



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

June 25, 1992

**MEMORANDUM FOR:** Carlton Kammerer, Director  
Office of State Programs

Richard E. Cunningham, Director  
Division of Industrial and Medical Nuclear Safety

**FROM:** William F. Kane  
Deputy Regional Administrator

**SUBJECT:** NEUTRON PRODUCTS, INC. (NPI) ISSUES

As a follow-up to our conference call of June 15, I have enclosed a consolidated listing of issues concerning NPI which I believe we all agreed should be the subject of further discussions with the State. We believe that the process should involve the following major milestones.

- 1) Contact State management requesting a meeting to discuss mutual concerns about NPI.
- 2) Hold a two-part meeting with the State to include:
  - a) discussions with the State technical staff at which the NRC and State staffs would meet to discuss the current status of each of these issues and come to an agreement as to the issues that needed to be further evaluated; and
  - b) a management meeting with the State to reach agreement at that level on the issues requiring follow-up actions at NPI.
- 3) Recommend to the State that they conduct a "diagnostic" type inspection at NPI to further evaluate these issues. Participation by the NRC staff in such an inspection would likely occur, but only at the invitation of the State. Detailed plans for such an inspection would be worked out at a subsequent staff level meeting by the State and NRC staff.
- 4) Hold follow-up meetings with the State, as required, to address the need for improved operations at NPI and the strategy for achieving that goal.

A/4/0

John McGrath will set up the initial meetings with the State after we receive your agreement of the issues and approach.

A handwritten signature in black ink, appearing to read "William F. Kane". The signature is fluid and cursive, with a prominent initial "W" and "F".

**William F. Kane**  
**Deputy Regional Administrator**

## NEUTRON PRODUCTS ISSUES

Phase II issues/concerns for discussion between NRC and Maryland staff.

### ● IN-PLANT HEALTH PHYSICS ISSUES

- personnel contamination - medium priority  
Personnel have, in the past, left the LAA with contamination on their clothing tracking contamination to unrestricted areas. Has the installation of the portal monitor solved this problem?
- adequacy of instrument calibrations - medium priority  
Calibration techniques for instrumentation used in the evaluation of personnel exposures have been questionable. Has this been assessed by NPI? Also with regard to leak testing, can NPI assure that procedures are adequate to detect 0.05 microcurie?
- cobalt melts - high priority  
Melt operations, particularly clean-up, involve high personnel exposures and possibly environmental releases. The State has required more detailed procedures and monitoring of this operation. Are there any additional requirements needed to address this concern?
- major accident scenario - medium priority  
What is the likelihood of a major accident (fire, explosion, etc.) that could result in a major release from the facility?
- security - medium priority  
Access to the LAA via the courtyard area has never been locked. Has NPI provided the necessary security over this area?
- plant contamination/housekeeping - medium priority  
LAA has been found to be littered with scrap, tools and other items, some of which have had high levels of contamination. Has NPI implemented a housekeeping program to help keep doses to employees ALARA?
- sump clean-up - medium priority  
Soil contamination was found beneath the floor of a former restroom. NPI has removed some contaminated soil, but the issue has not been closed out. What additional decontamination is required?
- increasing total man-rem - low priority  
The latest monitoring results indicate a n increasing trend in total radiation doses being received by NPI personnel. What actions have been taken to address this?
- training - low priority  
Because of the many problems at NPI questions were raised as to the adequacy of staff training. According to the State, improvements have been made to the program. Has this issue been satisfactorily addressed?
- radiation safety audits - high priority  
The State ordered independent audits and monthly reports. NPI has been delinquent in providing monthly reports and there are questions as to the continued independence of the consultant reports.
- status of irradiators - high priority

To what extent do the contamination problems in the main pool and to the irradiators, e.g. are handling tool used in both locations? Can NPI assure that irradiated product leaving the facility is free from contamination?

#### ● OFF-SITE CONTAMINATION ISSUES

- soil contamination of dry pond area - high priority  
Runoff from the roof and courtyard etc. has contaminated a dry pond and drainage from that area offsite. Has NPI removed all of the contaminated soil required by the State, and has NPI addressed the source of the contamination?
- hot-spot contamination of nearby residences - high priority  
Contamination, possibly hot particles, have been found on adjacent residences. Has the source of the contamination been determined and has the problem been addressed?
- adequacy of effluent monitoring - high priority  
The evaluation of effluents from the hot cell have been questionable. Is the current monitoring technique adequate?
- radioactivity in routine sewage - medium priority  
The level of radioactivity in sewer discharge (e.g. from personnel shower runoff) for NPI has, as far as we know, not been determined. What surveys need to be made to determine compliance with sewer disposal limits?

#### ● POOL WATER ISSUES

- pool contamination - high priority  
There remain leaking sources in the bottom of the main pool. Should NPI be required to dispose of these sources?
- water quality - low priority  
In addition to the radioactivity, questions exist concerning the level of metal oxidizing microorganisms in the pool and other water quality concerns (pH, conductivity). Has NPI completed the modifications to the water treatment system as suggested during the NRC inspection in January 1992? What other actions need to be taken to address pool water quality?

#### ● WASTE ACCUMULATION ISSUES

- courtyard waste area - high priority  
A large volume of uncharacterized waste is currently stored in a building off the courtyard. Should NPI be required to dispose of this waste?
- proposal to cover courtyard and store additional waste - high priority  
The State wants NPI to cover the courtyard (viewed as a possible source of offsite contamination), but if NPI does cover it, they want to use it as additional waste storage area. Should NPI be allowed to store additional waste?
- accumulation of DU waste - medium priority  
Over the past two years, NPI has been accumulating DU in the form of old teletherapy units, exceeding their source material possession limit. Should NPI be required to dispose of this waste and develop procedures to assure that their possession limit is not exceeded in the future?

#### ● DECOMMISSIONING ISSUES

- ultimate decommissioning of NPI - medium priority

What are the costs involved in decommissioning NPI and how are these costs going to be addressed?

- financial assurance requirements - medium priority

What financial assurance requirement should be placed on NPI?

- bankruptcy issue - low priority

NPI is currently in Chapter 11 bankruptcy. What affect does this, or should this, have on the implementation of financial assurance requirements and the imposition of civil penalties? How does Chapter 11 status affect teletherapy service operations?