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FORMERLY UTILIZED SITES
REMEDIAL ACTION PROGRAM

ELIMINATION REPORT
FOR
JESSOP STEEL COMPANY;
500 GREEN STREET;
WASHINGTON, PENNSYLVANIA

December 1991

U.S. Department of Energy
Office of Environmental Restoration

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Elimination Report
Jessop Steel Company

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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 Jessop Steel Company facility, 500 Green Street, Washington, Pennsylvania, and has completed a preliminary radiological survey of the site. DOE has determined that the conditions at this site are in compliance with current DOE radiological guidelines (DOE, 1987 and 1990). Furthermore, the survey did not identify residual radioactive material on the site associated with MED or DOE predecessor activities. The survey also confirmed that radiological exposures at the site are equivalent to those associated with natural background, with the exception of elevated levels associated with the material present in the grinding wheels used for today's commercial activity. 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 Jessop Steel Company site are in compliance with applicable DOE radiological guidelines (DOE, 1987 and 1990) and provides assurance that use of this site will not result in any measurable radiological hazard to site occupants or the general public.

Through the Office of Administrative Services, this elimination report is being placed in DOE's Freedom of Information Act (FOI) Public Reading Room in Washington, D.C., so that it will be accessible to the general public.

BACKGROUND

Site Function

In the early and mid 1950s, the Jessop Steel Company was under contract for metal fabrication to the AEC, with some work through DuPont. In the early 1950s, the Jessop Steel Company probably received shipments of uranium metal in nickel scrap, to make stainless steel piping for Fernald (Carney, 1952). In 1954, Jessop shipped some radioactively contaminated pickling liquor to Mallinckrodt Chemical Works (Morgan, 1954). Also in 1954, Jessop sheared uranium plates for DuPont under purchase order AX-3104 for eventual use at Savannah River Laboratory (Fisher, 1954). In 1954, tentative plans were made for Jessop Steel to roll uranium for Fernald billet production (Warner, 1954).

Site Description

The Jessop plant at 500 Green Street is a complex of buildings covering approximately 18 acres in Washington, Pennsylvania (Cottrell, et al, 1991). The work for AEC was conducted in only four areas of the southern half of this complex. The buildings are predominantly one-story

structures with steel framing and sheet metal siding on either concrete, firebrick, or metal floors. The equipment areas are still in existence. Old furnaces and straighteners which might have been contaminated from the uranium processing were removed on completion of the project. The old pickling building was demolished in the early 1960s. Some of the large timbers were salvaged and subsequently used in the private sector. The remainder of the building was reduced to rubble and burned. The concrete floor was also torn up. The rubble, concrete, and ash remains were buried on site. Currently, these scraps lie under approximately 10 to 15 feet of fill in the burial area between the water recirculating reservoir, the bar mill shipping crane, and Chartier Creek.

In the early 1960s, approximately 445 linear feet of timbers salvaged from the old pickling building were used to build a patio at 201 Winona Avenue, Washington, Pennsylvania -- a private residence.

Radiological History and Status

In 1988, DOE directed that a preliminary radiological survey of the site be conducted. In 1989, the Oak Ridge National Laboratory (ORNL) conducted a survey of Jessop Steel at 500 Green Street, and in 1990, at the patio at 201 Winona Avenue (Cottrell, et al, 1991). All radiation levels and radionuclide concentrations were found to be below the DOE guidelines (DOE, 1987 and 1990) and typical of background (Myrick, et al, 1981).

The survey emphasis at Jessop Steel was on the interior floors, overhead beams, and air. The radiological survey included (1) a surface gamma scan in selected areas of the property outdoors and indoors, as well as sections of the roof and gutter on the north side of building D over the rolling mill area; (2) collection and analyses of indoor floor debris, grinding wheel fragments, and overhead beam dust samples, and outdoor soil samples; (3) direct and removable alpha and beta-gamma sampling of activity levels indoors and outdoors; and (4) air sampling in building D.

Outdoor gamma scans indicated levels of 3 to 20 μ R/h, the higher readings attributed to naturally-occurring radioactive substances in bricks, concrete, granite, and other such materials used in paving and building construction. Indoor readings ranged from 2 to 12 μ R/h with the exception of 40 μ R/h attributed to material used in the manufacture of grinding wheels.

All soil samples were near or below background. Concentrations of radium, thorium, and uranium in these samples ranged from 0.28 to 1.2 pCi/g, from 0.35 to 1.4 pCi/g, and from <0.82 to 1.5 pCi/g, respectively.

Systematic dust and debris samples showed that concentrations of radium, thorium, and uranium ranged from 0.24 to 1.6 pCi/g, from 0.39 to 2.1 pCi/g, and from 0.67 to 3.5 pCi/g, respectively. Concentrations of the same radionuclides in the grinding wheel sample were 20, 6.2, and 19 pCi/g, respectively. The radioactivity is in the material used to

manufacture the wheel. These wheels were being used in an ongoing industrial process, and the observed radioactivity was not related to the prior use of the facility by DOE's predecessor.

All 5 direct alpha measurements taken on the creek bank, the north roof and gutter section of building D, and the south block wall of building C were below the minimum detectable activity (MDA) level of 25 dpm/100 cm². Direct beta-gamma activity levels for the 5 measurements were also below the MDA of 0.01 mrad/h.

Direct alpha measurements taken from overhead beams near or in the same areas as dust samples and from the exterior furnace vent in building B were below the MDA level of 25 dpm/100 cm². All direct beta-gamma measurements were at or below 0.02 mrad/h. Thirteen smear samples obtained from the same areas showed all removable alpha and beta-gamma contamination from a 100-cm² area was below the MDA's of 10 dpm and 200 dpm, respectively.

Two indoor air samples, collected to measure airborne dust from the grinders, showed that the alpha activity for a one-minute count was below the MDA level of 1.0 E-12 μ Ci/cc, and the beta activity for a one-minute count was also below the MDA level of 1.8 E-11 μ Ci/cc.

On the follow-up survey at 201 Winona Avenue, no elevated activity was found on any of the wooden timbers. The gamma range was 7 to 9 μ R/h, beta-gamma levels were <MDA, and alpha activity ranged from <MDA to 37 dpm/100 cm².

ELIMINATION ANALYSIS

Information had been found to indicate that probably only limited quantities of radioactive material had been handled at Jessop Steel as part of work for the AEC. The results of the radiological survey by ORNL support this statement, because direct radiation levels and environmental samples were typical of natural 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 Jessop Steel Company facility (including the private residence on Winona Avenue) in Washington, Pennsylvania, from further consideration under the Formerly Utilized Sites Remedial Action Program.

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