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FORMERLY UTILIZED SITES
REMEDIAL ACTION PROGRAM

ELIMINATION REPORT
FOR
FORMER WILLIAM PRATT MANUFACTURING COMPANY;
18 HENDERSON STREET;
JOLIET, ILLINOIS

JULY 1990

U.S. Department of Energy
Office of Environmental Restoration

7/25
Alexander
Incorporates your
7/24 comments.
Regards. Ed

Elimination Report
Former William E. Pratt Manufacturing Company

CONTENTS

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INTRODUCTION

The Department of Energy (DOE), Office of Environmental Restoration, has reviewed the past activities of the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC) at the former William Pratt Manufacturing Company, 18 Henderson Street, Joliet, Illinois, and has completed a preliminary radiological survey of the site. DOE has determined that the conditions at this site are in compliance with current radiological guidelines and standards. Furthermore, the survey did not identify residual radioactive material on the site associated with DOE predecessor activities and confirmed that radiological exposures at the site are equivalent to those associated with natural background. Therefore, this site requires no remedial action and is no longer under consideration for inclusion in the Formerly Utilized Sites Remedial Action Program.

The material in this docket consists of information from documents supporting the determination that the radiological conditions at the former William E. Pratt Manufacturing Company site are in compliance with radiological guidelines and standards determined to apply to this site and provides assurance that use of this site will not result in any measurable radiological hazard to site occupants or the general public.

This elimination report will be placed in archives by DOE through the Director of Administration and Human Resource Management. Copies of this report will be maintained by the Department at the DOE Reading Room in Washington, D.C., so that it will be accessible to the general public.

BACKGROUND

Site Function

The W. E. Pratt Manufacturing Company performed metal fabrication tasks (machining and grinding) for the University of Chicago beginning in the spring of 1943. The purpose of the machining done by Pratt was to speed up delivery of pieces for the exponential pile and to learn all that could be learned about handling the metal in turret lathes and automatic screw machines. On April 15, 1944, under subcontract with the University of Chicago, Pratt agreed to finish "short metal rods" by centerless grinding to specifications supplied by the Contractor (the University) at a specified hourly rate, which included the cost of facilities, supplies, labor and supervision supplied by Pratt. There are indications that this work was primarily to relieve pressure on the Metallurgical Laboratory Site B shop, to handle large pieces beyond the range of Site B equipment and to do centerless grinding of short rods. This subcontract was continued through supplemental agreements until termination on June 30, 1946. The MED History indicates that in April 1944 DuPont placed an order with Pratt to finish rough-turned slugs by centerless grinding for the priority project to provide 48,000 unbonded Hanford slugs. Dupont also provided Pratt with medical support under separate purchase orders.

Site Description

The facility, located approximately 1.5 kilometers (0.9 miles) east of the center of Joliet, is a single story masonry building with brick veneer. The building rests on a concrete slab; total floor area is about 1500 m^2 (16,100 ft^2). Internal partitions for office and other non-manufacturing space are of wood frame construction. Manufacturing area floors are uncovered; other floor areas are tiled with asphalt or ceramic tile. The building roof is multi-tiered with sheet metal and tar-and-gravel coverings. Currently the building is used for light manufacturing operations by the tenant, Klassing Handbrake Company. The current owners are Neal Elens and William Maichen. (Another tenant, Altrachem, Inc., is not in the former Pratt Manufacturing area.) Several sections of a former adjoining building to the east have been demolished. There is a more recently constructed addition, connecting with another building to the east of the facility. To the north of the building is an infrequently used dirt road; there is a loading dock and unpaved truck parking area on the south side. Other open areas of the property are currently unused and are overgrown with grass and low weeds.

Radiological History and Status

On May 24, 1989, Oak Ridge Associated Universities (ORAU) performed a preliminary survey (Landis, 1989) of the facility and property at 18 Henderson Street, Joliet, Illinois. The objective of this survey was to obtain sufficient radiological data, upon which to base a decision for inclusion or exclusion from the Formerly Utilized Sites Remedial Action Program. Survey activities included gamma and beta-gamma scans, and measurements of exposure rates, total and removable surface activity levels and radionuclide concentrations in soil and roofing material samples. No residual radioactivity associated with DOE predecessor activities was identified. Furthermore, all areas surveyed complied with the guidelines (DOE, 1987). Levels were in the range of natural background radiation in the area (Myrick, et al., 1981).

Total activity levels ranged from <28 to 113 dpm/100 cm^2 for alpha and <510 to 1,500 dpm/100 cm^2 for beta-gamma. Removable activity levels ranged from $\leq$3 dpm/100 cm^2 for alpha and <6 to 18 dpm/100 cm^2 for beta-gamma. For comparison purposes, the DOE surface contamination guideline levels for uranium are:

5,000 dpm/100 cm^2, averaged over 1 m^2
15,000 dpm/100 cm^2, maximum in 100 cm^2
1,000 dpm/100 cm^2, removable

All measurements were below these guideline levels.

Exposure rates measured at 13 locations throughout the facility ranged from 5.8 to 9.6 uR/h, typical of background for this area and are, therefore, below the DOE external gamma radiation guideline of 20 uR/h above background.

Radionuclide concentration ranges in soil and roofing material samples were: U-238, 0.8 to 6.4 pCi/g; Ra-226, 0.2 to 1.6 pCi/g; and Th-232, 0.2 to 1.4 pCi/g. The U-238 concentrations are in the range of natural background and the Ra-226 and Th-232 concentrations are below the DOE guideline concentrations of 5 pCi/g averaged over the first 15 cm, and 15 pCi/g averaged over 15-cm-thick layers of soil more than 15 cm below the surface.

ELIMINATION ANALYSIS

Although the operations conducted at this site had the potential to spread contamination, the controls used while the work was being performed and the subsequent cleanup appear to have been adequate on the basis of the results of the radiological survey performed by ORAU. Direct radiation levels are typical of natural background in the area. Environmental samples were also comparable to background.

Based on the information summarized in this report, DOE has determined that no remedial action is necessary at this site and has eliminated the former William Pratt Manufacturing Company facility in Joliet, Illinois, from consideration under the Formerly Utilized Sites Remedial Action Program.

REFERENCES

1. U.S. Department of Energy, 1987: Guidelines for Residual Radioactivity at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites. Revision 2, March.

2. Landis, M. R., 1989: Radiological Survey at 18 Henderson Street, Joliet, Illinois. Oak Ridge Associated Universities. ORAU 89/G-77, October.

3. Myrick, T. E., et al. 1981: State Background Radiation Levels: Results of Measurements Taken During 1975 - 1979. Oak Ridge National Laboratory, Oak Ridge, Tennessee, November.