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August 14, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC
SAFETY AND LICENSING BOARD

DOCKETED
USNRC

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In the Matter of)
)
VIRGINIA ELECTRIC AND POWER)
COMPANY)
)
(North Anna Power Station,)
Units 1 and 2)

Docket Nos. 50-338/339-OLA-1
-OLA-2

OLA-1

DOCKET NUMBER 50-338/339
PROD. & UTIL. REG.

APPLICANT'S RESPONSE TO
THE CONTENTIONS OF
CONCERNED CITIZENS OF LOUISA COUNTY

DOCKET NUMBER 50-338/339
PROD. & UTIL. REG.

OLA 2

Concerned Citizens of Louisa County (CCLC) filed its Third Draft of Contentions (Third Draft) on July 30, 1984. None of these contentions is admissible, and all but Contention 4 in OLA-1 should be denied by the Board without more. Contention 4 in OLA-1 should be treated in accordance with paragraph 4 of Section A of this Response.

A. Proceeding OLA-1

1. Contention 1

The proposed license amendment constitutes a major federal action significantly affecting the human environment, and thus may not be granted prior to the preparation of an environmental impact statement.

CCLC provides three Bases for this Contention. The first is the risk that the transportation cask to be used to ship Surry fuel to North Anna might rupture, the second is the risk of human error in cask handling and the third is the risk of sabotage

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during transportation. Each Basis addresses the environmental effects of spent fuel transportation.

The Staff, in its Environmental Assessment, specifically addressed the effects of transporting Surry spent fuel to North Anna, including the effects of potential accidents, and concluded that licensing Vepco's proposal would not significantly affect the human environment. Environmental Assessment at 29. CCLC's first two Bases for Contention 1 - cask rupture and human error - thus challenge the Staff's analysis. The Staff's analysis, however, is the correct one; indeed, it is the analysis required by law. In the Environmental Assessment, the Staff concluded:

The environmental impact of the transportation activity associated with the proposed transshipment of spent fuel from Surry to NAPS is within the scope of Table S-4 in 10 CFR 51.52 and therefore need not be addressed on a site-specific basis. At 27.

The Staff compared the parameters of Vepco's shipping proposal with the parameters of Table S-4 and found -- correctly -- that each of the former falls well within the latter. In fact, the radiological impact of Vepco's proposal is less than the effects set out under Table S-4 by a factor of 30. Id.

Section 51.52 of NRC's regulations requires that an environmental report "prepared for the construction permit stage"¹ of a

¹These proceedings, of course, do not involve the "construction permit stage" of a nuclear reactor. CCLC, however, has not argued that Table S-4 is inapplicable for that reason, nor could it have rationally done so. The Surry Power Station, which is the point of origin for the proposed shipments, was licensed before Table S-4 was promulgated. But had it been

(Footnote Continued)

nuclear reactor shall contain a statement concerning transportation of fuel and radioactive wastes to and from the reactor. The provision also requires that the statement shall indicate that the reactor and the proposed transportation either meet all of the conditions in § 51.52(a) or all of the conditions in § 51.52(b). On its face the latter applies only if the former does not. As the Staff points out in the Environmental Assessment, the Vepco proposal falls within each of the criteria of § 51.52(a), and so the Staff was required to use Table S-4. Table S-4, of course, includes consideration of potential transportation accidents.

CCLC's challenge in Contention 1, then, is nothing more than a challenge to the adequacy of Table S-4. It is an attack on the accident assumptions underlying the Table. Under 10 C.F.R. § 2.758, however, CCLC may not challenge the adequacy of Table S-4 unless it successfully demonstrates that the application of Table S-4 should be waived or an exception be made for this particular proceeding. The sole permissible ground for such a petition is that there are special circumstances with respect to the subject matter of this proceeding such that application of Table S-4 would not serve the purpose for which it was adopted.

(Footnote Continued)

licensed after January 7, 1975, transportation of spent fuel from Surry would have been assessed under Table S-4. Since the Board has questioned the adequacy of the site-specific analysis actually undertaken when Surry was licensed, and since there is no rational reason why Table S-4 should not apply in the circumstances, the Staff's decision to use it was plainly correct.

CCLC has not set out any reason why application of Table S-4 in this proceeding would not serve the purpose for which the Table was adopted. This is not surprising. It is precisely for the purpose of evaluating a proposal such as Vepco's that Table S-4 was adopted.

