

D R A F T

August 16, 1989

CERTIFIED MAIL

Jackson A. Ransohoff, President
Neutron Products, Inc.
22301 Mt. Ephraim Road
P.O. Box 68
Dickerson, Maryland 20842

Dear Mr. Ransohoff:

As noted in the Department's letter of July 25, 1989 granting Neutron Products, Inc. (NPI) interim authority to resume hot cell operations, excluding the melting of bare cobalt, certain deficiencies must be resolved before permanent authority to operate under Condition 13, P.3 can be granted.

Below is a compliance and deficiency review of all conditions pertaining to MD-31-025-01 Amendment 33.

CONDITION A: Full Compliance

CONDITION B: Full Compliance

CONDITION C: Full Compliance

CONDITION D.1:

Provide documentation of training of Health Physics Technician and level of performance oversight by Health Physics Consultant and Radiation Safety Officer. As noted at the CRH inspection of NPI on June 29, 1989 the Health Physics Technician cannot adequately supervise exiting personnel's use of the HECM monitor.

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CONDITION E: Full Compliance

CONDITION F: Full Compliance

CONDITION G: Full Compliance

CONDITION H:

1. Submit to the agency the content of your present or proposed new employee indoctrination radiation safety training manual.
2. Give further clarification regarding remedial action anticipated for persons who are removed from authorized procedure lists subsequent to roundtable training.
3. Be more specific as to the frequency and scope of Helgeson service personnel qualification testing of portal monitor HPTs.
4. Decentralization of health physics duties between too many individuals may create difficulty in assuring proper training for all individuals and uniform techniques employed.
5. Increased numbers of individuals conducting health physics duties make Radiation Safety Officer oversight and evaluation of the program more difficult.

6. Recommend assigning of a few primary individuals for health physics duties with other individuals trained for such only upon primary personnel's unavailability.

CONDITION I:

1. What is NPI's parallel program of regular inspections and review?
2. The scope of all random inspections should include the review category of evaluating the presence of conditions or practices adversely affecting public or employee safety.
3. All random inspectors should maintain records as to scope of inspection, persons interviewed, and overall conclusions.
4. Documentation of quarterly inspector meetings should be maintained to include at least the following:
 - a) Scope of inspection
 - b) Evaluations of problems noted
 - c) Actions taken by licensee
5. The above documentation is to be made available for CRH audit.

CONDITION J:

August 9, 1989 submittal for radioactive material waste compaction is under CRH review.

CONDITION K:

1. What is NPI management's commitment towards the submitted plan of low-level radioactive waste disposal, and to what extent will the cost of radioactive waste disposal and radiation exposures to personnel affect the planned timetable?
2. Need further information as to why the addition of the radioactive waste listed in Item C and D of NPI's radioactive material waste disposal submittal does not equal the addition of radioactive waste in Item E.

CONDITION L: Full Compliance

CONDITION M:

1. What is NPI's and Mr. Potter's evaluation of the courtyard and design in reference to the following areas:
 - A. Contamination control
 - B. Ventilation requirements for the newly constructed area
2. The decision for an additional ventilation system should be made prior to construction and if needed, submitted to the agency for review.
3. Please be more specific in labelling the submitted diagram in the

following areas:

- A. End walls
 - B. Curtains
4. What are the proposed construction materials for the following:
- A. Roof
 - B. End walls
 - C. Curtains
5. Please be more specific in your prospective techniques for entrance and exit of radioactive material from the new area.
6. Please supply more specifics on your prospective use of any newly created storage areas.
7. Please submit to the CRH the final draft of construction prior to its submittal to Montgomery County.

CONDITION N:

1. Is NPI presently able to meet the Co-60 8.0 pCi/g soil concentration criteria? If not, does the company plan to use an outside consultant analysis?
2. The Department requires further information regarding the

specifics of survey instrumentation, methodologies of surveys, and methodology of soil removal of contaminated areas above the 8 pCi/g criteria. If these plans are still in development please give a specific date of completion.

