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Governor

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Chief Administrative Law Judge

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June 26, 1998

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Dickerson, MD 20842

RE: Neutron Products, Inc. v. Md. Department of the Environment
OAH No. 96-MDE-ARMA-047-106

Dear Parties:

Enclosed is a copy of my proposed order in above-referenced matter.

You have twenty-one (21) days from the receipt of this order to file written exceptions with the Secretary of the Maryland Department of the Environment. Receipt is presumed to occur three (3) days after mailing. Please refer to COMAR 26.01.02.35 for the specific procedures for filing exceptions.

Very truly yours,

Judith Finn Plymyer

Judith Finn Plymyer
Administrative Law Judge

JFP/sh
neutr106.mde
Enclosure

cc: Merrylin Zaw Mon

RECEIVED
JUN 29 1998
Office of The Attorney General
Department of the Environment

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NEUTRON PRODUCTS, INC., et al.	*	BEFORE JUDITH FINN PLYMYER,
	*	AN ADMINISTRATIVE LAW JUDGE
v.	*	OF THE MARYLAND OFFICE OF
MARYLAND DEPARTMENT OF	*	ADMINISTRATIVE HEARINGS
THE ENVIRONMENT	*	OAH No. 96-MDE-ARMA-047-106

* * * * * * * * * * * * * *

PROPOSED DECISION

STATEMENT OF THE CASE

On March 12, 1996, the appeal of Neutron Products, Inc. (NPI or Licensee) was filed with the Office of Administrative Hearings (OAH), contesting certain terms and conditions of Radioactive Materials License No. MD-31-025-01, Amendment 43, (License). The License was issued on January 18, 1996, to NPI by the Radiological Health Program (RHP) of the Air and Radiation Management Administration (ARMA) of the Maryland Department of the Environment (MDE or Agency). In addition to the Licensee and the Agency, this case involved several interveners, Heather Rae, William Moore, Michael and Carol Oberdorfer, and Gerald and Yvonne Mulgrew. The Licensee's appeal of its radioactive materials license issued by MDE is governed by Title 8 of the Environment Article and Code of Maryland Regulations (COMAR) 26.12.01.01.

A hearing on the merits was conducted by Administrative Law Judge Judith Finn Plymyer (ALJ) at the Office of Administrative Hearings, 11101 Gilroy Road, Hunt Valley, Maryland, beginning on September 30, 1997, and continuing on the following days: October 1, 2, 3, 7, 8, 9, 21, 22, 23, 24, 28, 29, 30, and 31, 1997. At this point in the hearing, NPI concluded its case, with the right to offer rebuttal following MDE's case. The hearing reconvened on January 13, 1998, and continued on January 15, 20, and 21, 1998. During this period, MDE presented its case and NPI presented rebuttal. Closing arguments were submitted in writing at the request of the participating parties. The record closed on April 6, 1998.[1]

Procedure in this case is governed by the contested case provisions of the Administrative Procedure Act, Md. Code Ann., State Gov't §§ 10-201 through 10-226 (1995 & Supp. 1997), Md. Code Ann., Envir. §§ 1-601 through 1-606 (1996 & Supp. 1997), COMAR 26.01.02, and the Rules of Procedure of the Office of Administrative Hearings, COMAR 28.02.01.

The Appellant was represented before the OAH by Francis John Kreysa, Esq., 4 Professional Drive, Suite 118, Gaithersburg, MD 20879.[2] The Agency was represented by Assistant Attorneys General

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1 The original closing date for all briefs was March 13, 1998. The ALJ then allowed reply briefs to be postmarked March 13, 1998. Corrections submitted by NPI on April 6, 1998, were received without the objection of any party.

2 Bruce Musico, NPI's in-house counsel and a member of the Pennsylvania bar, requested permission to appear *in hac vice*, but subsequently withdrew, having taken a position in another state.

Christina Gerstung Beusch and Valerie J. Smith, 2500 Broening Highway, Baltimore, MD 21224. The Intervener were not represented by counsel and appeared sporadically, if at all, during the hearing.

PROCEDURAL BACKGROUND

NPI is a Delaware corporation which has conducted its radioactive materials business since the late 1960's, primarily in Montgomery County at its plant at 68 Mt. Ephraim Road, Dickerson, Maryland 20842. NPI was licensed by the Nuclear Regulatory Commission under the Atomic Energy Act of 1954, as amended. In the 1970's, the State of Maryland received approval of its own program and took over NPI's License. The License was amended on numerous occasions over the years, until the most recent amendment, Amendment 43, issued by MDE on January 18, 1996. On March 12, 1996, NPI filed an appeal concerning many of the amended conditions of its license. At the request of the parties, the appeal remained in inactive status for purposes of negotiation. On September 6, 1996, counsel for MDE asked OAH to schedule a prehearing conference on the unresolved issues.

On December 5, 1996, ALJ Sondra Spencer conducted an in-person prehearing meeting and advised the parties that she would not be conducting a hearing because of a scheduling conflict. The case was then reassigned to ALJ Judith Finn Plymyer for a prehearing conference on January 16, 1997.

On January 3, 1997, Jackson A. Ransohoff (Ransohoff), President of NPI, filed a Motion to Intervene. On January 8, 1997,

MDE filed a Motion to Prevent Unauthorized Practice of Law by Ransohoff, apparently based on representations at the December 5th prehearing conference that Ransohoff intended to examine witnesses and argue on behalf of NPI at the hearing. On January 13, 1997, MDE filed a Memorandum in Opposition to Motion to Intervene of Jackson A. Ransohoff.

On January 14, 1997, OAH received a statement from Heather Rae (Rae) on behalf of the Dickerson Citizens Association (DCA), advising of the organization's intent to participate in the prehearing conference on January 16, 1997, and requesting permission to intervene. OAH advised the parties of DCA's intentions and converted the prehearing conference to a hearing on motions.

On January 16, 1997, a hearing on preliminary motions was conducted by ALJ Plymyer at the Administrative Law Building, 11101 Gilroy Road, Hunt Valley, Maryland. Attendees at the motions hearing included Assistant Attorney General (AAG) Christina Gerstung Beusch on behalf of MDE; Ray Manley, Inspector, RHP; Ed Herbert, Environmental Manager, Montgomery Department of Environmental Protection; Francis John Kreysa, Esq., representing NPI; Bruce John Musico, Esq., in-house counsel for NPI; Mr. and Mrs. Jackson A. Ransohoff; and Heather Rae on behalf of DCA. At the conclusion of the hearing, ALJ established a briefing schedule on the intervention issues. MDE, NPI, Mr. Ransohoff, and several other intervener filed legal memoranda as previously agreed. The other intervener filings were received by MDE, although not by ALJ

Plymyer. Additionally, Rae forwarded to OAH a letter from Reeva Jones (Jones) of 22101 Dickerson Road, Dickerson, Maryland 20842, which was addressed to Assistant Attorney General Beusch dated January 27, 1997. In her letter, Jones detailed a history of alleged violations and noncompliance by NPI and requested "an updated investigation with citizen input to include all the facts... both zoning and also the 1982 Agreement." Jones' letter did not address the issue of intervention. As Jones' purpose seemed to be to request a meeting and an investigation from MDE, her letter was deemed irrelevant to the issue of intervention.

Following the final rulings on the preliminary motions, a prehearing conference was held on June 2, 1997. The parties in attendance included counsel for NPI and MDE, Ransohoff, Rae, and Carol Oberdorfer, representing herself and her husband. ALJ Plymyer issued a Prehearing Order on July 10, 1997, limiting the substantive issues, clarifying certain procedural matters, and setting pretrial deadlines for motions and discovery.

In August, 1997, NPI filed three motions which were opposed by MDE. All were denied by ALJ Plymyer, as further described below. MDE filed a Motion for Summary Decision, which was held *sub curia*. At the conclusion of the hearing on the merits, MDE decided to withdraw this motion.

MOTIONS

Three preliminary motions were filed in early January, 1997, prior to the prehearing conference scheduled for January 16, 1997, before ALJ Plymyer. Motions to intervene were filed by Jackson A.

Ransohoff, individually, and by Heather Rae on behalf of Dickerson Citizens Association (DCA), an unincorporated citizens interest group. MDE filed a motion to prevent the unlawful practice of law by Mr. Ransohoff.

ALJ Plymyer orally granted MDE's Motion to Prevent Unauthorized Practice of Law at the January 16th hearing, concurring with MDE's argument and legal citations that an individual who is not licensed to practice law may not be permitted to represent a corporation in this administrative hearings. Md. Code Ann., State Gov't § 10-206.1 (1995). The ALJ held all the motions to intervene *sub curia* pending written briefs.

DCA's Petition to Intervene

On January 14, 1997, Dickerson Citizens Association (DCA) filed a Petition to Intervene. At the hearing on motions on January 16, 1997, Heather Rae (Rae) appeared and acted as the spokesperson for DCA.[3] Rae, who is not an attorney, described DCA as an unincorporated group of about twenty concerned citizens, having no officers or membership requirements, no mailing address, and no funds. Rae argued that she and William Moore own property near NPI in Dickerson, Maryland. She described two decades of DCA concerns about NPI's violations and noncompliance with regulations, and MDE's indifference or inability to enforce the license conditions. In its Petition to Intervene, DCA made three requests for relief, quoted here in pertinent part:

A. DCA seeks to intervene as party in the NPI

3 Rae was the only person to appear from the DCA.

licensing proceedings.

B. DCA requests a continuance of the NPI licensing proceedings to allow it sufficient time to retain counsel and conduct adequate discovery.

C. DCA requests that NPI's "timely renewal" license be revoked or, in the alternative, that the proposed license be implemented as written, with NPI operations being suspended until the proposed licensing terms are fully met.

NPI argued in opposition to the intervention of the neighbors and DCA. MDE argued that DCA had not proven an interest, but conceded that individual neighbors may be able to prove an interest.

Jackson A. Ransohoff's Motion to Intervene

On January 3, 1997, Jackson A. Ransohoff (Ransohoff) filed a motion to intervene as an individual. Ransohoff is the founder and president of NPI as well as a member of the board of directors and the plurality shareholder. At the hearing on January 16, 1997, Ransohoff argued that his interests are different from those of other NPI officers or shareholders because he is the corporations's sole personal guarantor with outstanding personal liability and has the prospect of liability for future risks due to his role as president and a director of the board. MDE contested the Ransohoff Motion to Intervene, but NPI did not.

At the conclusion of the motions hearing on January 16, 1997, ALJ Plymyer established a briefing schedule. Briefs were filed by MDE and NPI, and a letter was received from Reeva Jones addressed to Ms. Beusch. Ms. Jones' letter did not address the issue of

intervention directly, but detailed a history of alleged violations by NPI and requested an undated investigation with citizen input.

ALJ Plymyer recommended denial of all of the motions to intervene in a written decision on March 24, 1997. Exceptions were timely filed to the Secretary of MDE and arguments were heard on May 27, 1997. On May 29, 1997, the Secretary's designee, Michael Haire, Esq., ruled that Mr. Ransohoff's Motion to Intervene should be denied, but he granted the neighboring intervener' requests to intervene.[4] The intervener included Heather Rae and William Moore, who list the same address, Michael and Carol Oberdorfer, and Gerald and Yvonne Mulgrew. William Moore and Michael Oberdorfer made opening remarks on the first day of the hearing. Thereafter, Mr. Oberdorfer was the only intervener to participate regularly in cross examination. None of the intervener put on a case; however, written arguments were filed by the Oberdorfers and by Heather Rae and William Moore.

As indicated above, the July 10, 1997, Prehearing Order identified of issues and established certain deadlines for prehearing discovery and motions. The issues identified included License Conditions 6A, 7A, 8A, 9G, 10, 12B-G, 13 through 21, 22B, 23 through 26, 27A, 27B, 27C2, 28, 29, 31, and 34 through 37. Condition 9A was inadvertently omitted, but the parties agreed that Condition 9A continued to be disputed.

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4 Mr. Ransohoff appealed MDE's denial of his Motion to Intervene to the Circuit Court for Montgomery County, but the appeal was unsuccessful.

NPI's Motion to Stay

On August 4, 1997, NPI moved to stay the administrative hearing, pending a ruling by the Circuit Court for Montgomery County on Mr. Ransohoff's appeal of his unsuccessful attempt to intervene. ALJ Plymyer denied the motion under COMAR 26.01.02.37B because it was untimely and should have been directed to the final decision maker, rather than to the ALJ.

NPI's Motion to Reconsider Scope of Hearing

On August 6, 1997, NPI moved to expand the scope of the hearing and MDE objected. ALJ Plymyer denied the motion, based on the parties' prior agreement to certain contested License Conditions at the June 2, 1997 prehearing conference, the Prehearing Order of July 10, 1997, and Md. Code Ann., Envir. § 1-605(a)(2) (1996).

NPI's Motion for Continuance

On August 29, 1997, NPI moved to continue the hearing based on Mr. Bruce Musico's decision to terminate his position as in-house counsel for NPI in order to accept another position out of state. ALJ Plymyer denied the motion but agreed to accommodate NPI by holding no hearings on Mondays, and by limiting the hearing time from 10:00 a.m. to 4:00 p.m. with an hour for lunch, thus providing counsel to NPI the time to prepare his witnesses and to handle other cases. These accommodations were accepted by the parties.

MDE's Motion for Summary Decision

On August 4, 1997, MDE moved for summary decision. ALJ Plymyer held the motion *sub curia*. Subsequently, MDE decided to

withdraw its motion in order to limit its closing arguments to a discussion of the merits.