Nothing in CCLC's Contention 1 so much as hints at why Table S-4 should be deemed inapplicable. The only suggestion in this regard is contained in the Basis for Contention 5 in OLA-1.

There CCLC states:

Nowhere, including the environmental impact statements prepared in connection with the licensing of Surry, has the NRC Staff considered the possible effects of spent fuel shipments on Louisa County and its residents. Third Draft at 5.

In short, CCLC offers only the bald conclusion that a site-specific analysis is required. That, however, is just what Table S-4 was designed to avoid.

This is not the first time an intervenor has attempted to raise such an issue, and if this Board rejects Contention 1, as it should, it would not be the first time that has happened either. In Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), LBP-83-8B, 17 NRC 291 (1983), the applicant sought an operating license and authority to store at Catawba spent fuel from its Oconee and McGuire Stations, which were already licensed. The Oconee operating license had been issued before Table S-4 was adopted, and a site-specific environmental review of transportation effects had been performed. McGuire's spent fuel transportation had been reviewed under Table S-4.

The intervenors in Catawba sought to raise contentions that challenged the adequacy of the Staff's environmental analysis of spent fuel transshipment and attempted to sidestep Table S-4. The Board disallowed these contentions, which closely track CCLC's Contention 1.² Among other things, the intervenors argued that Table S-4 was inapplicable because it was based on shipment to a reprocessing plant, while the destination of Duke's spent fuel was Catawba. The Board found no basis for making such a distinction. Id. at 292. WASH-1238, which underlies Table S-4, supports that result. The analysis in WASH-1238 is

a general analysis of the impact on the environment from the transportation of nuclear fuel . . . to and from a light-water-cooled nuclear power reactor . . . WASH 1238 at 3.

The Commission's Statement of Considerations accompanying the rule that adopted Table S-4 indicates that although a reprocessing facility was assumed to be the destination of spent fuel, that assumption played no part in the Commission's evaluation of the Staff's analysis. 40 Fed. Reg. 1005 (January 6, 1975). The objective was to assess the environmental effects of transportation for a "typical" nuclear power reactor. Id. Simply stated, the effects of transshipment reflected in Table S-4 turn on factors other than destination.

The Board in Catawba also rejected the argument that Table S-4 was inapplicable because it contemplated only shipment to an

²As will be seen, they also track closely CCLC's Contention 5 in OLA-1.

ultimate destination while the Catawba proposal contemplated shipment for interim storage followed by shipment to an ultimate destination. It found no basis for concluding that the diversion of spent fuel to Catawba would result in appreciably greater environmental effects than shipment directly to the ultimate destination. 17 NRC at 294. CCLC has not alleged any "appreciably greater" effects attributable solely to diversion of Surry fuel for interim storage at North Anna.³

Having found Table S-4 applicable, the Board concluded that the intervenor's contentions on spent fuel transportation were "impermissible attacks on a Commission rule." Id. This is precisely how the Board in this proceeding should dispose of the first two Bases for Contention 1.

CCLC's third Basis for Contention 1 is the risk of sabotage. To be sure, effects of sabotage are not included in Table S-4. In its Statement of Considerations, the Commission said in adopting Table S-4:

[S]abotage and diversion of shipments of fuel and waste to and from reactors are not covered in the Environmental Survey and are not accounted for in the values contained in the Summary Table. The environmental effects of sabotage and diversion, therefore, are beyond the scope of the rule and are subject to appropriate separate consideration in individual reactor licensing proceedings. 40 Fed. Reg. 1007 (January 6, 1975).

³In fact, the distance from Surry to North Anna is about 180 miles. Environmental Assessment at 27. The distance from North Anna to the reprocessing site used in the WASH-1238 analysis is 300 miles. WASH-1238, Supplement 1, Table S-1 (April 1975). Thus, the combined distance is under 500 miles, which is only

(Footnote Continued)

Thus, this third Basis for Contention 1 is not barred by 10 CFR § 2.758. But it suffers from a more fundamental defect. It is not stated with reasonable specificity as required by 10 C.F.R. § 2.714(b).

A contention must include a reasonably specific articulation of its rationale - e.g., why the applicant's plans fall short of certain safety requirements, or will have a particular detrimental effect on the environment. Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), LBP-82-16, 15 NRC 566, 570 (1982).

