

71-9215

## NEUTRON PRODUCTS inc

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August 12, 2009

Ms. Michelle Sampson, Sr. Project Manager  
Licensing Branch, Division of Spent Fuel Storage and Transportation  
Office of Nuclear Material Safety and Safeguards  
U. S. Nuclear Regulatory Commission  
Washington D. C. 20555-0001

Re: Request for Reconsideration

Dear Ms. Sampson:

I am writing to request that the NRC grant a one time authorization for the return shipment of Neutron Products inc ("Neutron") shipping package Certificate of Compliance USA/9215/B(U) (hereinafter referred to as "CoC 9215"), comprised of overpack serial number OP 10 and cask serial number TC 6 containing a ~ 550 Ci special form cobalt-60 teletherapy source from Botucatu, Brazil to Southwest Research Institute in San Antonio, Texas.

Reference is made:

to the damage suffered by the steel outer shell of OP 10, our removal of the overpack from service pending repair, and our recent repair and subsequent use of the repaired outer shell as part of a CoC 9215 shipping package;

to the NRC's July 13-15 inspection of Neutron's radioactive material shipping program, in the course of which the NRC concluded that the repaired outer steel shell was nonconforming because its repaired condition was not shown on the drawings of its authorizing CoC;

to Neutron's letter of July 16<sup>th</sup> which acknowledged the nonconformance and sought NRC approval to continue the use of the repaired outer steel shell as part of the shipping package for the balance of the round-trip international shipment of the new cancer therapy source (and forthcoming spent source return) then in progress;

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to your letter of July 23<sup>rd</sup>, denying that request on the basis that "...sufficient technical information to allow NRC staff to complete its detailed technical review..." had not been provided by Neutron; and,

to NRC's request of me to articulate in writing my reasons for believing that authorization from the NRC to use the package to complete the round trip shipment should be granted.

Thank you for the various courtesies of the past few weeks; and for managing your July 23 denial of our July 16 request in such a way that the Brazilian authorities were not unduly discouraged from authorizing the safe and timely completion of the outbound portion of the round trip shipment and exchange of cancer therapy sources then in progress. As a result, the source was timely delivered from the customs warehouse in Sao Paulo to the hospital in Botucatu and the scheduled exchange of sources was timely completed last week without undue risk to the public, and with substantive benefit to the health and welfare of Botucatu's radiation oncologists and their cancer patients.

Having completed the humanitarian purpose of that shipment, it is the purpose of this Request for Reconsideration, to provide the additional information we believe you need to favorably reconsider our request for the limited authority required to enable us to continue the use of the repaired outer shell for the timely and efficacious return of the CoC 9215 shipping package to its planned destination in San Antonio, TX. In San Antonio, the returned source will be removed and stored or disposed of in accordance with all applicable regulatory requirements; and the outer shell will then be removed from further use until its ultimate disposition is decided, hopefully by mutual agreement between NRC and Neutron on the merits.

### **Summary of Relevant Facts**

As you suggested, I have reviewed much of the correspondence relating to CoC 9215, including the documents on which the NRC relied in granting our initial application, and I submit that the information contained herein supports our request:

1. The 9215 packaging consists of a transfer cask ("TC") and what is collectively referred to herein as an overpack ("OP") comprising a wooden protective jacket inside an outer steel shell.
2. The TC is constructed of lead filled carbon steel and provides for shielding of direct radiation and containment of the radioactive source(s). The TC has not been modified from its CoC design specifications and is not at issue here.
3. The purpose of the OP is to protect the TC from damage under hypothetical accident conditions defined under 10CFR 71.73 thereby assuring the continued containment of

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activity without significant loss of shielding.