ISSUE

The issue is whether certain Conditions of Amendment 43 of the License issued by MDE to NPI were inconsistent with the applicable law and regulations, or arbitrary and capricious. The contested License conditions include 7A, 8A, 9A par. 1 and 2, 9G, 10, 12B through G, 13 through 21, 22B, 23, 24, 26, 27B, 27C2, 28, 29, 35 through 37.[5]

EVIDENCE ON THE RECORD

The administrative record in this matter consists of the following:

1. The Administrative File in four binders containing the transmittal of the Agency decision and the request for hearing, correspondence, hearings notices, and pleadings.

2. MDE Exhibits in two binders.

3. NPI Exhibits in two binders.

4. A Radiation Regulations Manual prepared for the ALJ by MDE.

5. A Law Notebook of relevant federal and State laws and regulations compiled by OAH.

6. Hearing Tapes and Transcripts.

A. EXHIBITS

NPI submitted 89 documents of which 83 were admitted on the record, and 6 were not admitted.

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5 Prior to the conclusion of the hearing, NPI voluntarily withdrew its challenge to License Conditions 6A, 9A par. 4, 25, 27A, 31, and 34.

MDE submitted 107 documents which were admitted on the record with the exception of one page which was not admitted.

The Interveners submitted no documents during the hearing, but Moore and Rae enclosed news articles in support of their written closing arguments.

The exhibits are individually described in Appendix A of this decision.

B. WITNESSES

NPI presented the testimony of the following witnesses:[6]

Jackson A. Ransohoff, with expertise in chemical and nuclear engineering.

Jeffrey D. Williams, Radiation Safety Officer (RSO), NPI.

Roland Fletcher, Director, RHP, MDE.

Raymond E. Manley, Lead Health Physicist, RHP, MDE, called as a hostile witness.

Robert E. Alexander, Health Physics Consultant, NPI, with expertise in radiation protection and/or health physics.

MDE presented the testimony of the following witnesses:

Raymond E. Manley, Lead Health Physicist, RHP, MDE.

Alan Jacobson, Lead Health Physicist, RHP, MDE, with expertise in the area of health physics inspections with special knowledge of State of Maryland health physics regulations as applied to Maryland licensees.

The Interveners presented no testimony.

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6 NPI attempted to present the testimony of James V. Muckerheide with regard to the effects of low dose rates of radioactivity, but ALJ Plymyer ruled that his testimony was irrelevant, and granted MDE's Motion in Limine to prevent the introduction of evidence in this area because it is contrary to federal law.

Additionally, NPI proffers revisions to Conditions 9A, 24, and 27C for MDE to consider.

Following these procedural concerns, NPI makes two arguments with regard to the specific disputed conditions of its License. First, NPI contends that MDE has abused its discretion in imposing conditions which are more stringent than the requirements of the NRC absent "overwhelming evidence that such stringency contributes in a major way to public and/or employee health and safety[.]" (NPI's Closing Argument at 3) Second, NPI argues that the conditions "effectively restrain trade without valid cause...." (Ibid.) NPI argues that this restraint of trade is contrary to the policy of the Atomic Energy Act of 1954, as amended, and Md. Code Ann., Envir. § 8-102 (1996).

Finally, NPI makes certain general arguments about its philosophy concerning radiation safety, including the Linear No Threshold Model and its interpretation of ALARA, which means "as low as reasonably achievable" with regard to the maintenance of exposures to radiation as far below the dose limits as is practical. COMAR 26.12.01.01 § A.2.

NPI's written Closing Argument then contains discussion of the disputed License Conditions. NPI also offers suggested language to substitute for MDE's wording of the conditions. NPI would have the ALJ adopt its suggested language.

Arguments of MDE

Preliminarily, MDE disputes NPI's characterization of Amendment 43 as a punitive action under COMAR 26.12.01.01 § C.50.

MDE maintains that Amendment 43 is a renewal of an expired license and was issued by MDE under §§ C.20, 24, 25, 28, 29, 30, and 31. According to MDE, Envir. § 1-604 does require tentative determinations, but the section applies only to the types of licenses listed, and radioactive materials licenses are not listed. MDE admits that Envir. § 1-605 applies to the intervention process, but argues that the burden of going forward and the burden of persuasion rest on the Licensee under COMAR 26.01.02.28B(1).

With regard to the License Conditions, MDE maintains that the negotiations have ended, and that only Conditions 6A, part of 9A, 25, 27A, 31, and 34 have been resolved. MDE asserts that NPI offered no evidence or argument as to Condition 9G. MDE argues that NPI's request that the ALJ consider proffered alternative language and recommend continued negotiations is not appropriate.

Finally, MDE offers discussion of the disputed License Conditions.

Arguments of Michael and Carol Oberdorfer

The Oberdorfers reside at 22030 Big Woods Road near the NPI facility in Dickerson, Maryland. While recognizing the social benefits of nuclear-related industries, the Oberdorfers support the proposed license conditions in order to ensure the safe operation of the NPI facility, noting that radioactive contamination of neighboring properties and streams could ultimately impact the Chesapeake Bay. They emphasize the need for strict prospective enforcement and oversight by MDE of the license conditions governing use and disposal of hazardous materials. The Oberdorfers

question NPI's willingness and ability to be accountable for the impact of its operations on the environment in view of its history of regulatory violations and contempt for State regulators and concerned neighbors. The Oberdorfers believe NPI relies to its detriment on an antiquated business plan, in-house experts, decentralized paper record-keeping, and ill-defined standards. In sum, the Oberdorfers view the License as fair and reasonable and seek assurance that it will be strictly enforced by MDE to protect the public from the potential consequences, including clean-up costs, of a hazardous materials accident.

Arguments of Heather Rae and William Moore

Moore and Rae reside at 22170 Dickerson School Road, close to the NPI facility in Dickerson, Maryland. According to Moore, he and Rae intervened to ensure that NPI complies with existing regulations and to allow the Dickerson community a chance to understand the process by which the license and its conditions are granted. Moore and Rae request the following relief: 1) MDE limit NPI's inventory of radioactive material to zero curies. 2) NPI be required to employ a full-time health physics consultant to report to MDE and the Dickerson community to ensure regulatory compliance, 3) the amount of radioactive waste generated by NPI be limited with waste removal strictly monitored, 4) MDE review NPI's and its principals' finances, assess decommissioning costs of the NPI facility, and not allow NPI to delay payment of decommissioning costs, and 5) MDE order NPI to cease all further Cobalt-60 melts. Moore and Rae submitted numerous quotes from interested individuals

in the field and photocopies of newspaper articles about NPI dating from 1980 through 1997 in support of their position. They maintain that NPI has for years continued to release radioactive contamination to the environment and to violate the conditions of its license and of court orders, with little regard for the danger to the surrounding community, and with insufficient oversight from MDE.

PROPOSED FINDINGS OF FACT

General Background

1. Neutron Products, Inc., (NPI or Licensee) is a Delaware corporation with its principal facility in Dickerson, Maryland, located in Montgomery County.

2. Among other activities, NPI manufactures radioactive sources for use in cancer therapy from Cobalt-60 (or co-60).

3. Cobalt-60 is produced as a radioactive by-product of the operation of a nuclear reactor.

4. The Radiological Health Program (RHP) of the Air and Radiation Management Administration (ARMA) of the Maryland Department of the Environment (MDE) regulates the use of radioactive materials in Maryland under an agreement with the Nuclear Regulatory Commission NRC), a federal agency.

5. NPI's use of radioactive materials in Maryland was initially regulated through licensure by the NRC.

6. In the early 1970's after Maryland's radiological health program was approved by the NRC and Maryland became what is called

an "Agreement State," NPI's radioactive materials license was taken over by a predecessor State agency to MDE.[7]

7. The State of Maryland has modified the NPI License from time to time because of changes in NPI's operations, new regulations, and the need to improve radiation safety.

8. NPI agreed to cease its Cobalt-60 melting operation for four months in 1981 following the discovery of a Cobalt-60 particle or "hot spot" along the railroad tracks adjoining its Dickerson plant in November, 1980.

9. NPI filed for bankruptcy in 1986, and is still in debt to some of its creditors.

10. In 1989, the NRC adopted more stringent radiation safety standards and required agreement States to adopt them.

11. In May, 1989, MDE shut down NPI's manufacturing operations because of radiation safety violations.

12. NPI was allowed to restart some of its operations in July, 1989, under revised License conditions designated as Amendment 33.

13. In 1991 MDE brought an enforcement action against NPI in the Circuit Court for Montgomery County.

14. The Circuit Court granted summary judgment on certain counts, and the parties entered into a Stipulation and Settlement on the day of trial on the remaining counts dated January 3, 1994. NPI failed to submit to MDE certain plans for a waste compactor and for construction of a court yard enclosure which would meet all

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7 NPI operates under three other licenses issued by MDE which are not at issue here.

applicable legal requirements as required by the Stipulation and Settlement. (State Ex. 20)

15. Certain aspects of the Stipulation and Settlement were before the Circuit Court for Montgomery County for resolution when closing arguments were being submitted in this case.

16. Between 1989 and 1996, approximately 150 radioactive particles of Cobalt-60 were found within one kilometer of the Dickerson facility.

16. On August 2, 1994, NPI applied for the renewal of its License, No. 31-025-01.

17. On January 18, 1996, MDE issued Amendment 43, renewing and revising the prior version of License No. 31-025-01.

18. On March 12, 1996, NPI filed a request for hearing to contest many of the License conditions or parts of conditions.

19. In May 1997, MDE permitted six individuals with property interests in Dickerson to intervene in the case.

Contested License Conditions

20. NPI contested the following conditions of the License by offering evidence and argument at the hearing:

7A, 8A, 9A par. 1 and 2, 9G, 10, 12B-G, 13 through 21, 22B, 23, 24, 26, 27B, 27C par. 2, 28, 29, 31, and 35 through 37.

21. Conditions 7A, 9A (par. 2), and 13 relate to the Licensee's authority to possess and use stellite:

7. Chemical and/or physical form

A. 1. Sealed sources, singly or doubly encapsulated.

2. Stellite bearings and axle rods mounted in stainless steel corners sheared from the top end of BWR control rod assemblies.

9. Authorized use:

A. 2. Radioactive material authorized in Item 7.A(2) is for possession and storage only. No additional receipt of stellite is authorized.

13. Ownership, possession, or control of radioactive materials authorized in Item 7.A.(2) including incidental activation products, shall not be transferred to other persons, (as "person" is defined in COMAR 26.12.01.01.) except to a licensed burial site.

22. Stellite is a radioactive metal alloy which is composed of about 60% Cobalt-60.

23. Unclad stellite bearings are used in the control rod followers of boiling water nuclear reactors (BWR).

24. After the useful life of a control rod, the stellite bearings in the ends of the rods may be sheared off for other uses.

25. In 1985, NPI proposed a pilot project using encapsulated stellite bearings to create sealed sources for use in irradiators and requested approval from MDE.

26. NPI would receive the bearings for free from the owners of the BWRs, and would bear the expense of removing, encapsulating, and transporting them to Dickerson, Maryland.

27. In 1985, MDE modified the License to allow NPI to remove stellite bearings after use in BWRs, to encapsulate them, and then

to transport the encapsulated stellite for storage at its plant in Dickerson, Maryland.

28. In 1985 and 1986, MDE staff considered NPI's proposal to convert the stellite into useful products, and expressed concerns to NPI regarding the control of contamination.

29. NPI had the opportunity to remove stellite bearings from Peach Bottom 2 BWR, but did not do so.

30. In March 1986, NPI wrote to MDE, stating that it had selected a recycling process for stellite, but needed to conduct tests and design equipment before seeking a license amendment.

31. NPI has not shared any additional plans with MDE regarding its recycling process for stellite.

32. With the passage of 12 years, the Cobalt-60 content of the stellite brought to Dickerson in 1985 has lost about 80% of its activity to radioisotope decay, thus greatly reducing its potential value for other uses.

33. In its August 1, 1994 application to renew its License, NPI did not include procedures for a new process involving stellite.

34. Condition 8A of the License limits NPI to a total possession of two million curies of radioactive material at any one time, including product and waste:

> 8. Maximum amount of radioactivity which licensee may possess at any one time
>
> A. 2,000,000 curies.

35. The prior amendment to the License had allowed three million curies inventory.

36. NPI inventories of radioactivity which were produced at the hearing showed totals of 1,281,750 curies in January, 1991, and of 1,696,045 curies in August, 1996. No records of higher inventories were submitted to the record.

37. If the NPI facility in Dickerson would need to be decommissioned due to closure or disaster or some other reason, all the radioactive materials would have to be lawfully disposed of.

38. NPI possesses more Cobalt-60 than any other licensee in the United States.

39. Disposal of two million curies of Cobalt-60 would be difficult and could involve transporting product out of the country to other users.

40. NPI does not have an approved decommissioning funding plan for its Dickerson facility.

41. Condition 9A, paragraph 1 requires sealed source fabrication and manufacturing operations and operations involving bare (that is, unencapsulated) Cobalt-60 to be performed in the hot cell:

> 9. Authorized use:
>
> A. 1. Manufacture of special form cobalt-60 sealed sources. Sealed source fabrication and manufacturing operations shall be conducted only in the hot cell. Operations involving bare cobalt-60 shall be performed in the hot cell. Sources distributed shall meet the current American National Standards Institute (ANSI) standard. The receipt of unencapsulated cobalt-60 is not permitted.

12. D. Records of leak tests shall be kept in units of microcuries and maintained for inspection by the Department in the records room.