Here is CCLC's Contention 1 statement on sabotage in its entirety:

Other environmental costs associated with the proposed license amendment include the risk of sabotage, the effects of which would be comparable to those of a serious transportation accident . . . Because of all of these risks, the proposed license amendment will give rise to significant environmental effects. Third Draft at 2.

This is hardly "specificity." CCLC has had more than a year to shape its contention on sabotage. Yet we are not told how the sabotage might be carried out, what the effects on the cask and spent fuel might be and what health effects could be expected.

Moreover, despite having the Staff's documents available, CCLC has not said what is wrong with the Staff's analysis. The Staff has concluded in its Safety Evaluation that the probability of a sabotage event is remote and that attempted sabotage, even if successful, would not produce serious radiological

(Footnote Continued)
one-half of the 1,000 mile shipment assumed for purposes of Table S-4.

consequences. Safety Evaluation at 4.4. The Staff supports its findings with work performed at Sandia National Laboratories to determine the consequences of cask rupture. CCLC has not alleged a single fact that casts doubt on the Staff's analysis. Thus, the third Basis for Contention 1, as is the case with the first two, is also an impermissible ground for admitting Contention 1.

2. Contention 2

VEPCO has not shown that the shipping casks to be used to transport Surry spent fuel to North Anna meet NRC standards.

CCLC states as its Basis for this Contention: "Compliance . . . must be shown before the license amendment can be issued." (Third Draft at 2.) In fact, compliance has been shown.

Veeco plans to use the TN-8L shipping cask for the proposed shipments. 10 C.F.R. § 71.12(a) grants a general license to the Applicant to ship spent fuel "in a package for which a . . . certificate of compliance . . . has been issued by the NRC." 10 C.F.R § 71.12(c)(1) requires that Veeco have a copy of the certificate of compliance, and § 71.12(c)(3) requires it to register with NRC, prior to the first shipment, its plans to use the cask.

All of the foregoing provisions have been complied with. Transnuclear, Inc., the owner of the TN-8L cask, has obtained a certificate of approval for the cask under Part 71. Veeco has a copy of the certificate, and a copy is attached hereto as Attachment 1. Moreover, Veeco has filed, and NRC has acknowledged, the

required registration. This registration is reflected in Attachment 2.

In short, compliance with the requirements of Part 71 has been shown. CCLC has not stated, with particularity or otherwise, any admissible basis for this Contention despite all the time it has had to investigate the cask characteristics. As the Board said in Duke Power Co (Catawba Nuclear Station, Units 1 and 2), LBP-82-16, 15 NRC 566, 570 (1982): "It is not enough . . . merely to allege that aspects of an applicant's plans will not comply with Commission regulations."

3. Contention 3

Neither VEPCO nor the NRC Staff has adequately considered the alternative of constructing a dry cask storage facility at the Surry station.

In the Applicant's Response to Questions Posed By the Licensing Board, which was filed by Vepco on April 1, 1983, in this proceeding, Vepco discussed the circumstances under which the NRC Staff must provide an analysis of alternatives. It is not necessary to repeat that discussion here, but it will be helpful to restate the important conclusions. There are two. First, § 102(2)(E) of NEPA, 42 U.S.C. § 4332(E), provides that Federal agencies shall develop and describe alternatives to recommended courses of action for any proposal "which involves unresolved conflicts concerning alternative uses of available resources." Second, it is well-established in NRC practice that, absent such an unresolved conflict, alternatives need not be analyzed in instances where the environmental effects of a proposed action are insignificant. Portland General Electric Co.

(Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 266 (1979); Duke Power Co. (Amendment to Materials License SNM-1773-Transportation of Spent Fuel from Oconee Nuclear Station for Storage at McGuire Nuclear Station), ALAB-651, 14 NRC 307, 321-22 (1981).

With respect to the first principle, the short answer is that CCLC has neither contended nor suggested in its statements of basis that this proceeding involves any unresolved conflict over use of available resources, and the Staff has found none.

