility was transferred to Aluminum and Magnesium, Inc. by quitclaim deed. The government, however, reserved the right to re-claim any of the beryllium left on the site. In 1967, Aluminum and Magnesium (a division of Vulcan Materials Company) transferred the property to Vulcan. In 1968, the property was transferred to Goodyear Tire and Rubber Company, who in 1987 transferred the property to Motor Wheel Corporation, a former subsidiary of Goodyear. The property is currently owned by the Motor Wheel Corporation; Goodyear retains responsibility for some environmental aspects of the site. (Williams, 1991)

There has been a lease with Mr. E. Waires, Jr. on a portion of the property in effect since the time when the General Services Administration owned the property. This leased portion of the property has been and still is used for farming. (Foley and Crutcher, 1990)

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Radiological/Chemical History and Status (Foley and Crutcher, 1990; Williams, 1991)

On-site contamination has been identified in surveys by the Ohio Environmental Protection Agency (OEPA), the DOE, the Ohio Department of Health, and Motor Wheel. Concentrations of uranium ranging from 2.6 to 280 picoCuries per gram; radium, from 2.1 to 4000 picoCuries per gram; and thorium, from 0.2 to 4.3 picoCuries per gram of soil (Ref. b) have been identified. Areas of the site have residual radioactivity exceeding DOE guidelines (USDOE, 1987, 1990). Beryllium concentrations ranged from 120 to 6400 micrograms per gram of soil, which are well above background. Other hazardous substances may be present, including sludge, in-organic chemicals, and heavy metals. No radioactive contamination was found in the former magnesium-production building. OEPA performed an inspection of the site on September 13, 1983, which was documented in a PA/SI dated January 25, 1984, for consideration on EPA's National Priority List (NPL); the site has not been included on the NPL.

It is unlikely that the present light manufacturing of Motor Wheel Corporation or the earlier magnesium processing (use of dolomite ore) of Magnesium Reduction Company contributed significantly to the present radioactivity. Instead, the radioactivity was probably caused by one or more of the following: (1) high natural radioactivity in the beryllium ore; (2) contamination of the ore when it was ground at the former AEC processing facility in Middlesex, New Jersey; or (3) a shipment of "slightly contaminated" scrap steel from the AEC New York Operations Office (Williams, 1991).

The beryllium contamination at the site was clearly caused by the beryllium production operations (Williams, 1991).

Authority Review

In 1991, the DOE determined that it had the authority to conduct remedial action at the site with regard to both beryllium and radioactivity (USDOE, 1986; Fiore, 1989; Williams, 1991). This determination of authority under the Formerly Utilized Sites Remedial Action Program (FUSRAP) was based upon the following significant factors:

- o The land was owned by the government at the time that the facility produced beryllium.
- o The facility was controlled by the AEC both directly and indirectly.
- o The beryllium ore was owned by the government and ground at the AEC Middlesex facility before shipment to Luckey.

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- o The site was inspected on many occasions by the AEC health and safety staff.

**DESIGNATION DETERMINATION**

Survey results indicate that there is residual beryllium and radioactive contamination in the soil about the site. The DOE has authority to conduct remedial action at the site under FUSRAP based upon the documented use of the site by the AEC and the probable source of the contamination. Therefore, the site meets all criteria for designation for remedial action under FUSRAP (USDOE, 1986).

On the basis of the ranking procedure of the FUSRAP protocol (USDOE, 1986), the site is classified as a medium priority site. This ranking is based upon potential health risk considerations and the risk of spread of the contamination. The present in-building and land use of the site does not constitute an immediate short-term risk to the workers or general public. However, large disturbance of the surface and sub-surface soils could potentially cause a significant risk to the workers and general public or result in extensive migration of contaminants. A change in use of the site that would require workers to be present in contaminated areas for extended periods of time could also constitute a significant risk. No action is planned by the owners to disturb the site except to demolish the old magnesium production building, which was previously found to be uncontaminated. The priority ranking may be adjusted as warranted for beryllium and other chemicals at the site.

**REFERENCES**

Fiore, J.J., 1989: "Chemical Contamination at FUSRAP Sites." DOE correspondence from Office of Nuclear Energy to Peter Gross, Oak Ridge Operations, August 24.

Foley, R.D. and J.W. Crutcher, 1990: Results of the Preliminary Radiological Survey at the Former Diamond Magnesium Company Site, Luckey, Ohio (DML001). ORNL/TM-11182. Oak Ridge National Laboratory, Oak Ridge, Tennessee, February.

United States Department of Energy (USDOE), 1986: Formerly Utilized Sites Remedial Action Program, Summary Protocol, Identification - Characterization - Designation - Remedial Action - Certification. Office of Nuclear Energy, January.

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ORNL/TM-11182

**OAK RIDGE  
NATIONAL  
LABORATORY**

**MARTIN MARIETTA**

**Results of the  
Preliminary Radiological  
Survey at the Former  
Diamond Magnesium  
Company Site,  
Luckey, Ohio (DML001)**

**R. D. Foley  
J. W. Crutcher**

**OPERATED BY  
MARTIN MARIETTA ENERGY SYSTEMS, INC.  
FOR THE UNITED STATES  
DEPARTMENT OF ENERGY**

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Former Beryllium Production Facility in Luckey

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USDOE, 1987: U.S. Department of Energy Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites. Revision 2, Office of Nuclear Energy, March.

USDOE, 1990: Radiation Protection of the Public and the Environment. DOE Order 5400.5. Office of Environment, Safety, and Health, February 8.

Williams, W.A., 1991: "Authority Determination -- Former Beryllium Production Facility in Luckey, Ohio." DOE correspondence from Office of Environmental Restoration to file, February 6.

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