3. How does NPI plan to conduct ground surveys in areas on which the radiation background from the NPI facility exceeds 10 micro R/hr above the natural background radiation levels?
4. Please submit NPI's and the CHP's best estimate as to when NPI's Environmental Survey Plan will be in full operations following CRH approval and when remedial decontamination of nearby railroad property will commence.

CONDITION 0:

1. NPI seems to have a misinterpretation of CRH recommendations and standards for facility surveys. Please telephone Mr. Raymond Manley or Mr. Carl Trump, Jr. for clarification.
2. NPI's mop water survey is unacceptable as submitted for the following reasons:
 - a) The use of scrubbers or mops within an area of possible contamination prior to survey evaluation increases the possibility of the spread of contamination.

- b) The plan result only expresses the contamination over the entire area and not the actual contamination level within a specific 100 square centimeter area of contamination.
- c) The characteristics of Co-60 in these large water samples make concentration evaluations uncertain.

CONDITION Q: Full Compliance

On June 26 - 29, 1989 Mr. Raymond E. Manley conducted an inspection of NPI's MD-31-025-01 license. The NPI July 13, 1989 compliance response is unacceptable for the items listed below. Please submit, in writing, within 10 working days of your receipt of this letter, changes within NPI procedures to ensure licensee compliance to the following:

ITEM NO. 27:

1. "Contrary to Section C.31(c) and NPI Procedure PR-0002 on June 21, 1989 a NPI employee while conducting work in the hot cell in a situation of potential face contamination and with a potential radioactive material concentration of 3×10^{-10} uCi/cc did not wear a respirator.

NPI's response is unacceptable as given. NPI was not cited for the ingestion but for failure to use an approved means of respiratory protection in a situation of potential air radioactive material concentrations of 3×10^{-10} uCi/ml or greater. The use of dust masks for protection against inhalation or ingestion will not be approved by the agency.

2. Item D.1 - The health physics technician cannot ensure the proper use of the contamination monitor on exiting personnel because of inability to be at the instrument console and see those personnel at the same time.

NPI's response is unacceptable as given. The HP technician's oversight of the proper use of the contamination monitor was cursory during its use by the CRH inspector and non-existent during its use by another NPI employee at that time.

In addition to the deficiencies noted above, and in reference to NPI's statement that its submitted implementation procedures are not to be used as regulatory limits, the Department can make the following statement. All submitted procedures involving the management of the use and control of radioactive material at NPI shall be considered binding to the license upon approval by the Department. Listed below are CRH's comments on Procedures R-1002, R-1003, R-2028, R-2029, and R-5011.

PROCEDURE R-1002, REVISION 5 (June 7, 1989):

- 4.2.1 Suggest move of item to under 4.2.2.3. The 49 [CFR 173.443(a)] refers to D.O.T. packages and not objects as here listed.
Suggested wording - "all packages shall be decontaminated to meet the criteria of D.O.T. 49 CFR 173.433(a)(b) and (c)".
- 4.2.2 Suggest placement of this item under Section 4.4.2.
- 4.4.1 Deletion of words "each non-NPI" and insertion of the word "all".

- 4.4.3.3 Insertion of phrase - "unless it has been decontaminated to 990 dpm/100 cm² or packaged to meet the criteria of 4.4.2.4".

- 4.4.6 Need clarification of sampling techniques as defined in restricted and unrestricted areas with inclusion of clearly defined decontamination thresholds.
 - 4.4.6.1 Should include the stated use of pancake surveys with specific reference to scope of use.

 - 4.4.6.6 Need frequency.

- 4.5.1 Deletion of the health physics technician from the statement.

- 5.8.1 Please specify acceptable ranges and guidelines for conductivity and pH.

- 5.8.2 Insertion "... the RSO and no operations shall be performed until remedial action has been taken".

- 6.3 Where is NPI's stated commitment of LAA air sampling every two hours during all hot cell use?

- 7.1-7.6 What is the frequency of calibration of the flow meter.

Under the heading of counting sample, the use of a GM pancake probe is noted, however, in 7.4.11 the sample is counted in the well counter. Which technique is to be used?

- 8.3.2 Deletion of 990 cpm/100 square centimeters. Insertion of 440 dpm/100 square centimeters.