As for the second principle, CCLC has attacked only in Contentions 1 and 5 in OLA-1 and Contentions 1 and 3 in OLA-2 the Staff's conclusion that no environmental impact statement is required. For reasons set out above in Section A, paragraph 1 of this Response, Contention 1 in OLA-1 is inadmissible. As will be seen from the discussions that follow, the other contentions raise the same, and only the same, arguments as Contention 1 in OLA-1 raises, and so they are inadmissible for the same reasons. Thus, CCLC is left without any valid contention challenging the Staff's conclusion that no significant environmental effects will result from Vepco's proposals. If the Staff's conclusion is not challenged by an admissible contention, it must be treated as correct. If it is correct, then no discussion of alternatives is required, and Contention 3 is inadmissible as well.

4. Contention 4

VEPCO has not shown that its physical protection system satisfies NRC regulatory requirements.

The sole basis for this contention is that "all of the information concerning such security measures has been deleted

from the available documentation on file at the NRC's public document room." Third Draft at 4.

In its application for permission to store Surry spent fuel assemblies at North Anna, Vepco stated on page 71, under the heading Physical Protection, "This page is withheld from public disclosure pursuant to 10 CFR 2.790(d)(1)."

In fact, all that appears on page 71 is a cross reference to Vepco's Spent Fuel Transportation Routing Plan (the Plan), which was filed with NRC on July 13, 1982 pursuant to 10 CFR § 73.37. The Plan was withheld from the Public Document Room initially, but in response to two Freedom of Information Act requests it was released, with one minor exception,⁴ and placed in the Public Document Room almost two years ago.

Vepco recognizes, however, that some confusion may have been caused by the withholding of page 71 of the OLA-1 Application from the Public Document Room. So Vepco provided CCLC by mail on August 3, 1984 with a copy of the Plan. CCLC has agreed that it will review the Plan and by August 14, 1984 either withdraw or modify Contention 4. CCLC has further agreed, subject to this Board's approval, that if it enlarges upon this Contention, Vepco and the Staff may have seven days from the date of service to respond.

⁴The public copy of the Plan does not show "safe havens" designated for truck use."

5. Contention 5

The Environmental Assessment prepared by the NRC Staff is inadequate in the following respects:

(a) it does not evaluate the risks of accidents (including sabotage) involving Surry-North Anna shipments;

(b) it does not evaluate the consequences of credible accidents involving Surry-North Anna shipments;

(c) it does not evaluate the alternative of constructing a dry cask storage facility at the Surry station.

Contentions 5(a) and (b), of course, suffer from the same shortcoming as Contention 1 of OLA-1. To the extent they deal with accidents, they constitute attacks on Table S-4 and are thus inadmissible under 10 CFR § 2.758. To the extent they deal with sabotage, they lack basis and specificity and do not challenge the conclusion in the Staff's Safety Evaluation that attempted sabotage would not produce serious radiological consequences. At 4-4.

Contention 5(c) is inadmissible for the same reason that Contention 3 is inadmissible. No consideration of alternatives is required, because CCLC has not posed a single admissible contention to the effect that an environmental impact statement is required here.

B. Proceeding OLA-2

1. Contentions 1, 2 and 3

These contentions are identical to Contentions 1, 3 and 5, respectively, in OLA-1 and they are inadmissible for the same reasons. They are also inadmissible for another reason.

Each of these contentions is raised in connection with OLA-2, which involves Vepco's proposal to enlarge its spent fuel

storage capacity at North Anna 1 and 2. Yet each Contention deals only with transportation of Surry fuel to North Anna. CCLC's only asserted basis for linking the two is this:

The modification of the North Anna spent fuel pool is designed to accommodate the 500 assemblies that VEPCO intends to remove from the Surry spent fuel pool. Actions that are related in this way cannot be "segmented" for purposes of the environmental review required by NEPA. Third Draft at 6.⁵

NRC case law, however, indicates that the OLA-1 and OLA-2 proposals can and should be segmented. In Duke Power Co. (Amendment to Materials License SNM-1773- Transportation of Spent Fuel from Oconee Nuclear Station for Storage at McGuire Nuclear Station), ALAB-651, 14 NRC 307 (1981), the Appeal Board stated the test for determining whether an agency's environmental review has to cover only a particular proposal or some larger plan of which the proposal is but a part. The review may be limited to the proposal alone if the proposal has "independent utility" and if authorizing the proposal would not foreclose the agency's freedom to deny other parts of a larger plan. 14 NRC at 313. The Duke proceeding involved a proposal to ship 300 spent fuel assemblies from Oconee to McGuire. The record showed that Duke planned to make additional shipments in the future, and the Board found that the Staff's environmental analysis should have covered the future shipments as well as the 300 that were the subject of the application. The Appeal Board, however, disagreed. It