12. E. If the test of singly encapsulated cobalt-60 sources reveals the presence of 0.05 microcuries or more of the removable contamination, the licensee shall immediately withdraw the sealed source from use or storage and shall cause it to be decontaminated and repaired. Records of such leak tests shall be maintained for inspection by the Department in the records room.

12. F. If the test of doubly encapsulated cobalt-60 or any other doubly encapsulated radioisotopic sources reveals the presence of 0.005 microcuries or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired. Records of such leak tests shall be maintained for inspection by the Department in the records room.

12. G. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically authorized by the Department, the U.S. Nuclear Regulatory Commission or another Agreement State to perform such services.

51. MDE does not intend the provisions of Condition 12B to apply to newly irradiated targets.

52. In its application for this License, NPI did not submit leak test procedures different from those in Condition 12E which has been in NPI's license since 1980.

53. The leak test required in Condition 12E may result in a false positive test.

54. Condition 14 was modified to include prior approval restrictions on NPI's receipt of Cobalt-60 from a vendor:

14. A. Neutron Products, Inc. may receive cobalt-60:

(1.) From a vendor who has produced cobalt-60 in a reactor (after approval of the specifications by the Department); or

(2.) From a teletherapy unit when Neutron Products, Inc. installs a replacement source.

14. B. Neutron Products, Inc. may not receive cobalt-60:

(1.) That is contaminated with other isotopes; other than activation products normally present in activated materials e.g., (manganese-54) and received from a reactor.

(2.) As any material contaminated with cobalt-60; or

(3.) As a sealed source which is not received in exchange for a replacement source unless prior approval has been granted by the Radiological Health Program. Such prior approval may be granted only after a thorough review of a specific proposal that describes the source of cobalt, the total activity and quantity involved, other isotopes involved, the proposed use and the potential market of any product thus produced and the plan for disposal of any waste generated.

55. The modifications to Condition 14 allow MDE to monitor the amount and nature of the Cobalt-60 that NPI wishes to receive, in order to control NPI's inventory of newly irradiated Cobalt-60 and low level radioactive waste.

56. In September 1993, NPI requested MDE approval to receive Cobalt-60 radiation processing sources from Rockwell International in addition to low activity sources originally manufactured by Lockheed.

57. NPI's request was not routine because the sources were radiation processing sources rather than the teletherapy sources, which NPI routinely received.

58. In April 1994, after several exchanges of written questions and answers between MDE and NPI, MDE allowed NPI to receive the radiation processing sources from Rockwell International, but disallowed receipt of the low activity sources which originated from Lockheed.

59. Conditions 15 through 20 continue the radiation safety provisions of the current license issued in 1989, Amendment 33; Amendment 33 was issued in response to numerous findings of Cobalt-60 contamination involving NPI in 1988 and 1989.

60. On May 25, 1988, Cobalt-60 contamination was found on the clothing of Frank Schwoerer (Schwoerer), an NPI employee, as he passed through a monitor at the Ginna Nuclear Power Plant in New York state.

61. An investigation of the NPI Dickerson facility by MDE in 1988, showed the monitoring devices outside the LAA were not sufficiently sensitive to detect Cobalt-60 contamination on employees.

62. Cobalt-60 contamination was found in Mr. Schwoerer's office in an unrestricted area and on his clothing at home, on the floor of the NPI cafeteria, on the steps leaving the LAA, on the steps to Mr. Ransohoff's office in an unrestricted building, in an employee's car, and on an employee's hands.

63. Further investigation in 1988 showed Cobalt-60 contamination in the homes, bedding, clothing, washing machines, and vacuum cleaners of NPI employees.

64. In February, 1989, Cobalt-60 contamination was again found on Schwoerer as he passed through a monitor at a nuclear power plant in New York.

65. Conditions 15 through 20 provide:

> 15. A. A gas proportional portal monitor equivalent to the Helguson HECM-2 capable of detecting 2500 dpm at three inches shall be utilized in a location approved by the Department. The monitor shall be used by all personnel who exit the Limited Access Area ("LAA"). They shall remain standing in the sensitive detection zone of the monitor for at least two full minutes. Each person shall expose his/her back, front, right and left sides to the detectors for thirty seconds each. The monitor shall be maintained and used in accordance with the manufacturer's specifications at all times. At a minimum, this monitor shall be inspected by the manufacturer in

accordance with the terms of the Agency approved service contract dated September 15, 1989, Agreement #SA/89/1. The monitor shall be maintained and used in such a manner as to ensure its ability to accurately detect levels of radioactivity of 2500 dpm on the hands and 5000 dpm on the whole body. The monitor must be fully operational and kept free from contamination at all times unless unforeseeable and unavoidable operational problems arise. The Department must be notified by telephone within one workday in the event that the portal monitor is not operational. The contingency plan describing personnel monitoring procedures for use during downtime shall be conducted as submitted in referenced letter of May 26, 1989. The portal monitor must be located in the access and egress area as identified in Attachment 7 to plans submitted by the licensee on April 21, 1989.

B. Background radiation levels at the portal monitor shall not exceed 50 micro/R per hour unless otherwise authorized by the Department.

C. The radiation Safety Officer shall perform monthly evaluations of the portal monitoring area, the use of the portal monitor by employees, its functioning and the radiation safety training of employees, and submit monthly reports to the Department based upon such evaluations. These reports shall include the review of incidents of radioactive contamination above 22,000 dpm detected on personnel.

16. A health physics consultant shall be retained by the licensee. This consultant shall be retained subject to the approval of the Department concerning qualifications. The licensee shall be deemed responsible for any failure of the consultant to submit reports or perform required evaluations and analyses. The health physics consultant shall perform, but not be limited to, the following functions:

A. Submit monthly evaluations to the Department regarding the health physics radiation safety status of the facility as it relates to on going and future operations under this license. Monthly reports by the licensee's consultant shall be submitted to the Department by the last day of the next calendar month. Such evaluations shall be in accordance with NPI letter dated January 13, 1995 and RHP letter dated February 9, 1995.

B. Ensure that the portal monitor is properly installed and maintained;

C. Oversee the maintenance of the portal monitor area as required in order to assure that background radiation levels do not exceed 50 micro/R per hour;

D. Oversee and evaluate the RSO report in Item 14.C and submit this evaluation to the Agency as part of Item 15.A.

17. A full-time trained health physics technician or full-time equivalent health physics technicians shall be retained subject to the approval of the Department concerning their qualifications. The licensee shall maintain a log which documents the work of the

health physics technician. The health physics technician shall perform the following functions:

A. During working hours the technician shall ensure the proper use of the portal monitor, hand-held frisker and any other devices employed to detect levels of radioactivity present on persons or items which exit the LAA;

B. Ensure that all persons log in and out upon entering and exiting the LAA;

C. Ensure the proper use of hand-held friskers by all persons who incur levels of contamination detected by the portal monitor:

D. Report immediately to the Radiation Safety Officer any contamination levels above 10,000 dpm which are detected by the portal monitor, or if the portal monitor is inoperative, under contingency monitoring procedure date [put date in license]. In the event that contamination is detected above 22,000 dpm such incidents must be evaluated by the RSO and must be reported to the Department in monthly reports submitted to the Department by the health physics consultant. Evaluations of such incidents of contamination detected shall include the name of the person contaminated and the activity of contamination detected. The Department shall be notified within two hours concerning all contaminations above 50,000 dpm which are detected by the portal monitor, or if inoperative, under contingency monitoring. During non-work

hours, call (410) 243-8700 and ask the operator for "Radiation Assistance."

E. Document, for evaluation be the RSO all sources of radioactive contamination of employees in excess of 22,000 dpm.

F. Conduct radiation surveys within the entire facility in accordance with documented procedures set forth elsewhere in this license.

G. Conduct water sampling of the main source pool, canals and waste water generated in the LAA in accordance with NPI's documented procedures set forth elsewhere in this license.

H. Conduct radiation surveys of soil and water contamination levels in accordance with NPI's plan titled, "Environmental Surveillance Plan", Procedure R1004, July 6, 1989, for the surveillance of radioactive contamination in surface and ground water at the plant's boundary and within a one kilometer radius of the licensee's facility. This plan shall include but not be limited to a decontamination plan, a schedule for remedial action and contingencies for obtaining access to private dwellings and commercial property.

I. Conduct radiation surveys of all personnel, vehicles, equipment, and personal belongings exiting the gate of the courtyard area in accordance with the limits specified in Condition 13a of this license, MPI Procedure R 1011, and U.S. Department of Transportation Regulations.

18. Following any detection of contamination by the portal monitor, hand-held friskers capable of measuring levels of radioactivity as low as 500 dpm shall be used to detect the precise areas of contamination. Upon discovery of a level of contamination at or above 500 dpm, contaminated individuals must be promptly decontaminated to a level as low as reasonably achievable and remonitored.

19. A. NPI shall maintain an established "clean room" which shall be operated and maintained so that radioactive contamination shall be limited to less than 500 dpm per 100 cm2 smearable, removable contamination on any surface area. The clean room shall be located immediately inside the entrance door to the LAA and shall provide storage space for all street clothing and equipment which shall not be worn or transported into other areas of the LAA.

B. Any clothing worn outside the LAA shall not be worn in the LAA except in the clean room. Conversely, any clothing worn in other areas of the LAA shall not be worn outside the area. Such clothing may be worn in the clean room if a thorough if a thorough frisking of a person detects no contamination in excess of 2500 dpm on the hands and 5000 dpm on the whole body.

C. An NPI random inspection plan shall be conducted in accordance with NPI's "Random Inspection Program" revision dated May 14, 1993.

1. Each documented monthly inspection shall be completed by the second week of the next month.

2. Quarterly inspections shall be documented and available for RHP inspector review within six (6) weeks of the end of each calendar quarter.

D. All tools, containers, materials, equipment and facilities in the restricted area shall be maintained in a clean, orderly manner and properly identified to prevent unnecessary risk of personnel contamination or injury. Radioactive contaminated material(s) not properly maintained shall be declared waste and properly disposed of accordingly.

20. The licensee shall maintain and implement a detailed Radiation Safety Training Program as approved by the Department. At a minimum, this Program shall provide, on a quarterly basis, training sessions provided by the Health Physics Consultant to all employees who, under any circumstances, may have access to the LAA. Attendance at such training sessions shall be mandatory and documented.

66. Following imposition of Conditions 15 through 20 in 1989, contamination of NPI personnel has decreased.

67. In its application for the License, NPI did not submit a radiation safety manual for approval.

68. Condition 21 prescribes how long and in what amounts NPI may maintain radioactive waste at the NPI facility before shipping the waste to an off-site disposal facility.

21.A. The compaction of radioactive waste prior to storage or disposal is prohibited unless the Department approves of a plan submitted by the licensee for conducting this activity in a safe manner.

B. Within 90 days from the issuance of this license, NPI shall submit to the Department for approval a comprehensive plan for disposal of all low level radioactive wastes in accordance with the following:

(1.) Any radioactive waste storage, either temporary or long term shall only be located in the LAA with the only exception being the underground waste water storage tank. Waste storage not in the main pool/canals shall not exceed a period of two (2) years. Waste storage in the main pool/canals shall not exceed four (4) years from date of placement in the pool.

(2.) Radioactive waste inventory not in the main pool/canals shall not exceed 600 curies and not more than 200 cubic feet at any one time. Radioactive waste inventory and any waste like materials at NPI located in the main pool/canals shall not exceed 5000 curies.

(3.) All radioactive waste must be identified and dated as to when generated and containerized.

(4.) All radioactive waste shipments shall be composed of the oldest waste first.

(5.) Copies of radioactive waste shipment records shall be provided to RHP and Hazardous and Solid Waste

Management Administration within 14 days of shipment dates.

(6.) Procedures for radioactive waste handling, packaging and transportation must include personnel and equipment that will be used.

Failure to meet this schedule may result in the possession and storage of radioactive materials until actual shipment schedules are met.

69. If NPI were to store its radioactive waste on site, it would take approximately 50 years for the radioactivity to decay, and then the material would still be required to be disposed of as radioactive material.

70. Cobalt-60 has a half life of 5.2 years.

71. NRC guidelines allow storage for decay for radioactive isotopes with half-lives of less than 40, and sometimes as many as 90 days. (State Ex. 45)

72. Regulatory radiation waste storage limits of from several months to several years are routine in Maryland and in other states and federal licenses.

73. Indefinite on-site storage of radiation waste subjects personnel to the potential of exposure and decommissioning problems.

74. Condition 22B provides that soils with levels of radioactivity above 8 picocuries per gram above background must be removed and properly disposed of:

22.B. Evaluation and remediation of unrestricted areas, dry pond and ground areas surrounding the facility shall be conducted in accordance with NPI procedure "R 1004" titled "Neutron Products, Inc. - Environmental Surveillance Plan" dated July 6, 1989. The criteria for acceptability of cobalt-60 contamination of ground areas are:

(1.) The gamma exposure at one (1) meter above the ground surface shall not exceed 10 microR/hr above background for an area greater than 900 Sq. Ft. and shall not exceed 20 microR/hr above background for any discrete area (i.e. less than 900 sq. ft.).

(2.) The concentration limit for cobalt-60 soil contamination is 8 picocuries per gram above background for an area. All soil exhibiting levels of radioactivity in excess of the above, wherever found, shall be removed and properly stored/disposed of as radioactive waste by the licensee. The Department shall be furnished with documentation of the discovery, survey dates and disposition of such radioactive material found off-site on a monthly basis.

