

SUMMARY OF MDE RECORDS ON ENFORCEMENT ACTIONS AND PERMIT ADJUDICATIONS WITH

NEUTRON PRODUCTS

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**December 1973 to December 1974:** contaminated water leaked from Neutron's storage canals and main pool and seeped into soil beneath the facility. A corrective order was issued to Neutron on July 31, 1975 requiring it to line the canals and main pool with stainless steel. Neutron complied.

**November/December 11, 1980:** a millicurie of cobalt-60, a significant and hazardous quantity of licensed radioactive material, was found in the public domain on the railroad tracks behind the Neutron facility. Neutron removed it.

**June 20, 1986:** the Department issued two administrative orders to Neutron regarding management and training deficiencies identified following an employee overexposure in the hot cell and the shipment of depleted uranium to a machine shop not authorized to possess radioactive material. In response to the employee overexposure, the Department identified management and training deficiencies and ordered training for all employees working in the hot cell. In response to Neutron's shipment of depleted uranium to the machine shop, the State ordered the clean up of the contaminated facility, the evaluation of personnel exposures, and other corrective actions. Neutron complied.

**May 1988 to June 1988:** On May 25, 1988, (b)(6) set off radiation monitors at the Rochester Gas and Electric Ginna Nuclear Power Plant in Ontario, New York. (b)(6) was found to be contaminated with Cobalt-60 as a result of routine activities conducted at the Neutron facility. Following the May 25, 1988 incident, the Department discovered Cobalt-60 in a secretary's personal vehicle, in employees' homes (in bedding, clothing, washing machines, and vacuum cleaners), and in unrestricted areas of the plant. The Department also found that food and beverages were being consumed in radioactive material contaminated areas, increasing the risk that employees would ingest radioactive material. On June 23, 1988, the Department, having determined that Neutron had inadequate equipment to evaluate personnel radioactive material (Cobalt-60) contamination, issued an administrative order to Neutron identifying violations and requiring certain remedial actions. Neutron complied.

**January 1989 to June 1989:** On January 27, 1989: the Department found that there was contamination in a former Neutron employee's home. On February, 1989, (b)(6) again set off radiation monitors at the Rochester Gas and Electric Ginna Nuclear Power Plant in Ontario, New York. (b)(6) was found to be contaminated with Cobalt-60 as a result of routine activities conducted at the Neutron facility. On March 3, 1989, MDE took emergency action to modify Neutron's license to manufacture sealed sources, limiting it to possession and storage only. On March 13 and 14, 1989, the United States Nuclear Regulatory

G/4

Commission and the Maryland Department of the Environment jointly inspected the Neutron facility and operations and discovered that Neutron had lost control of Cobalt-60 because there was: a) radioactive material contamination of facility personnel; b) radioactive material contamination in unrestricted areas of the facility; and c) radioactive material contamination, through effluent releases, to unsecured Neutron properties outside the facility and to adjacent railroad properties. On May 23, 1989, MDE issued Amendment #33 to Neutron's 01 license. This amendment outlined extensive changes required to correct deficiencies in Neutron's technical oversight specific to the control of the release of radioactive material to the public domain, training of occupational workers and overall management oversight of licensed activities. The amendment addressed; a) the acquisition of a state-of-the-art personnel contamination monitor; b) procedures for and training of personnel operating the monitor; c) the hiring of an independent health physics expert to evaluate facility problems; d) the establishment of a radioactive clean room; e) the establishment of a more comprehensive personnel training program; f) the establishment of a management random inspection program; g) the evaluation of radioactive material released to the community via wind borne release from the facility; h) the evaluation and clean up of radioactive material contaminated soils outside of the facility; and i) the evaluation and clean up of radioactive material in unrestricted areas of the facility. A hearing on the agency's action commenced in July 18, 1989 and a consent agreement was signed on July 25, 1989. The hearing was therefore discontinued and Neutron was allowed to resume normal operations.

**October 30, 1989:** the Department issued an order to modify Neutron's respiratory protection program because the Department considered it inadequate to protect the health and safety of Neutron's occupational workers. Key operations were suspended until the order was implemented. The order included requirements to assure the safe use of respiratory protection. Neutron complied.

**November 9, 1990 and December 6, 1990:** the Department issued to Neutron notices of violations, indicating numerous regulatory violations, and a failure to fully implement portions of amendment #33. These alleged violations included: occupational overexposure; multiple significant and willful violations of amendment #33; violations of reporting requirements; violations of license procedures; storage of licensed radioactive material at an unauthorized facility; and exceeding its possession limit for the specifically licensed radioactive material depleted uranium. After Neutron failed to correct these violations, the Department filed Civil No. 76639 in Montgomery County Circuit Court in 1991. On December 29, 1993, Judge Pincus of the Circuit Court issued a Memorandum Opinion and Order granting summary judgment on 17 counts, finding 5,820 violations. The Court also ordered Neutron to comply with Amendment 33 requirements and depleted uranium possession limits. In January of 1994, Civil No. 76639 was resolved by a Stipulation and Settlement. This agreement provided that Neutron pay the Department \$75, 000 and pay an additional \$125,000 if it failed to perform certain conditions.

**January of 1996:** Neutron's 01 manufacturing license was renewed by the Department. Neutron requested a contested case hearing on the new license. An administrative hearing was held in October 1997 and February 1998 and a proposed decision was issued on June 26, 1998

in which Administrative Law Judge Judith Finn Plymyer upheld the license as written by MDE. Exceptions were taken by Neutron on August 10, 1998 and the Department issued a final decision on August 24, 1999. Neutron appealed the decision but did not seek a stay from the Circuit Court for Montgomery County.