⁵While it is true that an enlarged North Anna pool would accommodate Surry assemblies, it would accommodate North Anna assemblies equally well in the same spaces if no Surry fuel were sent to North Anna.

concluded that the 300 shipments would have "manifest independent utility," because they would provide a significant near-term benefit. At 315. The Appeal Board also found that authorizing the 300 shipments would not prejudice the evaluation of any future request to make additional shipments. The Appeal Board also observed in passing that reracking has "manifest independent utility." Id.

Vepco's OLA-2 proposal also has "manifest independent utility." As the OLA-2 application indicates, if no Surry fuel is shipped to North Anna, North Anna will lose full core reserve (FCR) in 1989. If the 771 additional spaces proposed in OLA-2 were provided and if no Surry fuel were shipped, loss of FCR could be extended at North Anna until 1998. Spent Fuel Storage at 4. With the adoption of the Nuclear Waste Policy Act of 1982, it is reasonably clear that an ultimate repository is unlikely to be available before 1998, and so Vepco will need the additional space that its OLA-2 proposal would provide even if no Surry fuel is ever sent to North Anna.

CCLC has not taken issue with any of these facts or stated any way in which the usefulness of the OLA-2 proposal is dependent on the approval of the OLA-1 proposal. It is hard to imagine either a clearer case of independent utility or any basis whatever for accepting CCLC's OLA-2 Contentions.

Respectfully submitted,

VIRGINIA ELECTRIC AND POWER COMPANY

By /s/Michael W. Maupin
Michael W. Maupin, Counsel

Of Counsel

Michael W. Maupin
Marcia R. Gelman

HUNTON & WILLIAMS
P. O. Box 1535
Richmond, Virginia 23212

Dated: August 14, 1984

CERTIFICATE OF SERVICE

I hereby certify that I have this day served Applicant's Response to Contentions of Concerned Citizens of Louisa County upon each of the persons named below by depositing a copy in the United States mail, properly stamped and addressed to him at the address set out with his name:

Secretary
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555
Attention: Chief Docketing and
Service Section

Sheldon J. Wolfe, Chairman
Atomic Safety and Licensing Board Panel
U. S. Nuclear Regulatory Commission
Washington, D.D. 20555

Dr. Jerry Kline
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By: /s Michael W. Maupin
Michael W. Maupin, Counsel
for Virginia Electric and
Power Company

Dated: August 14, 1984



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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APR 13 1984

Joe 5/1/84

OTHERS Biron Wickeman

cover letter only

{ T. L. Gorman - From Bidg
M. L. Smith - From Bidg

Gentlemen:

The enclosed Certificates of Compliance:

- (a) Require inerting of dry spent fuel shipments; and
- (b) Prohibit the shipment of failed spent fuel unless specifically authorized in the Certificates of Compliance.

These changes are effective immediately for one or more of the Certificates of Compliance for which you are a user under the general license provisions of 10 CFR §71.12.

Sincerely,

Charles E. MacDonald
Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NMSS

Enclosures:

- 1. Certificates of Compliance
Nos. 6698, 9001, 9010,
9015, 9016, and 9023
- 2. Approval Record
- 3. Sierra Club ltr dtd 11/07/83

cc w/encls: See next page

Identical letters sent to those on enclosed list

APR 13 1984

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Wisconsin Electric Power Company
ATTN: Mr. Sol Burstein
231 West Michigan
Milwaukee, WI 53201

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIALS PACKAGES

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. PACKAGE IDENTIFICATION NUMBER	d. PAGE NUMBER	e. TOTAL NUMBER PAGES
9015	7	USA/9015/B()F	1	5

2. PREAMBLE

- a. This certificate is issued to certify that the packaging and contents described in Item 5 below, meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

a. PREPARED BY (Name and Address):

Transnuclear, Inc.
One North Broadway
White Plains, NY 10601

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION:

Transnuclear, Inc. application dated
April 9, 1980, as supplemented.

c. DOCKET NUMBER

71-9015

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below

5.