C. A floor radiation monitor of a type approved by the Department shall be used on a weekly basis to detect surface levels of radioactive contamination on all surfaces within the facility outside of the LAA. The licensee shall maintain records regarding the use of this monitor, the contamination found and any decontamination performed.

75. NPI agreed to comply with the standards found in Condition 22B in the Stipulation and Settlement Agreement of January, 1994, State Ex. 20, at para. 13.

76. Condition 23 requires NPI to conduct surveys of employees' homes and vehicles, if they consent, in order to detect radioactive particle contamination:

> 23. Licensee shall, with employee permission, conduct or cause to be conducted employee home and vehicle surveys on an annual frequency, utilizing NPI procedure "Guideline for NPI Home Contamination Survey" R-8010 dated June 29, 1988.

77. Condition 23 provides a mechanism to check the effectiveness of a licensee's radiation safety control program.

78. Condition 24 requires that NPI maintain a central records room in an unrestricted area and to keep certain records there:

> 24. NPI shall establish a records room in an unrestricted area within 90 days from the issuance of this license. The records in this room shall be inclusive of but not limited to legible copies of all health physics records, copies of bound logs, IRC and Radiation Safety meeting, radioactive waste inventories, surveys, environmental surveillance records, pool/canal conditions, radioactive material inventories, plant and personnel radiation incidents, calibrations performed, source melts conducted, personnel monitoring, NPI policies, procedures and drawings, and employee training and exposure records.

79. A central records room allows RHP staff to review NPI documents more efficiently and allows NPI staff a central unrestricted location to store and access documents efficiently and without fear of contamination.

80. Monthly updating of records and placement in the records room satisfies Condition 24.

81. Condition 26 is a new condition that requires NPI to develop a procedure for cleanup of its hot cell:

> 26. NPI shall develop and issue within 90 days of the issuance of this license for Agency approval a procedure specific to the clean-up of the cell following a cobalt-60 melt. The procedure shall include at least the following"
>
> A. Pre-entry cell dose-rate assessments.
>
> B. Hot cell personnel entry requirements.
>
> C. LAA health physics requirements.
>
> D. Methods of radioactive waste handling and removal.
>
> E. Management oversight.
>
> F. Record keeping requirements.
>
> G. Written post melt assessment.

82. Clean up of NPI's hot cell after a Cobalt-60 melt is a hazardous activity that may expose its employees to high levels of radiation.

83. The wording of Condition 26 allows NPI to draft a procedure which allows flexibility to meet the particular circumstances of a melt.

84. Condition 27B is a new condition that requires NPI to clean its pool and canals annually and to submit a procedure for this activity to RHP for its review and approval:

27. B. The main pool and canals shall be cleaned on an annual basis beginning on or before 90 days following the issuance of this license in order to remove all foreign material which accumulates on the bottom and sides of the pool. Any vacuum system used for this purpose shall be equipped with an in-line filter(s). The licensee shall develop procedures and equipment prior to performing this operation. These procedures shall be submitted for approval by RHP 90 days following the issuance of this license.

85. The pool and canals are used to store radioactive materials and offer significant shielding.

86. Cleaning the pool and canals is necessary to remove radioactive particles and other debris.

87. The cleanup of the pool and canals is a hazardous activity which exposes NPI employees to potentially dangerous levels of radiation.

88. Condition 27C2 sets standards for the conductivity of the pool and canal water, and requires operations to cease if there standards are exceeded for more than 72 hours until water quality if restored:

27. C. Pool Operating Parameters:

* * *

2. Main pool/canal water conductivity must not exceed 10 micro siemens-cm.

When pool/canal water exceed theses values for a period greater than 72 hours, all operations must cease until water quality is restored and maintained at these levels.

89. Failure to maintain low conductivity can cause encapsulating materials to corrode and the possibility of leaking sources.

90. NPI has had instances of high conductivity in its pool and canal waters.

91. The standards set out in Condition 27C2 are consistent with federal standards for irradiator waters and with NPI's current internal standards.

92. Because the pool and canals water is tested daily, the 72-hour period allows NPI some leeway to make to take corrective action before having to cease operations.

93. Condition 28 requires NPI to label equipment in the LAA which is used in connection with radioactive materials and to keep a log of all maintenance and repairs in the LAA:

> 28. A. all LAA facility equipment, controls, piping and filters etc. dealing with RAM [radioactive material], shall be clearly labelled as to its purpose or function.
>
> B. The licensee shall maintain a log for review by the Department, of facility maintenance that has been performed. This log shall include repairs, replacement of safety equipment or building, plumbing and electrical equipment under areas affected by this license.

94. Condition 28 helps prevent contaminated equipment from leaving the LAA and tracks maintenance in this area of potentially high contamination.

95. Condition 29 requires NPI to give RHP 30 days notice prior to a Cobalt-60 melt:

> 29. NPI shall notify RHP in writing a minimum of 30 calendar days prior to any melt operation.

96. The notice requirement in Condition 29 gives RHP staff time to adjust their schedules so that RHP staff can be present for the melt and cleanup at the Dickerson facility.

97. Condition 35 requires an annual body count for NPI employees who work in the LAA:

> 35. NPI employees shall be monitored via a whole body counter at least once annually for those individuals performing tasks in the Limited Access Area. Additionally, individuals found with internal contamination following an incident of inhalation or ingestion of radioactive material shall have additional whole body counting performed within a time period necessary to determine the activity and personnel exposure.

98. Condition 35 assures that NPI employee safety precautions are being followed and that employees are not exceeding the recommended annual doses set by federal and State regulations.

99. Condition 36 requires a licensee to maintain a financial assurance mechanism for decommissioning if its business ceases:

36. Financial assurance and record keeping for decommissioning of the licensee's facility shall be conducted in accordance with Section C.29 of these regulations.

100. Condition 36 is required by federal and State regulations so that the expense of closing or cleaning up a hazardous site does not fall on the public if the licensee is unable to perform.

101. Condition 37 requires that NPI operate in accordance with procedures and protocols that it has submitted to RHP and that RHP has approved:

37. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material authorized by this license in accordance with statement, representations, and procedures contained in application dated August 1, 1994 and the documents as submitted by the licensee and approved by the RHP for safe operation of the facility. As currently constructed, the facility and equipment utilizing radioactive material under this license are considered a part of this license and any changes must have prior approval by RHP. Additionally, all changes in procedures, forms and checklists used under this license shall be submitted to RHP for approval and are also a part of this license. COMAR 26.12.01.01. "Regulations for Control of Ionizing Radiation" shall govern the licensee's statement in applications, letters or procedures unless these requirements are more restrictive than the regulations. The following documents are hereby incorporated as binding/mandatory parts of this license:....

102. Condition 37 includes a listing of 62 NPI written procedures and 12 NPI drawings which have been submitted to RHP and approved.

DISCUSSION

On January 18, 1996, MDE issued a renewal of a specific license for radioactive materials (License or Amendment 43) to NPI under Title 8, Radiation, of the Environment Article of the Annotated Code of Maryland, and COMAR 26.12.01.01, Regulations for the Control of Ionizing Radiation. NPI objected to many of the conditions of the License and requested a contested case hearing on March 12, 1996. Six neighboring property owners who support the conditions of the License and want to see the License strictly enforced by MDE were allowed to intervene.

The issue is whether the conditions of the License which NPI is contesting were inconsistent with the applicable law and regulations, or arbitrary and capricious. The contested License conditions include 7A, 8A, 9A (in part), 9G, 10, 12B through G, 13 through 21, 22B, 23, 24, 26, 27B, 27C2, 28, 29, and 35 through 37.[8]

Preliminary Procedural Matters

Preliminarily, I will address the burden of proof and the standard of review in an appeal from this MDE licensing decision. NPI contends that under Md. Code Ann., Envir. §§ 1-604 and 1-605 (1996), MDE was required to issue a tentative decision and allow a period of comment before issuing a final decision on a license.

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8 Prior to the conclusion of the hearing, NPI voluntarily withdrew its challenge to License Conditions 6A, 9A para. 4, 25, 27A, 31, and 34.

Furthermore, NPI argues that under § 1-605,[9] it must show that MDE's final decision is legally inconsistent with applicable law or based upon an incorrect determination of a relevant and material fact. MDE disagrees, arguing that radioactive materials licenses are not covered by § 1-604, but are specifically covered by the licensing provisions of COMAR 26.12.01.01 Part C and the contested case hearing procedures of COMAR 26.01.02.

Subtitle 6 of Title One of the Environment Article, Public Participation in the Permitting Process, was enacted in 1993, and clarified MDE's procedures for public involvement in its permitting process. Radioactive materials licenses are not among the departmental permits listed in § 1-601(a) which require public notice of permit applications under § 1-603 and tentative determinations under § 1-604. In fact, under § 1-601(b), MDE need not provide a contested case hearing to any party besides the applicant for a permit that is not listed under § 1-601(a):

> (b) Notwithstanding any other provision of law to the contrary, the Department is not required to provide an opportunity for a contested case hearing to any party other than the applicant in connection with any permit issued pursuant to this article except the permits listed in subsection (a) of this section.

Section 1-605 at (a) sets criteria by which a person may request a contested case hearing to appeal a final determination:

> (a) A person may request a contested case hearing to appeal a final determination if the person makes factual allegations with sufficient particularity to demonstrate that:

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9 Unless otherwise noted, statutory citations in this Discussion are to the Environment Article of the Annotated Code of Maryland, (1996 & Supp. 1997).

(1) The person is aggrieved by the final determination; and
(2) The final determination is:
(i) Legally inconsistent with any provisions of law applicable to the final determination being challenged; or
(ii) Based upon an incorrect determination of a relevant and material fact.

The procedures for MDE's contested case hearings, COMAR 26.01.02, provide for intervention of a nonapplicant, such as the Interveners here, if the person:

> Claims an interest relating to the property or transaction that is the subject of the action, and the person is so situated that the disposition of the action as a practical matter impair or impede the ability to protect that interest unless it is adequately represented by existing parties.

(COMAR 26.01.02.24A(2))

It was on this basis that the Secretary's designee allowed the Intervenors to participate in NPI's appeal of the License conditions.

COMAR 26.01.02.28B places "the burden of going forward to establish a prima facie case" and "the burden of persuasion" on a party contesting the Department's intent to issue or renew a permit or license, absent a specific statute or regulation to the contrary. COMAR 26.01.02.28D describes the standard of proof:

> D. [An administrative law judge] shall find against a party with the burden of:
> (1) Going forward if that party has not presented sufficient evidence to establish a prima facie case for that party's claim or defense; or
> (2) Persuasion if that party has not presented evidence sufficient to establish the correctness of its claim or defense by a preponderance of the evidence.

The burdens of going forward and of persuasion, therefore, rested on NPI which was contesting the Amendment 43 License conditions.

Decommissioning; C.30, Issuance of Specific Licenses; and C.31, Specific Terms and Conditions of Licenses. COMAR 26.12.01.01. It is true that MDE has used its considerable enforcement powers against NPI in court in the recent past because of alleged violations. I understand that the instant licensing action may in fact encompass some language which NPI interprets as punitive. Under § C30(a), however, MDE has broad discretion to include in a license "such conditions and limitations as it deems appropriate or necessary." This does not mean that MDE's action was a modification or partial revocation of the License under, § C.50, Modification and Revocation of Licenses. Section C.50 is clearly intended to allow MDE to address changes mandated by statute or regulation, false statements in applications, and violations. I find that MDE's issuance of Amendment 43 was a licensing action in response to an application under § C.24, and not a punitive action under § C.50.

Preliminarily, NPI asked to expand the scope of the hearing in ways which were denied. In its Closing Argument and reply to MDE's Closing Argument, NPI asks that I review draft revisions to the proposed conditions and become involved in what amounts to a negotiation between the parties. Although ALJs do sit as mediators and also conduct settlement conferences in certain cases, an ALJ assigned to hear a contested case does not have such authority. OAH has the jurisdiction to hear only those cases and issues which a State agency delegated. Md. Code Ann., State Gov't § 10-205 (1995) In this instance, MDE delegated an appeal of a licensing

decision made in January, 1996, for a proposed decision. Exceptions from the ALJ's proposed findings of fact and conclusions of law may then be taken to the Secretary by a party. The ALJ must evaluate the underlying licensing action by RHP on the laws, the regulations, and the record available to MDE at that time. An ALJ is bound by agency regulations and policies under Md. Ann. Code, State Gov't § 10-214 (1995). An ALJ does not have equitable powers or the authority to act outside the contested case procedures contained in the Administrative Procedure Act, Md. Code Ann., State Gov't §§ 10-201 et seq. (1995 & Supp. 1997), and in the applicable agency regulations.

Following its preliminary procedural arguments, NPI raised two substantive arguments, that MDE abused its discretion and that the License conditions are a restraint of trade.

