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Authorization for Remedial Action at the Seaway Industrial Park and Ashland Oil Co. (I) Sites at Tonawanda, NY, and Mallinckrodt Chemical Co., St. Louis, MO

[redacted], Manager
Oak Ridge Operations Office

We have determined that the subject sites are contaminated with residual radioactive material as a result of the Manhattan Engineer District/Atomic Energy Commission operations at those sites. The contamination is in excess of the acceptable guidelines and warrants some form of remedial action under the Formerly Utilized Sites Remedial Action Program. Attached for your information are fact sheets and the following reports on the subject sites.

1. "Radiological Survey of the Seaway Industrial Park, Tonawanda, New York," May 1978 (DOE/EV-0005/6).
2. "Radiological Survey of the Ashland Oil Co. (Former Haist Property), Tonawanda, New York," May 1978 (DOE/EV-0005/4).
3. "Radiological Survey of the Mallinckrodt Chemical Works, St. Louis, Missouri," December 1981 (DOE/EV-0005/27).

It should be noted that a nearby second property belonging to Ashland Oil Company is not being designated at this time because the radiological survey could not be completed due to refusal of access by the owner.

If there are any questions, please call Mr. Arthur J. Whitman on FTS 233-5439.

bcc:
[redacted], OR, w/attach.
[redacted], ORNL, w/o attach.
[redacted], w/o attach.
[redacted], NE-24, w/o attach.
Aerospace, w/o attach.

[redacted], Director
Office of Terminal Waste Disposal
and Remedial Action
Office of Nuclear Energy

6 Attachments: NE-73 (4)
3 Fact Sheets NE-24 RF
3 Reports [redacted]

NE-24:AWhitman:ph:353-5439:6/20/84:IBM:41640025:3.32.1/3.25.1

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The former Haist property site was used by the MED for the storage of uranium residue from the operation of the Linde Air Products Uranium Processing Facility. The property consists of 10.8 acres located in a large industrial area and several hundred yards from the nearest dwellings.

The MED first leased the 10.8 acre property on June 25, 1943 and later bought it in August 1944. The property was used by MED between June 1943 and 1946 when Linde Operations were terminated. The AEC exceded the property in 1959 and it remained under the control of the General Services Administration until June 17, 1960. At this time, GSA executed a quit claim deed for the sale of the property to Ashland Oil Company for the sum of \$56,000. Ashland Oil has subsequently built storage tanks on the site which is adjacent to the company's petroleum refinery. During construction activities in 1974, Ashland moved about 6,000 cu. yds. of material from this site to a nearby location which is now part of the Seaway Industrial Park. This material consisted in part of the uranium processing residues.

The residues on the former Haist property consist essentially of low-grade uranium residues. About 16 million pounds in dry weight of residue containing approximately .54% uranium were spread over roughly two-thirds of the site to a depth of 1-5 ft. A radiological survey of the property was conducted by the AEC in 1958 and was used as the basis for the release of the property for unrestricted use at that time. In 1975, ORNL conducted a radiological survey which found external gamma radiation over the site averaging about 33 uR/hr including background with a maximum reading of 190 uR/hr at the site. Radium concentrations in the soil ranged from an average of 13 pCi to 35 pCi/g, with a maximum concentration of 508 pCi/g at one location in the site. Radon emanation rate for the site was estimated at about 7 pCi/m²-Sec. with a maximum rate of 70 pCi/m²-Sec. Radium concentrations in the soil throughout the property exceed the proposed FUSRAP residual contamination criteria* (5 pCi/g surface, and 15 pCi/g after the first 15 cm). Highest concentrations found at the site were 100 times the surface criteria; however, the average gamma radiation levels at the site would not result in any exposure that would exceed the 500 uR/yr guideline** for such radiation. Continuous exposure to maximum levels at the site would, however, exceed the 500 uR/yr guideline by a factor of 2-3 times.

It has been determined by DRAP and Office of General Counsel that the quit-claim deed executed in the sale of the property to Ashland Oil did not acknowledge the presence of the residue on the site and that Ashland Oil appears to have accepted the site without cognizance of the contaminated material contained therein. Therefore, under the terms of the Atomic Energy Act, the Department has established that it has the authority to conduct any necessary remedial actions needed to correct unacceptable conditions existing at the site resulting from the contamination associated with the former MED utilization of the site.

* Title 10, Code of Federal Regulations, Part 20, Standards for Protection Against Radiation

** U.S. Department of Energy Interim Residual Contamination and Waste Control Guidelines for Formerly Utilized Sites Remedial Action Program (FUSRAP) and Remote Surplus Facilities Management Program (SFMP) sites, March 21, 1984.

FACTSHEET FOR THE SEAWAY INDUSTRIAL PARK SITE
TONAWANDA, NEW YORK

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The Seaway Industrial Park property covers nearly 100 acres and has been used as a land fill for a number of years. In 1974, in connection with construction activities at a neighboring site owned by the Ashland Oil Company, approximately 6000 cu. yds. of material, comprised primarily of uranium processing residues, was moved from an adjoining Ashland Oil site (former Haist property) to the Seaway Industrial Park. The material was placed as fill in three separate locations on the Seaway property. The first area covers approximately 10 acres and the other two areas together cover approximately two additional acres. In the 10 acre area, the residue was spread to a depth of approximately two feet. Most of the residue is not covered but it has become partially mixed with clean soil due to moving and spreading of material at the site in recent years.