(a) Packaging

- (1) Model Nos.: TN-8 and TN-8L
- (2) Description

Lead, steel and resin shielded irradiated fuel shipping casks. The casks approximate a right circular cylinder 1,718 mm in diameter and 5,516 mm long. The cavity consists of three (3) stainless steel square pressure vessels welded to an end plate and a circular stepped top flange, separated by a T-shaped copper plate and surrounded with B4C + Cu plates. Each cavity is 230 x 230 mm and 4,280 mm long. The main shielding consists of 135 mm of lead, 26 mm of steel and 150 mm of resin. A wet cement layer is located between the lead and the outer shell. Radial copper fins are welded to the outer shell and cover the surface of the cask between each end drum. The Model No. TN-8 has 150 rows of fins and the Model No. TN-8L has 104 rows of fins.

The lid is a welded stainless steel shell containing lead and resin shields. The pressure vessels are closed and sealed by sixteen (16), 1-1/4-inch diameter bolts and two silicone rubber or Viton O-rings located within recessed grooves on the top flange. Each extremity of the cask is surrounded by circular stainless steel drums reinforced by radial gusset plates and filled with balsa wood. A disk shaped impact limiter, constructed of carbon steel and balsa wood is fastened to each drum with four (4), 1-1/4-inch bolts. The vent and drain lines which penetrate the inner cavity are equipped with positive closures. In addition, all access ports are protected by the impact limiters.

5. (a) Packaging (continued)

(2) Description (continued)

Trunnions are used for lifting and tie-down of the package. The casks weigh approximately 36,000 kg.

(3) Drawings

The Model No. TN-8 packaging is constructed in accordance with Transnuclear Drawing No. 9317.01, Rev. J. The Model No. TN-8L is constructed in accordance with Transnuclear Drawing No. 9317.138, Rev. A. The materials of construction and welds shall be in accordance with Annex A, B, and C to Chapter II of the Application.

(b) Contents

(1) Type and form of material

Irradiated PWR uranium oxide fuel assemblies of the following specifications:

Fuel form	Clad UO ₂ Pellets
Cladding material	Zr or SS
Maximum initial U content/assembly, kg	469
Maximum average initial U-235 enrichment, w/o	3.2
Maximum bundle cross section, in	8.5
Maximum active fuel length, in	144
Minimum cooling time, day	150
Maximum weight/fuel assembly, kg	733; and

(i) Group I fuel assemblies

Initial fuel pin pressure at 100°F, psig	250
Maximum average burnup, MWD/MTU	38,500; or

(ii) Group II fuel assemblies

Maximum average burnup, MWD/MTU	36,000
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CONDITIONS (continued)

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7. Known or suspected failed fuel assemblies (rods) and fuel with cladding defects greater than pin holes and hairline cracks are not authorized.
8. Prior to each shipment, the package must meet the tests and criteria specified for each shipment (operation) in Chapter VIII of the Application, as amended May 3, 1983 (Chapter 6.0, Operations Program).
9. The package contents must be so limited that under normal conditions of transport, the total dose rates must not exceed 17 mrem/hr at one meter from the surface of the package.
10. Any system used for cooling down the package must be provided with a pressure relief device set so that the maximum pressure in the containment vessel cannot exceed 7 atmospheres during the cool-down process.
11. The systems and components of each packaging must meet the periodic tests and criteria specified in Chapter VIII of the Application. Each packaging that fails to meet these criteria must be withdrawn from service until corrective action has been completed.
12. Repair and maintenance of the packaging must be as described in Chapter VIII of the Application.
13. All valves, fittings, seals and relief devices must be of the type, size, model and manufacture as indicated on the design drawings. The resin material must be of the specifications stated in Annex A to Chapter II of the Application.
14. Prior to first use, each packaging must meet the acceptance tests and criteria specified in Chapter VIII of the Application, as amended.
15. In accordance with Annex L to Chapter VIII, at periodic intervals not to exceed two (2) years, the thermal performance of the cask must be analyzed to verify that the cask operation has not degraded below that which is licensed. Following the initial acceptance tests, the heat source may be that provided by the decay heat from the loading of the package, provided that the heat source is equal to at least 25% of the design heat load for the package. Each cask that fails to meet the thermal acceptance criteria given in Annex L of the Application must be withdrawn from service until corrective action can be completed or the license amended to limit the package to a lower heat load.
16. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.
17. Expiration date: June 30, 1985.