Abuse of Agency Discretion

NPI contends that MDE abused its discretion in imposing conditions which are more stringent than the requirements of the NRC absent "overwhelming evidence that such stringency contributes in a major way to public and/or employee health and safety[.]" (NPI's Closing Argument at 3) MDE presented the testimony of Jackson Ransohoff, NPI's founder and president, Jeffrey Williams, NPI's Radiation Safety Officer, and Robert Alexander, NPI's Health Physics Consultant, to support NPI's position that its radiation safety procedures and its personal and environmental contamination levels meet legal standards, and that MDE's insistence on prior approvals and incorporation of NPI's internal procedures into the

License are excessive and unnecessary. NPI argues that based on its record and greater familiarity with its facility and business needs, it should be allowed to operate under a Radiation Safety Manual that is not incorporated into the License. NPI argues that MDE incorporates NPI's procedures so that MDE can create a record of License condition violations for which it can assess penalties and that MDE greatly exaggerates the significance of NPI's violation history, much of which NPI blames on MDE. For example, Ransohoff testified that MDE's failure to approve NPI's HECM portal monitor promptly in 1989 allowed personal contamination problems to go undetected, thus creating violations. Williams and Alexander testified concerning the specific Conditions which they believe to be are unnecessary, unuseful, expensive, or inefficient or to be restrictive of NPI's ability to adapt to its commercial needs. In many instances Williams and Alexander conceded that the Conditions are based on regulations or were already in the 1989 license, Amendment 33. I found the testimony of Williams to be detailed and knowledgeable of NPI procedures and MDE regulatory requirements. The testimony of Alexander was less persuasive; for example, Alexander was unsure whether NPI had an approved decommissioning plan, he admitted to knowing nothing about NPI's economic factors related to Condition 8A's 2 million curie level, and whether NUREG 15-30 (NPI Ex. 30) was incorporated into the relevant CFR. When applying the ALARA requirement to the construction of the Dickerson facility, Alexander testified that "the ALARA requirement is extremely difficult to analyze because of constraints, I believe,

that have been placed on - I just can't answer that." (Tr. 1887, 20-22)

MDE responds to the "abuse of discretion argument" that under federal law an Agreement State program must be compatible with the NRC's regulatory program and adequate to protect the public health and safety. 42 U.S.C. § 2021(d)(2). Furthermore, according to MDE, a state program may be more stringent than the NRC program. 42 U.S.C. § 2021(o). MDE points out that Maryland's program was approved by the Atomic Energy Commission, NRC's predecessor. Section 2021(o) of 42 U.S.C. provides in pertinent part:

> In the licensing and regulation of byproduct material, as defined in section 2014 (e)(2) of this title, or of any activity which results in the production of byproduct material as so defined under an agreement entered into pursuant to subsection (b) of this section, a State shall require-
>
> * * *
>
> (2) compliance with standards which shall be adopted by the State for the protection of the public health, safety, and the environment from hazards associated with such material which are equivalent, to the extent practicable, or more stringent than, standards adopted and enforced by the Commission for the same purpose, including requirements and standards promulgated by the Commission and the administrator of the Environmental Protection Agency pursuant to sections 2113, 2114, and 2022 of this title, ...

(Emphasis added.)

Nothing in § 2021(o) requires a state to show "overwhelming evidence that such stringency contributes in a major way to public and/or employee health and safety" to justify more stringent standards as NPI suggests in its Closing Argument at p. 3. In its Response to the Closing Arguments of MDE, et al., NPI concedes this point, and substitutes the words "convincing," "demonstrable," or "for good cause clearly documented" for "overwhelming" and "in a

major way." (NPI's Response to MDE's Closing Arguments Concerning Applicable Law, n. 2, at p. 2)

I find that under State law and current regulations, MDE is not required to make such a showing under any of the alternative terms suggested by NPI, and set out above. Nevertheless, I advised counsel at the onset of the hearing that I expected MDE to defend its licensing action in response to NPI's charges. In response to my direction, MDE cross examined NPI's witnesses, produced MDE witnesses, submitted exhibits, and made legal arguments in defense of the License conditions. MDE presented the testimony of three experienced RHP employees with training or graduate work in the area of radiation safety and licensing: Roland Fletcher, RHP Director, Raymond E. Manley, and Alan Jacobson, both Lead Health Physicists in RHP. I found the testimony of the MDE witnesses to be detailed, candid, responsive, and credible. Where their familiarity with the license history or their knowledge of an area was limited they admitted such. MDE's witnesses remained professional and unbiased under cross-examination despite NPI's repeated attacks on the expertise and credibility of their Program. The testimony of the MDE witnesses addressed the licensing and enforcement history of NPI with regard to this License, the MDE exhibits, and each of the contested Conditions. In additional support of its licensing decision, MDE submitted 107 exhibits.

The evidence on the record, particularly the testimony of Fletcher, Manley, Jacobson, Alexander, and Williams, demonstrated that the following License Conditions were required by or

consistent with federal and State laws and regulations: Conditions 7A, 9A, 10, 12B-D, F, G, 13, 15, 16, 17, 20, 21 23, 24, 26, 27, 35, 36, and 37. NPI's witnesses, Alexander and Williams, rarely disputed that these Conditions flowed from specific regulatory requirements, but they argued that RHP should allow NPI to maintain a safety manual which was not incorporated into the License. They also suggested that the Conditions be worded to require NPI to meet performance standards, rather than to comply with defined procedures. MDE's witnesses responded that C.23(a)(2) and CC.25(a)(2) require a licensee to submit procedures and that C.25(a) requires MDE's approval of those procedures prior to a license application. In light of NPI's large inventory of Cobalt-60, its enforcement history, and unresolved courtyard enclosure issues, I conclude that MDE was well within its discretion to incorporate NPI's procedures into the License and to define required procedures rather than using performance-based language.

NPI complains that MDE incorporates some of NPI's procedures which are more stringent than the State's regulations. MDE responds that it has invited NPI to revise its procedures, most of which were drafted in the 1970's, but NPI has failed to do so. In support of the incorporation of NPI's internal procedures, MDE offered examples of several other licenses of other licensees, both federal and out-of-state, which incorporate the licensee's internal procedures. NPI offered no authority suggesting that such incorporation of internal procedures is improper.

It was reasonable for MDE to require a licensee to follow its own protocols or procedures, particularly as NPI was permitted to, and invited to, amend and resubmit its procedures to RHP. I conclude that MDE's practice of incorporating NPI's internal procedures is not inconsistent with law or regulations, nor arbitrary or capricious.

Restraint of Trade

NPI's second substantive argument is that many of the License conditions "effectively restrain trade without valid cause...." (NPI's Closing Argument at 3) NPI argues that this restraint of trade is contrary to the policy of the Atomic Energy Act of 1954, as amended, as well as the policy of the Maryland General Assembly at Envir. § 8-102. To support its proposition NPI cites 42 U.S.C. Section 2011:

> Atomic Energy is capable of application for peaceful as well as military purposes. It is therefore declared to be the policy of the United States that-
>
> (a) the development, use, and control of atomic energy shall be directed so as to make the maximum contribution to the general welfare, subject at all times to the paramount objective of making the maximum contribution to the common defense and security; and
>
> (b) the development, use, and control of atomic energy shall be directed so as to promote world peace, improve the general welfare, increase the standard of living, and strengthen free competition in private enterprise.

NPI then cites Envir. Section 8-102:

> (a) The General Assembly finds that radiation:
> (1) If used properly, can help to improve the health, welfare and productivity of the public;
> (2) If used carelessly or excessively, may destroy life or health; and
> (3) If used improperly, may impair the industrial and agricultural potential of this State.

(b) It is the policy of this State:
(1) To encourage the constructive uses of radiation; and
(2) To control radiation.

According to NPI, MDE's overly restrictive License conditions, its insistence on preapprovals of activities and procedures, and the slow response of RHP staff to its approval requests have all hindered NPI from capitalizing on business opportunities and making internal changes in order to operate effectively in the marketplace. NPI contends that MDE's alleged concern for radiation safety is not supported by evidence of serious violations by NPI. NPI argues that MDE's restrictive License conditions act to create technical violations, thus placing NPI in a regulatory trap. NPI argues that in its 30-year history, it has a good radiation safety record and it is a leader in the field of supplying Cobalt-60 sources for cancer therapy. Based on its record, NPI argues that MDE should respect NPI's expertise and grant it more flexibility to operate in response to the market. The License conditions which NPI deems to place restraints on trade include Conditions 7A, 9A, and 13 which restrict NPI to storage or disposal of its stellite; Condition 8A which limits NPI to 2,000,000 curies of radioactivity; Condition 10 which Limits NPI to operations at its Dickerson site; Condition 14 which requires approval prior to receipt of Cobalt-60 targets; and Conditions 15 through 20, 22, 23, 26, 32, 35, and 37 regarding radiation safety; Conditions 16 and 17 which require NPI's health physics consultant and health physics technician to be approved by RHP and their duties prescribed by MDE; Condition 18

which requires use of hand-held friskers in certain circumstances; and Condition 21B requiring an accelerated waste disposal schedule.

In response to NPI's restraint of trade argument, MDE responded that NPI failed to meet its burden to present evidence in support of its claims regarding the Conditions mentioned immediately above. For example, with regard to Condition 8A which limits total radioactivity to 2,000,000 curies, MDE argues that Ransohoff testified vaguely about a contract with the nuclear plant in Argentina, but failed to introduce a contract. MDE notes that such evidence would be uniquely within NPI's control and yet it was never produced.

I concur with MDE's assessment of NPI's proof. NPI's experts clearly are knowledgeable about the operation of the Dickerson facility, legal requirements within their areas of expertise, the License conditions, as well as about NPI's sometimes difficult relationship with the RHP staff. What was not forthcoming was specific testimony or documentary evidence of actual financial losses suffered by NPI or estimates of potential loss as a result of MDE's licensing treatment. The anecdotal testimony of the NPI witnesses, particularly the often rambling, argumentative, and hyperbolical testimony of Ransohoff, was not as persuasive as the focused testimony of the RHP staff. MDE produced both documentary evidence and credible testimony of RHP staff regarding numerous, repeated uncontrolled discharges of radioactive contamination to individuals and to the environment, as well as evidence of regulatory or licensing violations, such as monthly reports and

pool cleanups which were missed by NPI. In addition, the RHP witnesses testified concerning the specific COMAR regulations which supported the various License conditions. NPI's witnesses conceded that many of the Conditions are COMAR requirements.

NPI argues that MDE has failed to show any harm to individuals or the environment and that personal contamination limits have not been exceeded. This argument ignores the conservative position taken by the NRC in 1995 regarding the effects of low level radiation. As an Agreement State, MDE was bound under 42 U.S.C. § 2021(d)(2) by the NRC's regulatory position at the time Amendment 43 was issued in January, 1996. (State Ex. 102) The NRC spent more than a decade reviewing radiation safety issues and a multitude of public comments, before adopting the "Fundamental Radiation Protection Principles," including the following:

> The radiation protection standards in this final rule are based upon the assumption that
> (1) Within the range of exposure conditions usually encountered in radiation work, there is a linear relationship, without threshold, between dose and probability of stochastic health effects (such as latent cancer and genetic effects) occurring;
> (2) The severity of each type of stochastic health effect is independent of dose; and
> (3) Nonstochastic (nonrandom) radiation-induced health effects can be prevented by limiting exposures so that doses are below the thresholds for their induction.
>
> * * *
>
> In the absence of convincing evidence that there is a dose threshold or that low levels of radiation are beneficial, the Commission believes that the assumptions regarding a linear nonthreshold dose-effect mode for cancers and genetic effects and the existence of thresholds only for certain nonstochastic effects remain appropriate for formulating radiation protection standard and planning radiation protection programs.

(State Ex. 102, 10 CFR Part 20 at 20-SC-7 and 8.)

Accordingly, in January, 1996, MDE required the NPI License to be consistent with the NRC position, that is, because low-levels of radiation were statistically likely to prove dangerous to some people, allowable per person dose levels had to be revised downward. Agreement States were given three years to bring their regulations into compliance with federal dose limits. COMAR 26.12.01.01 § D.201(a), and § D.301. These revisions caused the "as low as reasonably achievable" (ALARA) principle to be a mandatory requirement for licensees. Id. at 10 CFR Part 20, 20-SC-13-14 and COMAR 26.12.01.01 § D.101(a). In several instances Ransohoff testified that he had lobbied for different standards or policies than those which were eventually adopted. NPI attempted to introduce documentary evidence which indicates a recent change in NRC policy which I ruled was irrelevant to MDE's 1996 decision. Because I am bound by current regulations, I cannot agree with NPI's position that RHP should not take seriously NPI's repeated uncontrolled low level discharges of radiation. I find that under the policy statement of § 8-102, the State has a duty to balance the encouragement of constructive uses of radiation by licensees with the control of radiation which may destroy life or health if used carelessly or excessively.

NPI has demonstrated that RHP sometimes took months to resolve NPI's concerns, sometimes unsatisfactorily to NPI. The fact that RHP staff may not have responded as swiftly or as favorably to NPI requests as NPI would have liked is not sufficient to show that a license condition requiring agency prior approval should be

deleted. In many instances MDE showed that NPI's proposals were preliminary and that it failed to follow through with final proposals and written procedures which RHP could approve. Three examples of this failure of NPI to respond to RHP's need for documentation include the courtyard enclosure plans, the stellite procedures, and the plans for waste containers. Whether or not NPI has greater expertise or familiarity with its operations is not at issue here. MDE is charged by law with the duty to regulate and control radiation in Maryland. It cannot allow a licensee to embark on new projects or use new equipment without the necessary radiation safety protocols in place. Only the regulatory body can decide when an approval can be given. The evidence showed that MDE was neither arbitrary nor capricious in issuing the License. In summation, I find that NPI failed to meet its burden of persuasion on the issue of restraint of trade by failing to produce factual or documentary proof of economic hardship.

The Interveners Arguments

The Intervenors played a limited role in the hearing process. Some of them made opening arguments orally and some submitted written closing arguments. None testified during the hearing. Only Mr. Oberdorfer actively followed the majority of the testimony and participated with incisive cross examination questions. Moore and Rae submitted with their Closing Argument news articles pertaining to NPI's violations and relations with the community. The Interveners supported issuance of the License and want to aggressively enforce its Conditions. Some honestly state that they

would like the Dickerson facility to close and the License to be terminated. Prospective relief related to the License conditions is beyond the jurisdiction of this forum. This is a licensing appeal, not an enforcement appeal. Because the Interveners failed to testify or submit exhibits at the hearing, they have failed to meet their burdens of persuasion, and their requests for hearing are dismissed.