**September 1996 to February 1999:** As a result of inspections occurring in 1997, 1998, and 1999, the Department has brought two administrative penalty actions. OAH #99-MDE-ARMA-047-004 was brought for violations identified with the 01 manufacturing license. These included the failure to: a) conduct management audits in accordance with amendment 33 requirements; b) maintain appropriate written historical documentation pursuant to decommissioning requirements; c) secure licensed radioactive material to prevent unauthorized removal; d) secure licensed radioactive material to prevent unauthorized removal; and e) appropriately label licensed radioactive material. OAH #99-MDE-ARMA-047-239 was brought for violations identified with the irradiators operated under Neutron's 04 and 05 licenses. The violations alleged included delays in the installation of required fire suppression systems, an operator deliberately bypassing an irradiator safety system, failure to calibrate safety equipment at the license-required frequency and failure of operators to follow licensed irradiator operating procedures. Summary judgment was granted as to liability for a total of 3617 violations on February 15, 2000. Hearing in these consolidated actions will be April 3, 2000.

**June 25-26, 1998:** A radiation occupational overexposure occurred as a result of a failure of Neutron employees to conduct required radiation surveys and follow established license procedures. The Department brought administrative penalty action #99-MDE-ARMA-047-357 for these alleged violations, which are identified with Neutron's 03 teletherapy servicing license. A hearing is now scheduled for June 12, 2000.

**November 9, 1999:** Judge Nelson Rupp of the Circuit Court for Montgomery County granted summary judgment as to liability in State of Maryland v. Neutron Products, Case No.199036, finding that Neutron products had failed to comply with Maryland's financial assurance requirements for decommissioning. A trial on MDE's complaint for permanent injunctive relief is scheduled for September 2000.

**1989 through 1996:** approximately 150 radioactive particles of Cobalt-60 were found within one kilometer of the Neutron plant.

**March 4<sup>th</sup> and 5<sup>th</sup>, 1999:** A MDE inspection of the NPI facility (teletherapy servicing license) identified violations in the areas of failure to maintain adequate inventory of depleted uranium, failure, failure to adequately label radioactive material, failure to label an area containing radioactive material, failure to conduct annual review of radiation safety program, failure to conduct leak test of all sealed radioactive material sources, failure to evaluate overall yearly occupational doses for two teletherapy engineers and failure to maintain all calibration records for self-reading dosimeters (SRDs) for teletherapy engineers.

**March 16, 18, and 19, 1999:** A MDE inspection of the NPI facility (manufacturing license) identified violations in the areas of failure to clean up radioactive contaminated soils, failure to maintain public dose ALARA, failure to adequately survey and clean up radioactive material debris in courtyard, failure to submit all monthly Health Physics Consultant reports to MDE, failure to conduct all monthly unrestricted floor surveys, failure to conduct all monthly random inspection surveys of the LAA, failure to conduct all monthly one kilometer radioactive material contamination surveys of community residents, failure to conduct all required leak tests for sealed sources and failure to comply with the 500 mRem facility boundary license criteria.

**November 16, 18 and 19, 1999:** MDE inspection of the NPI facility identified additional violations in the areas of failure to have all occupational workers attend required training sessions, failure to conduct adequate radiation surveys to define contamination off sight, failure to clean up radioactive contaminated soils, failure to submit adequate radioactive material waste disposal plan, and failure to have an written emergency procedure for response to an abnormal water loss from an irradiator.

**April 3-6, 2000:** Administrative Hearing on violations of all four of NPI licenses. OAH ruling sets NPI fine at \$40,700. NPI has requested exception of this ruling to MDE management. Final ruling is still pending.

**June 2, 2000:** On September 30, 1999, MDE issued an Administrative Complaint and Penalty against NPI for various violations that occurred during a teletherapy source installation at a customer site. On June 2, 2000, MDE and NPI signed a settlement agreement that required NPI to pay \$19,100 and institute a new training program for teletherapy installation engineers.

**September 18-20 2000:** MDE inspection the O1 & O3 licenses identified violations. The O3 license violations included failure to adequately document compliance with employee radiation exposure histories. The O1 license violations included a failure to clean up radioactive contaminated soils, failure to maintain radiation releases and exposure to the general public to as low as reasonably achievable, failure to submit to the Agency an acceptable radioactive material waste plan, failure to meet financial assurance bonding requirements, failure to document all training for respirator users, failure to maintain respirator equipment status logs, failure to maintain required use log of respirator equipment, failure to label contaminated equipment with the level of radiation hazard and failure of the licensee to assure that a customer was authorized to receive a radiation source prior to its shipment.

**November 3, 2000:** An Order from A Montgomery County Circuit Court Judge requires NPI (Permanent Injunction Pending Appeal) to cease the receipt of radioactive material and to meet their O1 licensing shipping requirements.

**December 21, 2000:** A Montgomery County Circuit Court Judge issues an order modifying the Permanent Injunction Pending Appeal. The modification allows the receipt of radioactive material at the facility if certain guarantee provisions are met and NPI establishes a 10% escrow fund for sealed source removals and sales

**February 8, 2001:** MDE approves NPI's Guarantee as described by the December 21<sup>st</sup> 2000 Order and allows receipt of radioactive material into NPI up to the limit of that Guarantee and within the scope of their 01 license conditions

**February 22<sup>nd</sup> and 26<sup>th</sup>, 2001:** RHP inspection staff conducts inspections of NPI's two irradiators (04 & 05 licenses). No violations are identified.

**January 1985 to present:** the Radiological Health Program has conducted approximately 46 inspections and 21 investigations of Neutron Products.