CONDITIONS (continued)

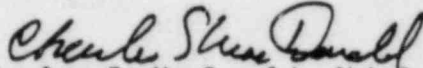
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REFERENCES

Transnuclear, Inc. application dated April 9, 1980.

Supplements dated: October 31, 1980; June 17, 1981; and May 3, and 27, 1983.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION


Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NMSS

Dated: APR 13 1984



FCTC:RHO
71-9015

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 18 1984

NOTED MAY 24 1984 J.O.E.

DISTRIBUTION LIST - NRC
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No
Response
by'd

OTHERS T.L. German FRAN:
Brian Wakeman BLDG
8

Transnuclear, Inc.
ATTN: Mr. Kurt Goldmann
One North Broadway
White Plains, NY 10601

Gentlemen:

As requested by your letter dated May 1, 1984, enclosed is Certificate of Compliance No. 9015, Revision No. 8, for the Model Nos. TN-8 series shipping packages. This certificate supersedes in its entirety Certificate of Compliance No. 9015, Revision No. 7, dated April 13, 1984.

Changes made to the enclosed certificate are indicated by vertical lines in the margin.

Virginia Electric and Power Company has been registered as a user of these packages under the general license provisions of 10 CFR §71.12 or 49 CFR §173.471.

This approval constitutes authority to use these packages for shipment of radioactive material and for the packages to be shipped in accordance with the provisions of 49 CFR §173.471.

Sincerely,

Charles E. MacDonald
Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NMSS

Enclosures:

1. Certificate of Compliance
No. 9015, Rev. No. 8
2. Approval Record

cc w/encls:

Mr. Richard R. Rawl
Department of Transportation

Virginia Electric & Power Company
ATTN: Vice President - Nuclear Operations
P.O. Box 26666
Richmond, VA 23261

5. (a) Packaging (continued)

(2) Description (continued)

Trunnions are used for lifting and tie-down of the package. The casks weigh approximately 36,000 kg.

(3) Drawings

The Model No. TN-8 packaging is constructed in accordance with Transnuclear Drawing No. 9317.01, Rev. J. The Model No. TN-8L is constructed in accordance with Transnuclear Drawing No. 9317.138, Rev. A. The materials of construction and welds shall be in accordance with Annex A, B, and C to Chapter II of the Application.

(b) Contents

(1) Type and form of material

Irradiated PWR uranium oxide fuel assemblies of the following specifications:

Fuel form	Clad UO ₂ Pellets
Cladding material	Zr or SS
Maximum initial U content/assembly, kg	469
Maximum average initial U-235 enrichment, w/o	3.2
Maximum bundle cross section, in	8.5
Maximum active fuel length, in	144
Minimum cooling time, day	150
Maximum weight/fuel assembly, kg	733; and

(i) Group I fuel assemblies

Initial fuel pin pressure at 100°F, psig	250
Maximum average burnup, MWD/MTU	38,500; or

(ii) Group II fuel assemblies

Maximum average burnup, MWD/MTU	36,000
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5. (b) Contents (continued)

(2) Maximum quantity of material per package

(i) For the contents described in Item 5(b)(1)(i):

Three (3) PWR assemblies. The maximum decay heat load is not to exceed 35.5 kilowatts per package and 12 kilowatts per assembly for the Model No. TN-8 packaging and 23.7 kilowatts per package and 7.9 kilowatts per assembly for the Model No. TN-8L packaging.

(ii) For the contents described in Item 5(b)(1)(ii):

Three (3) PWR assemblies. The maximum decay heat load and the maximum free gas volume are not to exceed the limits listed in the table below:

<u>Decay Heat per Assembly, kw (a)</u>	<u>Maximum Free Gas per Assembly, m³ (NTP) (b)</u>
0.5	0.186
1.0	0.181
3.0	0.161
5.0	0.147
7.0	0.136
9.0	0.128

Notes: (a) Decay heat load per assembly shall not exceed 7.9 kilowatts for TN-8L packaging.
 (b) NTP conditions are 25°C and one (1) bar.

- (iii) PWR assemblies may be shipped either with or without burnable poison rod, thimble plug, or control rod assemblies.
- (iv) As needed, appropriate component spacers may be used in the cask cavity to properly position the fuel assemblies.
- (v) The maximum weight of the contents (fuel assemblies, component spacers, inserts, etc.) shall not exceed 2,200 kg.