PROPOSED CONCLUSIONS OF LAW

Based upon the foregoing Findings of Fact and Discussion, I conclude, as a matter of law, that hearing requests of the Intervenors shall be dismissed for failing to meet the burden of persuasion by a preponderance of the evidence; and that the hearing request of NPI be dismissed for failing to meet its burden of persuasion by a preponderance of the evidence. COMAR 26.01.02.28B(1).

PROPOSED ORDER

I PROPOSE that the requests for hearing of NPI, William Moore and Heather Rae, Michael and Carol Oberdorfer, and Gerald and Yvonne Mulgrew be DISMISSED; and

I PROPOSE that the decision of the Maryland Department of the Environment to issue Amendment 43 of License No. MD-31-025-01 be AFFIRMED.

June 26, 1998
Date

Judith Finn Plymyer
Administrative Law Judge

JFP/sh
neutr106.mde

NOTICE OF RIGHT TO FILE EXCEPTIONS

Any party adversely affected by this proposed decision may file written exceptions with the Secretary of the Maryland Department of the Environment within twenty-one (21) days after receipt of the decision, in accordance with COMAR 26.01.02.35.

NEUTRON PRODUCTS, INC., et al.	*	BEFORE JUDITH FINN PLYMYER,
	*	AN ADMINISTRATIVE LAW JUDGE
v.	*	OF THE MARYLAND OFFICE OF
MARYLAND DEPARTMENT OF	*	ADMINISTRATIVE HEARINGS
THE ENVIRONMENT	*	OAH No. 96-MDE-ARMA-047-106

* * * * * * * * * * * * * *

APPENDIX A - EXHIBIT LIST

NPI submitted 89 documents of which 83 were admitted on the record, and 6 were not admitted.

MDE submitted 107 documents which were admitted on the record with the exception of one page which was not admitted.

The Interveners submitted no documents during the hearing, but Moore and Rae enclosed news articles in support of their written closing arguments.

The Respondent, Neutron Products, Inc. (NPI), submitted the following exhibits which were admitted into evidence:

NPI Ex. #	1 -	Correspondence dated August 1, 1994, from J. A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Department of the Environment, with a copy of NPI's application for license renewal attached.
NPI Ex. #	2 -	Not offered.
NPI Ex. #	3 -	Not offered.
NPI Ex. #	4 -	Not admitted.
NPI Ex. #	4A -	Not admitted.
NPI Ex. #	5 -	Not offered.
NPI Ex. #	6 -	Correspondence dated June 13, 1985, from F. Schwoerer, Vice President, Technical Director Division 3, Neutron Products, Inc., to Robert Corcoran, State of Maryland, Division of Radiation Control, Department of Health and Mental Hygiene.
NPI Ex. #	7 -	Not offered.
NPI Ex. #	8 -	Not offered.
NPI Ex. #	9 -	Not offered.
NPI Ex. #	10 -	Not offered.
NPI Ex. #	11 -	Not offered.
NPI Ex. #	12 -	Correspondence dated June 7, 1985, from M. M. Turkanis, Vice President, Neutron Products, Inc., to Robert Corcoran, State of Maryland, Division of Radiation Control, Department of Health and Mental Hygiene.
NPI Ex. #	13 -	Not offered.

* An asterisk denotes confidential exhibits.

NPI Ex. # 14 - Correspondence dated July 30, 1985, from F. Schwoerer, Vice President, Technical Director, Division III, Neutron Products, Inc., to Robert Corcoran, State of Maryland, Division of Radiation Control, Department of Health and Mental Hygiene.

NPI Ex. # 15 - Not offered.

NPI Ex. # 16 - Not offered.

NPI Ex. # 17 - Not offered.

NPI Ex. # 18 - Not offered.

NPI Ex. # 19 - Not offered.

NPI Ex. # 20 - Not offered.

NPI Ex. # 21 - Not offered.

NPI Ex. # 22 - Not offered.

NPI Ex. # 23 - Not offered.

NPI Ex. # 24 - Not offered.

NPI Ex. # 25 - Not offered.

NPI Ex. # 26 - Not offered.

NPI Ex. # 27 - Not offered.

NPI Ex. # 28 - Not offered.

NPI Ex. # 29 - Not offered.

NPI Ex. # 30 - U.S. Nuclear Regulatory Commission NUREG-1530 entitled "Reassessment of NRC's Dollar Per Person - Rem Conversion Factor Policy.

NPI Ex. # 31 - Not offered.

NPI Ex. # 32 - Not offered.

NPI Ex. # 33 - Not offered.

NPI Ex. # 34 - Not offered.

NPI Ex. # 35 - Not offered.

NPI Ex. # 36 - Not offered.

NPI Ex. # 37 - Not offered.

NPI Ex. # 38 - Not offered.

NPI Ex. # 39 - Not admitted.

NPI Ex. # 40 - Not offered.

NPI Ex. # 41 - Not offered.

NPI Ex. # 42 - Not offered.

NPI Ex. # 43 - Radioactive Material License No. MD-31-025-01, Amendment No. 26, dated July 5, 1985, issued by the Maryland Department of the Environment to Neutron Products, Inc.

NPI Ex. # 44 - Correspondence dated July 30, 1985, from F. Schwoerer, Vice President, Technical Director, Division III, Neutron Products, Inc., to Robert Corcoran, State of Maryland, Division of Radiation Control, Department of Health and Mental Hygiene.

NPI Ex. # 45 - Not offered.

NPI Ex. # 46 - Correspondence dated September 16, 1985, from Wayne J. Costley, for Frank Schwoerer, Vice President, Technical Director, Division III, to Robert Corcoran, Chief, Division of Radiation Control, State of Maryland, Maryland Department of Health and Mental Hygiene.

NPI Ex. # 47 - Not offered.

NPI Ex. # 48 - Not offered.

NPI Ex. # 49 - Not offered.

NPI Ex. # 50 - Not offered.

NPI Ex. # 51 - Not offered.

NPI Ex. # 52 - Not offered.

NPI Ex. # 53 - Not offered.

NPI Ex. # 54 - Not offered.

NPI Ex. # 55 - Not offered.

NPI Ex. # 56 - Not offered.

NPI Ex. # 57 - Not offered.

NPI Ex. # 58 - Not offered.

NPI Ex. # 59 - Not offered.

NPI Ex. # 60 - Not offered.

NPI Ex. # 61 - Not offered.

NPI Ex. # 62 - Not offered.

NPI Ex. # 63 - Not offered.

NPI Ex. # 64 - Not offered.

NPI Ex. # 65 - Not offered.

NPI Ex. # 66 - Not offered.

NPI Ex. # 67 - Not offered.

NPI Ex. # 68 - Not offered.

NPI Ex. # 69 - Not offered.

NPI Ex. # 70 - Not offered.

NPI Ex. # 71 - Not offered.

NPI Ex. # 72 - Not offered.

NPI Ex. # 73 - Not offered.

NPI Ex. # 74 - Not offered.

NPI Ex. # 75 - Not offered.

NPI Ex. # 76 - Not offered.

NPI Ex. # 77 - Not offered.

NPI Ex. # 78 - Not offered.

NPI Ex. # 79 - Correspondence dated January 23, 1991, from Roland G. Fletcher, Administrator, Radiological Health Program, Department of the Environment, to Frank Schwoerer, Neutron Products, Inc.

NPI Ex. # 80 - Not offered.

NPI Ex. # 81 - Not offered.

NPI Ex. # 82 - Not offered.

NPI Ex. # 83 - Not offered.

NPI Ex. # 84 - Not offered.

NPI Ex. # 85 - Not offered.

NPI Ex. # 86 - Not offered.

NPI Ex. # 87 - Not offered.

NPI Ex. # 88 - Not offered.

NPI Ex. # 89 - Not offered.

NPI Ex. # 90 - Correspondence dated February 16, 1989, from Roland G. Fletcher, Administrator, Center for Radiological Health, Department of the Environment, to Wayne Costley, Neutron Products, Inc.

NPI Ex. # 91 - Correspondence dated March 3, 1989, from Roland Fletcher, Administrator, Center for Radiological Health, Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc.

NPI Ex. # 92 - Not offered.

NPI Ex. # 93 - Not offered.

NPI Ex. # 94 - Not offered.

NPI Ex. # 95 - Not offered.

NPI Ex. # 96 - Not offered.

NPI Ex. # 97 - Not offered.

NPI Ex. # 98 - Not offered.

NPI Ex. # 99 - Not offered.

NPI Ex. # 100 - Not offered.

NPI Ex. # 101 - Not offered.

NPI Ex. # 102 - Not offered.

NPI Ex. # 103 - Not offered.

NPI Ex. # 104 - Not offered.

NPI Ex. # 105 - Not offered.

NPI Ex. # 106 - Not offered.

NPI Ex. # 107 - Not offered.

NPI Ex. # 108 - Not offered.

NPI Ex. # 109 - Not offered.

NPI Ex. # 110 - Not offered.

NPI Ex. # 111 - Not offered.

NPI Ex. # 112 - Not offered.

NPI Ex. # 113 - Not offered.

NPI Ex. # 114 - Not offered.

NPI Ex. # 115 - Not offered.

NPI Ex. # 116 - Correspondence dated July 19, 1989, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Center for Radiological Health, Maryland Department of the Environment, with two (2) page "Plan for Enclosure of Courtyard" attached.

NPI Ex. # 117 - Not offered.

NPI Ex. # 118 - Not offered.

NPI Ex. # 119 - Not offered.

NPI Ex. # 120	-	Correspondence dated August 23, 1989, from Roland G. Fletcher, Administrator, Center for Radiological Health, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc.
NPI Ex. # 121	-	Not offered.
NPI Ex. # 122	-	Correspondence dated September 12, 1989, from J. A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Center for Radiological Health, Maryland Department of the Environment, with attachments.
NPI Ex. # 123	-	Not offered.
NPI Ex. # 124	-	Not offered.
NPI Ex. # 125	-	Not offered.
NPI Ex. # 126	-	Not offered.
NPI Ex. # 127	-	Not offered.
NPI Ex. # 128	-	Not offered.
NPI Ex. # 129	-	Not offered.
NPI Ex. # 130	-	Not offered.
NPI Ex. # 131	-	Not offered.
NPI Ex. # 132	-	Not offered.
NPI Ex. # 133	-	Not offered.
NPI Ex. # 134	-	Not offered.
NPI Ex. # 135	-	Not offered.
NPI Ex. # 136	-	Not offered.
NPI Ex. # 137	-	Not offered.
NPI Ex. # 138	-	Not offered.
NPI Ex. # 139	-	Not offered.
NPI Ex. # 140	-	Not offered.

NPI Ex. # 141 - Not offered.

NPI Ex. # 142 - Not offered.

NPI Ex. # 143 - Not offered.

NPI Ex. # 144 - Not offered.

NPI Ex. # 145 - Not offered

NPI Ex. # 146 - Not offered.

NPI Ex. # 147 - Not offered.

NPI Ex. #148A - Correspondence dated May 4, 1990 from J. A. Ransohoff, President, Neutron Products, Inc., to Roland Fletcher, Administrator, Radiation Health Project, Department of the Environment, with attachment.

NPI Ex. #148B - Correspondence dated August 29, 1990, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland State Department of the Environment, to Frank Schwoerer, Neutron Products, Inc.

NPI Ex. #148C - Correspondence dated September 25, 1990, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Department of the Environment, with attachments.

NPI Ex. #148D - Correspondence dated November 28, 1990, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Frank Schwoerer, Neutron Products, Inc.

NPI Ex. #148E - Correspondence dated December 6, 1990 from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.

NPI Ex. #148F	-	Correspondence dated December 12, 1990, from J. A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.
NPI Ex. #148G	-	Correspondence dated December 20, 1990, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with attachment.
NPI Ex. #148H	-	Correspondence dated January 9, 1991, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Neutron Products, Inc., with attachment.
NPI Ex. #148I	-	Not offered.
NPI Ex. #148J	-	Not offered.
NPI Ex. #148K	-	Not offered.
NPI Ex. #148L	-	Not offered.
NPI Ex. #148M	-	Not offered.
NPI Ex. #148N	-	Not offered.
NPI Ex. # 149	-	Not offered.
NPI Ex. # 150	-	Not offered.
NPI Ex. # 151	-	Not offered.
NPI Ex. # 152	-	Not offered.
NPI Ex. # 153	-	Not offered.
NPI Ex. # 154	-	Not offered.
NPI Ex. # 155	-	Not offered.
NPI Ex. # 156	-	Not offered.

NPI Ex. # 157 - Correspondence dated August 15, 1994, from J. A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Department of the Environment, with attachment entitled "The Proposed Location, Functioning and Operation of a Low Level Radioactive Waste Storage Facility for Neutron Products' Dickerson Plant."

NPI Ex. # 158 - Not offered.

NPI Ex. # 159 - Not offered.

NPI Ex. # 160 - Not offered.

NPI Ex. # 161 - Not offered.

NPI Ex. # 162 - Not offered.

NPI Ex. # 163 - Not offered.

NPI Ex. # 164 - Not offered.

NPI Ex. # 165 - Not offered.

NPI Ex. # 166 - Not offered.

NPI Ex. # 167 - Not offered.

NPI Ex. # 168 - Not offered.

NPI Ex. # 169 - Not offered.

NPI Ex. # 170 - Not offered.