4. The OP is intended to act in event of an accident resembling the hypothetical conditions by a) protecting the TC from physical damage as might be encountered during the defined drop, crush, puncture, and immersion tests, and (b) to act as a heat shield to prevent the melting of lead and potential loss of shielding during the thermal test.
5. To that end, the outer steel shell improves on the protection (afforded principally by the wooden jacket) against fire and physical damage.
6. It is expected that under hypothetical accident conditions the OP would suffer major sacrificial damage, but the TC would remain functionally intact.
7. At issue here is the outer steel shell component for OP-10, which had been damaged resulting in a small gash near the bottom seam measuring approximately 4" x 1/4".
8. In effecting the repair, Neutron believed it had done so in accordance with the requirements of 10CFR Part 71, Subpart H and its Quality Assurance Program for Radioactive Transportation. Specific attention was paid to qualifying a vendor which had its own quality assurance program containing applicable elements equivalent to Subpart H.
9. The approved vendor repaired the small gash by welding a small steel patch over the damaged area, thus adding several ounces of 12 gage mild steel material, not specifically shown in drawings or specifications, to the approximately 600 pound outer steel shell.
10. The outer steel shell was not designed to be an airtight vessel. There is no gasket on the lid and the shell provides for twelve 1/2" diameter vent holes normally covered by durable weatherproof tape to keep out rainwater, and two 1/2" diameter drain holes in the bottom. In the event of a fire, the tape would burn away and allow gaseous thermal degradation products to vent preventing an undue build-up of pressure.

### **Analysis**

The overall safety of the CoC 9215 relies on many factors. First, the radioactive material is doubly encapsulated in stainless steel, comprising a special form source. Second, the source is contained in, and shielded by, the TC. Third, the TC is contained in the wooden protective jacket, which provides substantial additional containment.

At this point, the above describes a 20WC-5, which was formerly approved for use under the now sunsetted provisions of 49CFR 178.362. We know the safety features of this package to be substantial due to the extensive testing performed by Sandia National Laboratory on similar

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packages, and due to the many thousands of radioactive shipments safely made in this package over the years.

The addition of the outer steel shell in the CoC 9215 adds another layer of protection from fire and physical damage, and allows the overall package weight to increase from 4,000 # to 6,000 #. However, the outer steel shell is constructed of 12 gage steel and it was recognized that, in the event of the hypothetical accident, the shell would likely be deformed and, although it would further protect its contents, the shell itself would be sacrificial.

Thus, we submit that it is not credible that the addition of a patch of this size (several ounces) would adversely effect the integrity of the approximately 600 # outer steel shell or of the CoC 9215 as a whole.

### **Conclusion**

The authorization respectfully requested at this time is only for the completion of what we considered at the time to be a duly authorized round-trip shipment of a duly authorized shipping package which, to the best of our knowledge, is unlikely to have any functional defects for the purpose intended. The source contained in the shipping package for the return trip has less than 4% of the curies for which the package is designed and certified.

The alternative for returning the source in the same sealed shipping package which was used without adversity for the outbound shipment, would be to transfer the TC from the overpack of which the repaired outer shell is a part, to another overpack which we do not have any rational reason to believe is functionally any safer than the overpack it would replace.

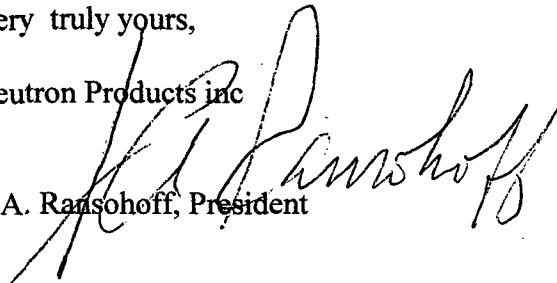
Thus, we respectfully suggest that it would needlessly harm Neutron and serve no public interest of which we are aware, for NRC to force Neutron to bear the costs, delays, administrative burdens, and property loss risks of making two otherwise unnecessary 3,000 # international shipments of good and valuable equipment.

Thank you for your consideration in this matter. If you have any questions, comments, or required additional information, please let me know.

Very truly yours,

Neutron Products inc

J. A. Ransohoff, President



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