(c) Fissile Class	III
Maximum number of packages per shipment	One (1)

6. The cask cavity must be dry (no free water) when delivered to a carrier for transport. Residual moisture must be promptly removed from the cask cavity by the methods described in Annex I to Chapter VIII of the Application. The cavity must be promptly backfilled with 1.0 atm of helium, nitrogen, or argon gas.

7. Known or suspected failed fuel assemblies (rods) and fuel with cladding defects greater than pin holes and hairline cracks are not authorized.
8. Prior to each shipment, the package must meet the tests and criteria specified for each shipment (operation) in Chapter VIII of the Application, as amended May 3, 1983 (Chapter 6.0, Operations Program).
9. The package contents must be so limited that under normal conditions of transport, the total dose rates must not exceed 17 mrem/hr at one meter from the surface of the package.
10. Any system used for cooling down the package must be provided with a pressure relief device set so that the maximum pressure in the containment vessel cannot exceed 7 atmospheres during the cool-down process.
11. The systems and components of each packaging must meet the periodic tests and criteria specified in Chapter VIII of the Application. Each packaging that fails to meet these criteria must be withdrawn from service until corrective action has been completed.
12. Repair and maintenance of the packaging must be as described in Chapter VIII of the Application.
13. All valves, fittings, seals and relief devices must be of the type, size, model and manufacture as indicated on the design drawings. The resin material must be of the specifications stated in Annex A to Chapter II of the Application.
14. Prior to first use, each packaging must meet the acceptance tests and criteria specified in Chapter VIII of the Application, as amended.
15. In accordance with Annex L to Chapter VIII, at periodic intervals not to exceed two (2) years, the thermal performance of the cask must be analyzed to verify that the cask operation has not degraded below that which is licensed*. Following the initial acceptance tests, the heat source may be that provided by the decay heat from the loading of the package, provided that the heat source is equal to at least 25% of the design heat load for the package. Each cask that fails to meet the thermal acceptance criteria given in Annex L of the Application must be withdrawn from service until corrective action can be completed or the license amended to limit the package to a lower heat load.

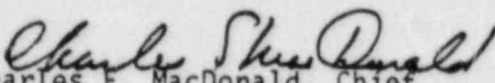
* The thermal performance test is not required at periodic intervals when the maximum decay heat load per package does not exceed 25% of the design heat load.
16. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR §71.12.
17. Expiration date: June 30, 1985.

REFERENCES

Transnuclear, Inc. application dated April 9, 1980.

Supplements dated: October 31, 1980; June 17, 1981; May 3, and 27, 1983; and May 1, 1984.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION


Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NMSS

Dated: MAY 18 1984

Transportation Certification Branch
Approval Record
Model Nos. TN-8 and TN-8L packages
Docket No. 71-9015

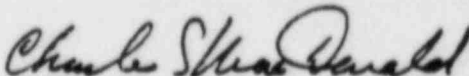
By application dated May 1, 1984, Transnuclear, Inc. requested a revision to Certification of Compliance No. 9015 regarding the performance of periodic thermal evaluation tests of the package.

The Certificate of Compliance requires at least 25% of the design heat load for the package. Each of the Model No. TN-8 series packagings procured by the applicant were thermally tested at the fabricator at heat loads of 75 percent or greater of the design heat load.

The applicant proposes that the periodic evaluation of the thermal performance not be performed when the heat load of the fuel to be transported is less than 25% of the licensed design heat load of 35.5 kw. The test shall be performed prior to the transport of fuel having a total heat load of more than 25% of the design heat load (8.8 kw) if 2 years or more have elapsed since the previous test.

The requested change to the periodic test requirements has no impact upon the containment capability, structural integrity, heat rejection capability, shielding effectiveness or criticality control of the Model No. TN-8 series packagings. It should be noted that internal cavity wall temperatures are monitored and recorded following each loading and prior to unloading of all packages. Any gross deviation from predicted temperatures will be evaluated to determine the cause.

The NRC staff agrees that for limited heat loads (25% or less of rated capacity), periodic thermal tests are not of great significance and can be deleted as a requirement.


Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle
and Material Safety, NMSS

Date: MAY 18 1984