NPI Ex. # 171 - Not offered.

NPI Ex. # 172 - Correspondence dated December 31, 1990, from J. A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

NPI Ex. # 173 - Correspondence dated December 31, 1990, from J. A. Ransohoff, President, Neutron Products, Inc., to Lawrence M. Ward, Maryland Department of the Environment, with attachment.

NPI Ex. # 174 - Not offered.

NPI Ex. # 175 - Not offered.

NPI Ex. # 176 - Not offered.

NPI Ex. # 177 - Not offered.

NPI Ex. # 178 - Not offered.

NPI Ex. # 179 - Not offered.

NPI Ex. # 180 - Not offered.

NPI Ex. # 181 - Not offered.

NPI Ex. # 182 - Not offered.

NPI Ex. # 183 - Not offered.

NPI Ex. # 184 - Not offered.

NPI Ex. # 185 - Not offered.

NPI Ex. # 186 - Not offered.

NPI Ex. # 187 - Not offered.

NPI Ex. # 188 - Not offered.

NPI Ex. # 189 - Not offered.

NPI Ex. # 190 - Not offered.

NPI Ex. # 191 - Correspondence dated February 20, 1992, from J. A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with attachments.

NPI Ex. # 192 - Correspondence dated November 14, 1991, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, Neutron Products, Inc.

NPI Ex. # 193 - Correspondence dated October 7, 1991, from J. A. Ransohoff, President, Neutron Products, Inc., to Carl Trump, Radiological Health Program, Maryland Department of the Environment, with attachments.

NPI Ex. # 194 - Not offered.

NPI Ex. # 195 - Correspondence dated August 30, 1991, from Robert Perciasepe, Secretary, Maryland Department of the Environment, to The Honorable Laurence Levitan, Chairman of the Budget and Taxation Committee.

NPI Ex. # 196 - Correspondence dated July 3, 1991, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson Ransohoff, Neutron Products, Inc.

NPI Ex. # 197 - Not offered.

NPI Ex. # 198 - Correspondence dated April 12, 1991, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Frank Schwoerer, Neutron Products, Inc.

NPI Ex. # 199 - Memorandum dated March 8, 1991, from Alvin Bowles, Administrator, Hazardous Waste Program, Maryland Department of the Environment, to Roland Fletcher, Director, Radiological Health Program, Maryland Department of the Environment.

NPI Ex. # 200 - Not offered.

NPI Ex. #200A - Not offered.

NPI Ex. # 201 - Not offered.

NPI Ex. # 202 - Not offered.

NPI Ex. # 203 - Not offered.

NPI Ex. # 204 - Not offered.

NPI Ex. # 205 - Not offered.

NPI Ex. # 206	-	Correspondence dated December 12, 1990, from J. A. Ransohoff, President, Neutron Products, Inc., to Lawrence M. Ward, Assistant Secretary, Toxics, Environmental Science and Health, Maryland Department of the Environment.
NPI Ex. # 207	-	Not offered.
NPI Ex. # 208	-	Correspondence dated August 27, 1990, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson Ransohoff, Neutron Products, Inc., with attachments.
NPI Ex. # 209	-	Correspondence dated May 18, 1990, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Frank Schwoerer, Vice President, Neutron Products, Inc., with attachments.
NPI Ex. # 210	-	Correspondence dated April 12, 1990, from J. A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with attachments.
NPI Ex. # 211	-	Not offered.
NPI Ex. # 212*	-	Correspondence dated October 29, 1985, from Frank Schwoerer, Vice President, Technical Director, Division III, Neutron Products, Inc., to Robert Corcoran, Division of Radiation Control, Maryland Department of Health and Mental Hygiene.
NPI Ex. # 213*	-	Correspondence dated December 10, 1985, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Robert E. Corcoran, Chief, Division of Radiation Control, Maryland Department of Health and Mental Hygiene, with attachment.

NPI Ex. # 214* - Correspondence dated December 30, 1985, from Frank Schwoerer, Vice President, Neutron Products, Inc. to Robert E. Corcoran, Chief, Division of Radiation Control, Maryland Department of Health and Mental Hygiene, with attachment.

NPI Ex. # 215* - Correspondence dated March 4, 1986, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Robert E. Corcoran, Chief, Division of Radiation Control, Maryland Department of Health and Mental Hygiene, with attachment.

NPI Ex. # 216* - Correspondence dated August 8, 1985, from F. Schwoerer, Vice President, Technical Director, Division III, to Robert Corcoran, Division of Radiation Control, Maryland Department of Health and Mental Hygiene.

NPI Ex. # 217 - Not offered.

NPI Ex. # 218 - Not offered.

NPI Ex. # 219 - H.R. 1083 entitled "Low-Level Radioactive Waste Policy Amendments Act of 1985"

NPI Ex. # 220 - Correspondence dated June 5, 1991, from J. A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with attachments.

NPI Ex. # 221 - Correspondence dated August 23, 1991, from J. A. Ransohoff, President, Neutron Products, Inc., to Lawrence M. Ward, TESH, and Richard W. Collins, Hazardous Waste, Maryland Department of the Environment, with attachment.

NPI Ex. # 222 - Drawing dated May 31, 1991, and entitled "Conceptual Design Courtyard Enclosure and Waste Management Shield" of Neutron Products, Inc.

NPI Ex. # 223 - Drawing dated August 20, 1991, and entitled "Proposed Courtyard Enclosure with Interim Waste Storage" of Neutron Products, Inc.

NPI Ex. # 224	-	Correspondence dated January 11, 1991, from Roland G. Fletcher, Administrator, Radiological Health Program, to Jackson A. Ransohoff, President, Neutron Products, Inc.
NPI Ex. # 225	-	Correspondence dated January 24, 1991, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, Neutron Products, Inc.
NPI Ex. # 226	-	Not offered.
NPI Ex. # 227	-	Correspondence dated June 7, 1990, from Jackson A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with attachments.
NPI Ex. # 228	-	Not offered.
NPI Ex. # 229	-	Correspondence dated August 22, 1988, from George E. Hofferber, Consulting Health Physicist, NUS Corporation, to Wayne Costley, Neutron Products, Inc., with attachment.
NPI Ex. # 230A	-	Not admitted.
NPI Ex. # 230B	-	Not admitted.
NPI Ex. # 231	-	Not admitted.
NPI Ex. # 232	-	Correspondence dated August 9, 1989, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Center for Radiological Health, Maryland Department of the Environment, with attachments.
NPI Ex. # 233	-	Correspondence dated December 2, 1992, from Roland G. Fletcher, Administrator, Radiological Health Program, to Frank Schwoerer, Neutron Products.

NPI Ex. # 234	-	Correspondence dated August 24, 1992, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with attachment.
NPI Ex. # 235	-	Correspondence dated October 27, 1992, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.
NPI Ex. # 236	-	Correspondence dated August 13, 1992, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Frank Schwoerer, Vice President, Neutron Products, Inc.
NPI Ex. # 237	-	Correspondence dated July 9, 1992, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with Radiation Work Permit attached.
NPI Ex. # 238	-	Correspondence dated May 5, 1992, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Frank Schwoerer, Neutron Products, Inc.
NPI Ex. # 239	-	Correspondence dated January 30, 1992, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with attachments.
NPI Ex. # 240	-	Correspondence dated October 9, 1991, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc.
NPI Ex. #241A-F	-	Photographs of sump (various views)
NPI Ex. # 242	-	Not offered.

NPI Ex. # 243 - Procedure for Entrance To and Exit From Contamination Control Areas (Procedure R 1003) dated May 6, 1974.

NPI Ex. # 244 - Not offered.

NPI Ex. # 245 - Correspondence dated April 5, 1994, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., countersigned in agreement by Jackson A. Ransohoff on April 5, 1994.

NPI Ex. # 246 - Correspondence dated April 4, 1994, from J. A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

NPI Ex. # 247 - Correspondence dated March 29, 1994, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc.

NPI Ex. # 248 - Correspondence dated March 1, 1994, from Frank Schwoerer, Vice President, Neutron Products, Inc. to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

NPI Ex. # 249 - Correspondence dated November 22, 1993, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

NPI Ex. # 250 - Correspondence dated November 3, 1993, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Frank Schwoerer, Neutron Products, Inc.

NPI Ex. # 251 - Correspondence dated September 29, 1993, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland F.

Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

NPI Ex. # 252 - Not offered.

NPI Ex. # 253 - Diagram of Neutron Products, Inc. site.

NPI Ex. # 254 - Not offered.

NPI Ex. # 255 - Not offered.

NPI Ex. # 256 - "Understanding the ALARA Concept" dated October 24, 1997, and prepared by R. E. Alexander, Certified Health Physicist.

NPI Ex. # 257 - Not offered.

NPI Ex. # 258 - Not offered.

NPI Ex. # 259 - Not offered.

NPI Ex. # 260 - Not offered.

NPI Ex. # 261 - Correspondence dated April 28, 1993, from Roland G. Fletcher, Radiological Health Program, Maryland Department of the Environment, to Teresa H. Darden, Acting State Agreements Officer, United States Nuclear Regulatory Commission/Region I, with attachments.

NPI Ex. # 262 - Correspondence dated January 4, 1994, from Richard L. Bangart, Director, Office of State Programs, Nuclear Regulatory Commission, to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with attachment.

NPI Ex. # 263 - Not offered.

NPI Ex. # 264 - Not offered.

NPI Ex. # 265 - Not offered.

NPI Ex. # 266 - Correspondence dated September 27, 1990, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Project, Maryland Department of the Environment, with diagram entitled

"Cobalt Adjuster Unit As Received From CNEA, Central Nuclear En Embalse" dated September 21, 1990, attached.

NPI Ex. # 267 - Not offered.

NPI Ex. # 268 - Not offered.

NPI Ex. # 269 - Not offered.

NPI Ex. # 270 - Not offered.

NPI Ex. # 271 - Not offered.

NPI Ex. # 272 - Not offered.

NPI Ex. # 273 - Correspondence dated June 11, 1996, from Jeffrey Williams, Radiation Safety Officer, Neutron Products, Inc., to Roland G. Fletcher, Program Manager, Radiological Health Program, Maryland Department of the Environment.

NPI Ex. # 274 - Not offered.

NPI Ex. # 275 - Correspondence dated May 18, 1995, from Jeffrey Williams, Radiation Safety Officer, Neutron Products, Inc., to Roland G. Fletcher, Program Manager, Radiological Health Program, Maryland Department of the Environment.

NPI Ex. # 276 - Not offered.

NPI Ex. #277-1A- Correspondence dated October 18, 1994, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.

NPI Ex. #277-1B- Correspondence dated November 14, 1994, from J. A. Ransohoff, President, Neutron Products, Inc. to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

NPI Ex. #278A - Not offered.

NPI Ex. # 294 - Not offered.

NPI Ex. # 295 - Not admitted.

NPI Ex. # 296 - Not admitted.

The Department submitted the following exhibits which were admitted into evidence:

State's Ex. # 1	-	Radioactive Material License No. MD-31-025-01, Amendment No. 43, dated January 18, 1996, issued by the Maryland Department of the Environment to Neutron Products, Inc.
State's Ex. # 2A	-	Correspondence dated July 26, 1988, from Roland G. Fletcher, Administrator, Center for Radiological Health to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.
State's Ex. # 2B	-	Memorandum dated February 27, 1989, from F. Schwoerer to W. J. Costley, Radiation Safety Officer, regarding "Contamination found on [Schwoerer's] clothing in Rochester, New York, on February 23 and 24, 1989."
State's Ex. # 3	-	Order No. 0-88-01 of the Maryland Department of the Environment, In the Matter of Neutron Products, Inc., dated June 23, 1988.
State's Ex. # 4	-	Reports of Home Contamination Surveys (3)
State's Ex. # 5	-	Correspondence dated September 7, 1988, from Wayne J. Costley, Radiation Safety Officer, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Center for Radiological Health, Maryland Department of the Environment.
State's Ex. # 6	-	Memorandum dated April 18, 1989, from Raymond E. Manley, Maryland Department of the Environment, to Carl E. Trump, Jr., with attachments, regarding "Chronology of Radioactive Materials Section Acts Following the Modification of Neutron Products, Inc. (MD-31-025-01)."

State's Ex. # 7	-	Radioactive Material License No. MD-31-025-01, Amendment No. 30, dated March 3, 1989, issued by the Maryland Department of the Environment to Neutron Products, Inc.
State's Ex. # 8	-	Not offered.
State's Ex. # 9	-	Radioactive Material License No. MD-31-025-01, Amendment No. 33, dated May 23, 1989, issued by the Maryland Department of the Environment to Neutron Products, Inc.
State's Ex. # 10	-	Correspondence dated May 24, 1989, from Lawrence M. Ward, Deputy Assistant Secretary, Toxics, Environmental Science and Health, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc.
State's Ex. # 11	-	Not offered.
State's Ex. # 12	-	Not offered.
State's Ex. # 13	-	Not offered.
State's Ex. # 14	-	Not offered.
State's Ex. # 15	-	Aerial photograph of Neutron Products, Inc. facility, to be used as a demonstrative exhibit.
State's Ex. # 16	-	Not offered.
State's Ex. # 17	-	Plat of the Dickerson Community designating the location of the Neutron Products, Inc. facility and surrounding residences.
State's Ex. # 18	-	Amended Complaint for Civil Penalties and Injunctive Relief dated May 15, 1992, in the case of Maryland Department of the Environment v. Neutron Products, Inc., Civil No. 76639, in the Circuit Court for Montgomery County.

