N Iron Products file
Docket Room

State of Maryland

OFFICE OF ENVIRONMENTAL PROGRAMS

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

201 WEST PRESTON STREET • BALTIMORE, MARYLAND 21201 • Area Code 301 • 383-2744

Harry Hughes, Governor

Charles R. Buck, Jr., Sc.D. Secretary

July 13, 1982

United States Nuclear Regulatory Commission
Office of State Programs
Washington, D.C. 20555

Attention: Mr. Lloyd Bolling

Dear Mr. Bolling:

The following are the results of the investigation you requested of Neutron Products, Inc. (NPI), Dickerson, Maryland. This is in reference to a memorandum written by John D. Kinneman, NRC, Region I, to Vandy L. Miller, NRC, NMSS. The memorandum refers to a telephone call received by Mr. Kinneman on March 10, 1982, from Mr. Eric Ridout, Atomic Energy of Canada, Ltd. (AECL), Ontario, Canada. (See Exhibit 1)

On August 13, 1981, NPI performed a source transfer and the five-year inspection and maintenance service on an AECL Theratron Junior "C" teletherapy unit, serial number 70, at St. Margaret's Hospital, Hammond, Indiana. According to Maryland Radioactive Material License number MD-31-025-03, NPI is authorized to perform source installations or transfers in AECL teletherapy units and to perform the five-year inspection and maintenance service on these teletherapy units. NPI installed a Cobalt-60 source of 1650 Curies (Model No. NPI-20-1900W) in a tungsten drawer. (See Exhibit 2) The teletherapy unit is licensed for a maximum of 1800 Curies of Cobalt-60 in a tungsten drawer. On August 14, 1981, a survey of this unit was performed by Mr. Charles R. Griffith of Fields, Griffith, Hubbard and Associates, Inc. His standard 14-point survey indicated an average radiation level of 2.4 mR/hr. with a maximum level of 5.0 mR/hr., both values at one meter from the source. (See Exhibit 3). NPI was not alarmed at the average value of 2.4 mR/hr. because they were informed that amendment 5 of St. Margaret Hospital's license (13-02047-03) allowed an average value of 3 mR/hr. Later NPI was informed that amendment 5 applied only to the 1971 source installation.

St. Margaret Hospital authorized NPI to design and fabricate additional lead shielding to reduce the head leakage below an average of 2 mR/hr. NPI completed the task (for a fee) and shipped the lead shield to St. Margaret Hospital.

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The hospital was responsible for its installation. (See Exhibit 4) The shield weighed in excess of 100 pounds. When the hospital requested guidance from AECL on the installation of the lead shield, AECL informed the hospital that it would be unsafe to add additional weight to the teletherapy unit.

St. Margaret Hospital then discussed with NPI the possibility of installing a new source in the uranium drawer which NPI had removed on August 13, 1981. NPI was willing to install (for a fee) either a 1700 or a 1900 RHM Cobalt-60 source in the uranium drawer which they had removed from St. Margaret Hospital's unit on August 13, 1981 (See Exhibit 5). As of this date, this has not been done. A tungsten drawer was used because this normally provides sufficient shielding for a source this size.

The most recent communication about this situation in the NPI files is a telephone call from Mr. Griffith to NPI. He indicated that St. Margaret Hospital had written to the NRC requesting a variance.

In conclusion, we could find no item of non-compliance on the part of our licensee. Please contact us if you have any questions concerning this letter.

Sincerely,

Richard L. Bruson for

Robert E. Corcoran, Chief
Division of Radiation Control

REC/TCK/ajs

cc: Mr. David L. Resh, Jr.