There are no buildings and little vegetation on the Seaway property site. The site is currently owned by the Seaway Industrial Park Development Company, Inc. The site is in an industrial area and is bounded by several other properties owned by industrial concerns, including Ashland Oil, Agway Fuel, Inc., Murphy Trucking, Inc., Leffler Auto Parts, and property owned by Niagara Mohawk Power Corporations.

In August of 1976, ORNL conducted a radiological survey of the site to determine radiation levels and the extent of potential movement of contaminated residue by natural means. External gamma radiation at 1 m from the surface over the site averaged about 35 uR/hr with a maximum level of 80 uR/hr. Radium concentrations in the soil averaged about 15 pCi/g to a depth of 1 ft. and about 8 pCi between 1-2 feet below the surface. The maximum concentration recorded was 92.6 pCi/g. Uranium concentration in the soil averaged about 23 pCi/g with a maximum of 102 pCi/g. The radon emanation rate averaged 6 pCi/m²-Sec. with a maximum estimated emanation rate of 25 pCi/m²-Sec. The observed radium concentrations in the soil throughout this site exceeded the proposed FUSRAP residual contamination criteria (5 pCi/g surface, 15 pCi/g after the first 15 cm) by approximately a factor of 20. The concentrations of natural uranium in the soil at the site also exceeded the proposed guidelines for such contamination in some areas. *

It has been determined by DRAP and Office of General Counsel that the contamination found at this site is the result of contaminated material transferred from the former Haist property and placed at this site as part of a land fill operation. Thus this site becomes an off-site location in connection with the former Haist property activities. Therefore, under the terms of the Atomic Energy Act, the Department has established that it has authority to conduct any necessary remedial actions needed to correct unacceptable conditions existing at the site resulting from the contamination associated with the MED utilization of the former Haist property.

* U.S. Department of Energy Interim Residual Contamination and Waste Control Guidelines for Formerly Utilized Sites Remedial Action Program (FUSRAP) and Remote Surplus Facilities Management Program (SFMP) sites, March 21, 1984.

FACTSHEET FOR THE FORMER MALLINCKRODT CHEMICAL
WORKS, ST. LOUIS, MISSOURI

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In April 1942, the Army requested Mallinckrodt Chemical Works to set up an industrial scale process to produce uranium dioxide and trioxide. Over the next 15 years through 1957, Mallinckrodt conducted a variety of uranium processing and recovery operations at the portions of their facilities located on Broadway Street and on Destrehan Street. Activities for MED at these sites were primarily for processing of uranium concentrate. In 1957, all operations at these sites terminated and were transferred to a new AEC processing center operated by Mallinckrodt in Weldon Spring, Missouri.

The subject properties were owned and operated by Mallinckrodt Chemical Works, however, MED leased certain facilities and owned certain facilities constructed on the site especially for MED related activities. The successor organization to Mallinckrodt Chemical Works, Mallinckrodt Incorporated, continues as owner and operator of the property currently utilized in the production of various chemical products.

From 1948 to 1950, areas in the Broadway Street portion of the site were decontaminated and final decontamination surveys were performed. In 1952, this portion of the site was returned to Mallinckrodt for unrestricted use. Between 1957 and 1962, the Destrehan Street site was decontaminated and final surveys were performed. At the conclusion of these surveys, the site was released to Mallinckrodt for unrestricted use. Contaminated earth was also removed and back-filled. Waste, scrap, and rubble from these operations were buried at the west end of the former AEC St. Louis Airport Storage Site which had been used in connection with the earlier operations of the Mallinckrodt facility. In addition, some material was deposited in an AEC owned abandoned quarry near the Weldon Spring site. AEC decontamination activities did not reduce radiation levels to background but essentially reduced them to prevailing AEC permissible levels for unrestricted use.

During the summer of 1977, ORNL conducted a series of new radiological surveys of these sites. Alpha and beta-gamma concentration levels above levels set by current Federal guidelines for release of property for unrestricted use* were monitored inside and outside some of the buildings at the two sites. Elevated external gamma radiation levels were also measured at several locations on the sites. Uranium concentrations in the soil exceed 0.05% (licensable concentration) in some places at the site. Radon and radon-daughter concentrations in three buildings at the site were in excess of current Federal guidelines for non-occupational radiation exposure.**

Of 20 buildings at the two sites which had previously been involved in AEC related activities, 19 were found to have residual radiological contamination. However, no immediate health hazard has been found to exist under current use conditions at the site.

* "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for By-Product, Source, or Special Nuclear Material," U.S. Nuclear Regulatory Commission, November 1976

** Title 10, Code of Federal Regulations, Part 20, Standards for Protection Against Radiation

It has been determined by DRAP and Office of General Counsel that based on AEC close-out contracts with Mallinckrodt DOE has authority at the site under the Atomic Energy Act, to conduct any necessary remedial action.