State's Ex. # 19	-	Memorandum and Opinion Order dated December 29, 1993, in the case of Maryland Department of the Environment v. Neutron Products, Inc., Civil No. 76639, in the Circuit Court for Montgomery County.
State's Ex. # 20	-	Stipulation and Settlement in the case of Maryland Department of the Environment v. Neutron Products, Inc., Civil No. 76639, in the Circuit Court for Montgomery County.
State's Ex. # 21	-	Summary of Neutron Products, Inc. contamination incidents from May 31, 1989, through February 4, 1992.
State's Ex. # 22[1]	-	All contamination reports made to Neutron Products, Inc. by the Maryland Department of the Environment for the period from May, 1993, through June, 1995.
State's Ex. # 23	-	Radioactive Material License No. MD-33-021-02, Amendment No. 19, dated April 2, 1993, issued by the Maryland Department of the Environment to Radiation Service Organization.
State's Ex. # 24	-	Radioactive Material License No. PA-0678, dated December 7, 1993, issued by the Commonwealth of Pennsylvania, Department of Environmental Resources, Bureau of Radiation Protection, to ALARON Corporation.
State's Ex. # 25	-	Correspondence dated August 23, 1996, from John R. McGrath, Senior Health Physicist, Division of Nuclear Materials Safety, Nuclear Regulatory Commission, to Michael A. Roller, President and CEO of ALARON Corporation, transmitting Materials License No. 37-20826-01,

[1]The first page of this Exhibit was not admitted into evidence.

Amendment No. 9 (attached to correspondence) dated August 23, 1996.

State's Ex. # 26 - Radioactive Material License No. R-01078-L00, dated December 5, 1995, issued by the Tennessee Department of Environment and Conservation, Division of Radiological Health, to Manufacturing Sciences Corporation.

State's Ex. # 27 - Materials License No. 030-08681, dated May 12, 1996, issued by the Nuclear Regulatory Commission to Teledyne Environmental, Inc., dba Teledyne Brown Engineering - Environmental Services.

State's Ex. # 28 - Correspondence dated August 30, 1994, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, transmitting radioactive waste inventories from January 1, 1994, through June 30, 1994.

State's Ex. # 29 - Correspondence dated February 21, 1994, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, transmitting radioactive waste inventories from July 1, 1994, through December 31, 1994.

State's Ex. # 30 - Correspondence dated September 6, 1995, from Frank Schwoerer, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Maryland Department of the Environment, transmitting radioactive waste inventories from January 1, 1995, through June 30, 1995.

State's Ex. # 31	-	Correspondence dated August 22, 1996, from Jeffrey Williams, Radiation Safety Officer, Neutron Products, Inc., to Alan Jacobson, Radiological Health Program, Maryland Department of the Environment.
State's Ex. # 32	-	American National Standard N.43.10 (cover sheet and p. 13).
State's Ex. # 33	-	Inspection Report of Neutron Products, Inc., by Raymond Manley dated April 25, 1990.
State's Ex. # 34	-	Radioactive Material Inspection Findings and Licensee Acknowledgement dated March 13, 14 and 15, 1990, by Raymond Manley, Maryland Department of the Environment, for Neutron Products, Inc.
State's Ex. # 35	-	Not offered.
State's Ex. # 36	-	Not offered.
State's Ex. # 37	-	Not offered.
State's Ex. # 38	-	Inspection Findings and Licensee Acknowledgement dated November 1, 1988, by Raymond Manley and Alan Jacobson, Maryland Department of the Environment, for Neutron Products, Inc.
State's Ex. # 39	-	Correspondence dated November 15, 1989, from Vandy L. Miller, Assistant Director for State Agreements Program, State, Local and Tribe Programs, Office of Governmental and Public Affairs, Nuclear Regulatory Commission, to Roland F. Fletcher, Administrator, Center for Radiological Health, Office of Toxics, Environmental Science and Health, Maryland Department of the Environment, with attachments.

State's Ex. # 40	-	Correspondence dated March 29, 1991, from Thomas E. Potter to Jackson Ransohoff, Neutron Products, Inc., accompanied by Potter's evaluation of the two melt campaigns and cleanups conducted by Neutron Products, Inc. during 1990.
State's Ex. # 41	-	Copy of three (3) Polaroid photographs of bagged waste located at Neutron Products, Inc.
State's Ex. # 42	-	Not offered.
State's Ex. # 43	-	Not offered.
State's Ex. # 44	-	Nuclear Regulatory Commission Information Notice on Extended Interim Storage of Low-Level Radioactive Waste (SP-90-27) dated February 16, 1990, transmitting Nuclear Regulatory Commission Information Notice on Extended Interim Storage of Low-Level Radioactive Waste by Fuel Cycle and Materials Licensees (No. 90-09) dated February 5, 1990.
State's Ex. # 45	-	Nuclear Regulatory Commission/CR-4062 entitled "Extended Storage of Low-Level Radioactive Waste: Potential Problem Areas."
State's Ex. # 46	-	Not offered.
State's Ex. # 47	-	Memorandum dated May 25, 1993, from Ray Manley to Accident Incident File, regarding "Investigation and limited inspection of NPI regarding the uncontrolled release of a fifty microcurie cobalt-60 particle into the Dickerson community."
State's Ex. # 48	-	Summary of One Kilometer Surveys dated May 20, 1992.
State's Ex. # 49	-	Nuclear Regulatory Commission Guidance for Land Clean-up Involving CO-60 Contamination.
State's Ex. # 50	-	Not offered.

State's Ex. # 51	-	Not offered.
State's Ex. # 52	-	Neutron Products, Inc. 1995 Boundary Monitoring Report.
State's Ex. # 53	-	Correspondence dated June 26, 1997, from Roland G. Fletcher, Manager, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.
State's Ex. # 54	-	Correspondence dated January 24, 1997, from Roland G. Fletcher, Environmental Manager, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.
State's Ex. # 55	-	Correspondence dated September 12, 1996, from Roland G. Fletcher, Environmental Manager, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.
State's Ex. # 56	-	Correspondence dated May 13, 1996, from Roland G. Fletcher, Environmental Manager, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.
State's Ex. # 57	-	Not offered.
State's Ex. # 58	-	Correspondence dated April 24, 1995, from Roland G. Fletcher, Program Manager, II, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.

State's Ex. # 59	-	Maryland Department of the Environment, Radiological Health Program, Radioactive Materials Inspection Format dated October 16, 1995, for Neutron Products, Inc.
State's Ex. # 60	-	Radioactive Material Inspection Findings and Licensee Acknowledgement dated August 30 and 31, 1994, by Alan Jacobson, Maryland Department of the Environment, for Neutron Products, Inc.
State's Ex. # 61	-	Maryland Department of the Environment, Radiological Health Program, Radioactive Materials Inspection Format dated April 20 - 22, 1994, for Neutron Products, Inc.
State's Ex. # 62	-	Correspondence dated August 30, 1993, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.
State's Ex. # 63	-	Correspondence dated November 30, 1992, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc., with Description of Violations attached.
State's Ex. # 64	-	Correspondence dated January 13, 1995, from Jackson A. Ransohoff, President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.
State's Ex. # 65A	-	Photograph of Neutron Products, Inc. plant from the west, with dry pond enclosed by a chain link fence in the foreground.

State's Ex. # 65B	-	Photograph of view from the north side of the dry pond, looking south to the railroad tracks.
State's Ex. # 65C	-	Photograph of railroad tracks with Neutron Products, Inc. plant in the background.
State's Ex. # 65D	-	Photograph of south side of railroad tracks, including additional property maintained by Neutron Products, Inc.
State's Ex. # 66	-	Neutron Products, Inc. - Specifications, Procedures, and Quality Control for Sealed Cobalt-60 Sources (October, 1971).
State's Ex. # 67	-	Procedure R 5002, Revision 1, July 15, 1976, entitled "Opening Hot Cell Door After Processing Single and Double Encapsulated Cobalt-60."
State's Ex. # 68	-	Procedure NR 5003, Revision 1, July 15, 1976, entitled "Opening Hot Cell Door After Processing Exposed Cobalt-60."
State's Ex. # 69	-	Correspondence dated May 11, 1992, from Roland G. Fletcher, Administrator, Radiological Health Program, to Jackson A. Ransohoff, Neutron Products, Inc.
State's Ex. # 70	-	Correspondence dated March 2, 1993, from Marvin M. Turkanis, Vice President, Neutron Products, Inc., to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.
State's Ex. # 71	-	Correspondence dated March 3, 1993, from Charles R. Flynn, Program Administrator, Radioactive Material Licensing, Maryland Department of the Environment, to Marvin V. Turkanis, Vice President, Neutron Products, Inc.

State's Ex. # 72 - Correspondence dated March 23, 1993, from Marvin V. Turkanis, Vice President, Neutron Products, Inc. to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

State's Ex. # 73 - Correspondence dated March 24, 1993, from Marvin V. Turkanis, Vice President, Neutron Products, Inc. to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

State's Ex. # 74 - Correspondence dated March 25, 1993, from Marvin V. Turkanis, Vice President, Neutron Products, Inc. to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

State's Ex. # 75 - Correspondence dated April 1, 1993, from Charles R. Flynn, Program Administrator, Radioactive Material Licensing, to Marvin V. Turkanis, Vice President, Neutron Products, Inc.

State's Ex. # 76 - Correspondence dated November 29, 1993, from Marvin V. Turkanis, Vice President, Neutron Products, Inc. to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

State's Ex. # 77 - Correspondence dated December 7, 1993, from Charles R. Flynn, Program Administrator, Radioactive Material Licensing, to Marvin V. Turkanis, Vice President, Neutron Products, Inc.

State's Ex. # 78 - Correspondence dated December 9, 1993, from Marvin V. Turkanis, Vice President, Neutron Products, Inc. to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

State's Ex. # 79 - Correspondence dated December 13, 1993, from Charles R. Flynn, Program Administrator, Radioactive Material Licensing, to Marvin V. Turkanis, Vice President, Neutron Products, Inc.

State's Ex. # 80 - Correspondence dated December 13, 1993, from Marvin V. Turkanis, Vice President, Neutron Products, Inc. to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

State's Ex. # 81 - Correspondence dated December 20, 1993, from Charles R. Flynn, Program Administrator, Radioactive Material Licensing, to Marvin V. Turkanis, Vice President, Neutron Products, Inc.

State's Ex. # 82 - Correspondence dated April 27, 1984, from Marvin V. Turkanis, Vice President, Neutron Products, Inc. to Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment.

State's Ex. # 83 - Correspondence dated April 27, 1994, from Charles R. Flynn, Program Administrator, Radioactive Material Licensing, to Marvin V. Turkanis, Vice President, Neutron Products, Inc.

State's Ex. # 102 - 10 C.F.R. Part 20 dated September 29, 1995.

State's Ex. # 103 - Radioactive Material License No. MD-31-025-01, Amendment No. 28, dated September 18, 1985, issued by the Maryland Department of the Environment to Neutron Products, Inc.

State's Ex. # 104 - Radioactive Material Inspection Findings and Licensee Acknowledgement dated January 28 - 31, 1991, by Raymond Manley, Maryland Department of the Environment, for Neutron Products, Inc.

State's Ex. # 105 - Correspondence dated October 25, 1989, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to J.A. Ransohoff, President, Neutron Products, Inc., with Description of Violations and Order to Stop attached.

State's Ex. # 106 - Correspondence dated December 28, 1989, from Wayne J. Costley, Vice President, Radiation Safety Officer, Neutron Products, Inc., to Roland Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, with Radioactive Respiratory Protection Program, Revision 7, dated December 28, 1989, attached.

State's Ex. # 107 - National Council on Radiation Protection (NCRP) Report No. 89 entitled "Use of Bioessay Procedures for Assessment of Internal Radionuclide Deposition."

State's Ex. # 108 - Radioactive Material License No. MD-31-025-01, Amendment No. 09, dated November 25, 1975, issued by the Maryland Department of the Environment to Neutron Products, Inc. - Page 4 of 4.

State's Ex. # 109	-	Correspondence dated April 18, 1994, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Jackson A. Ransohoff, President, Neutron Products, Inc.
State's Ex. # 110	-	Correspondence dated June 17, 1994, from Roland G. Fletcher, Administrator, Radiological Health Program, Maryland Department of the Environment, to Marvin V. Turkanis, Vice President, Radiation Safety Officer, Neutron Products, Inc.
State's Ex. # 111	-	Correspondence dated June 21, 1995, from Roland G. Fletcher, Program Manager II, Radiological Health Program, Maryland Department of the Environment, to J. A. Ransohoff, Neutron Products, Inc.
State's Ex. # 112	-	Radioactive Material License No. MD-31-025-04, Amendment No. 22, dated March 14, 1996, issued by the Maryland Department of the Environment to Neutron Products, Inc.
State's Ex. # 113	-	Radioactive Material License No. MD-31-025-05, Amendment No. 12 (RENEWAL), dated October 26, 1995, issued by the Maryland Department of the Environment to Neutron Products, Inc.
State's Ex. # 114	-	Sampling Procedure, Procedure 1002, Revision 5, June 7, 1989.
State's Ex. # 115	-	Curriculum Vitae of Alan Jacobson.
State's Ex. # 116	-	Not offered.
State's Ex. # 117	-	Correspondence dated September 29, 1995, from Jeffrey Williams, Radiation Safety Officer, Neutron Products, Inc., to Roland G. Fletcher, Program Manager, Radiological Health Program, Maryland Department of the Environment, with a copy of the HP Consultant Report for August 1995, prepared by R.E. Alexander, CHP, attached.