PROCEDURE R-1003, REVISION 1 (June 6, 1989):

- 6.2.2 Need additional information as to scope and methodology of survey.
- 6.2.5 Numerical levels of contamination are inconsistent with those submitted in NPI Procedure R-1002.

PROCEDURE R-1012, REVISION 1 (June 8, 1989):

Acceptable as submitted.

PROCEDURE R-5011, REVISION 1 (May 25, 1989):

This procedure will not be authorized by the CRH as a backup or alternative procedure for evaluation of the hot cell ventilation.

PROCEDURE R-2028, REVISION 0 (June 14, 1989):

Acceptable as submitted.

PROCEDURE R-2029, REVISION 0 (June 14, 1989):

- 5.13 The personnel fixed contamination release threshold is still under evaluation as noted in CRH response on NPI procedure R-1011.
- 5.7 As noted by a CRH inspector on a routine inspection of the NPI facility conducted June 29, 1989 supervision of monitoring cannot be as yet conducted as stated in this part.

Within NPI's July 6, 1989 letter to the CRH certain statements were made that require CRH comment and clarification.

LICENSEE ITEM 2.1: The agency finds Mr. Potter's submittal format confirming review and approval of submitted NPI procedures to be acceptable. It is the agency's feeling that the review of all procedures dealing with the radiation safety program at NPI is one of the primary functions required of the HPC and is not trivial.

LICENSEE ITEM 2.3: Thank you for supplying the agency with the May 9, 1989 letter from the Advisory Committee on Reactor Safeguards and all comments and recommendation therein will be duly considered. However, the CRH position remains essentially along the same lines as the committee. Until the full merits of the NCRP report or interim standard is fully evaluated and published,

NPI must adhere to current established regulatory standards.

LICENSEE ITEM 3.1: Please take note that item C.1.C in the June 22, 1989 letter to NPI refers to "levels for release of fixed contamination". Levels of fixed contamination as expressed in the U.S. Nuclear Regulation Commission (USNRC) Regulatory Guide 1.86 (5,000 dpm/100 cm² average contamination and 15,000 dpm/100 cm² maximum contamination) should be used as the maximum threshold by which items other than D.O.T. packages are evaluated for release.

Within the May 26, 1989 NPI submission to the agency (Licensee Attachment 3), NPI submitted plans for addressing Mr. Potter's first report recommendations. Please submit to the Agency NPI's plan in regard to the Certified Health Physicist's (CHP) second report recommendations and comments as summarized below:

1. A radiation work permit for access to the hot equipment room.
2. Reevaluation of contamination limit thresholds within the contamination control zone.
3. A shielded pancake frisker station at the courtyard building threshold.
4. Continuance of the increased frequency of high volume air samples

within the LAA.

5. Frequent monitoring of hot cell air concentrations during operations with singly-encapsulated and bare cobalt.
6. Unrestricted area smears of 300 cm².
7. An increased number of smears in the clean room.
8. An increased number of smears in the contamination control zone.
9. Incorporation of the above smears into the daily routine and paperwork.
10. Training in reference to HPT's choosing smear sites of potential contamination.
11. Increased frequency of smears within the hot cell.
12. An automatic effluent water sampling system.
13. Modification of procedures and RWPs to require more clear RSO evaluation and planning of operations that can be anticipated to present a potential for significant internal or external exposure.
14. Restricting and posting the contaminated dry pond and adjacent area.

15. At a minimum an annual review of procedures and permits for requalification of LAA workers.
16. Strengthening procedures for accessing exposures and potential exposures during the use of respiratory protection.
17. Internal contamination evaluation methodology as described in report section C.4 item C.
18. Timely installation of electrical backup to hot cell ventilation system.

Upon receipt of NPI's responses to deficiencies of Condition 33 and other issues herein, and following agency approval of submissions, permanent authority to resume hot cell operations, excluding the melting of bare cobalt, may be granted.

If you have any questions or require additional information, please call me, Carl E. Trump, Jr., or Raymond E. Manley, at (301) 631-3300.

Sincerely,

Roland G. Fletcher, Administrator
Center for Radiological Health

RGF/REM/dps