TRANSNUCLEAR
AN AREVA COMPANY

November 16, 2012
E-33846

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Subject: Revision 5 to Transnuclear, Inc. (TN) Application for Amendment 3 to Standardized Advanced NUHOMS® Certificate of Compliance No. 1029; Response to Request for Additional Information (Docket No. 72-1029; TAC No. L24607)

Reference: Email from Steve Ruffin (NRC) to Don Shaw (TN), "CoC 1029 Amendment 3, Confinement RAI," November 1, 2012

This submittal provides responses to the Request for Additional Information (RAI), regarding Confinement, forwarded by the email referenced above. Enclosure 2 herein provides each of the RAI items, followed by a TN response. Enclosure 3 provides a list of additional changes, not associated with the RAI. Enclosure 4 lists the RAIs and additional changes, with an indication of which technical specification (TS) and/or updated final safety analysis report (UFSAR) pages were changed for that item. Enclosures 5 and 6 provide the changed TS and changed UFSAR pages, respectively. In the TS, all Amendment 3 changes continue to be tracked with italicized text and revision bars, with new inserts shaded. In the UFSAR, the pages are annotated as Revision 5, with changes indicated by italicized text and revision bars. New inserts are shaded.

Enclosure 6 of this submittal includes proprietary information, which may not be used for any purpose other than to support NRC staff review of the application. In accordance with 10 CFR 2.390, I am providing an affidavit (Enclosure 1) specifically requesting that you withhold this proprietary information from public disclosure. Enclosure 7 provides a public version of changed proprietary UFSAR pages.

Should the NRC staff require additional information to support review of this application, please do not hesitate to contact Mr. Don Shaw at 410-910-6878 or me at 410-910-6820.

Sincerely,

Paul Triska
Vice President, Operations

7135 Minstrel Way, Suite 300, Columbia, MD 21045
Phone: 410-910-6900 ♦ Fax: 410-910-6902

NMSS26
KMSS

cc: Steve Ruffin (NRC SFST) as follows:

- Four paper copies of this cover letter and Enclosures 1, 2, 3, 4, 5, and 6
- Two computer disks, each containing this cover letter and Enclosures 1, 2, 3, 4, 5, and 6

Enclosures:

1. Affidavit Pursuant to 10 CFR 2.390
2. RAIs and Responses
3. List of Additional Changes, Not Associated with the RAI
4. RAIs and Additional Changes, with Associated Changed TS and UFSAR Pages
5. CoC 1029 Amendment 3, Revision 5 Changed TS Pages
6. CoC 1029 Amendment 3, Revision 5 Changed UFSAR Pages (Proprietary Version)
7. Public Version of CoC 1029 Amendment 3, Revision 5 Changed UFSAR Proprietary Pages

AFFIDAVIT PURSUANT
TO 10 CFR 2.390

Transnuclear, Inc.)
State of Maryland) SS.
County of Howard)

I, Paul Triska, depose and say that I am a Vice President of Transnuclear, Inc., duly authorized to execute this affidavit, and have reviewed or caused to have reviewed the information which is identified as proprietary and referenced in the paragraph immediately below. I am submitting this affidavit in conformance with the provisions of 10 CFR 2.390 of the Commission's regulations for withholding this information.

The information for which proprietary treatment is sought is contained in Enclosure 6 and is listed below:

- Enclosure 6, UFSAR Drawing ANUH-01-4002 Revision 0B

These documents have been appropriately designated as proprietary.

I have personal knowledge of the criteria and procedures utilized by Transnuclear, Inc. in designating information as a trade secret, privileged or as confidential commercial or financial information.

Pursuant to the provisions of paragraph (b) (4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure, included in the above referenced document, should be withheld.

1) The information sought to be withheld from public disclosure involves portions of the safety analysis report, related to the design of dry spent fuel storage systems, which are owned and have been held in confidence by Transnuclear, Inc.

2) The information is of a type customarily held in confidence by Transnuclear, Inc. and not customarily disclosed to the public. Transnuclear, Inc. has a rational basis for determining the types of information customarily held in confidence by it.

3) Public disclosure of the information is likely to cause substantial harm to the competitive position of Transnuclear, Inc. because the information consists of descriptions of the design of dry spent fuel storage systems, the application of which provide a competitive economic advantage. The availability of such information to competitors would enable them to modify their product to better compete with Transnuclear, Inc., take marketing or other actions to improve their product's position or impair the position of Transnuclear, Inc.'s product, and avoid developing similar data and analyses in support of their processes, methods or apparatus.

Further the deponent sayeth not.

Paul Triska
Vice President, Transnuclear, Inc.

Subscribed and sworn to me before ~~this~~ 16th day of November, 2012.

Notary Public

My Commission Expires 10 / 17 / 2015

ZORA M. DOUGHERTY NOTARY PUBLIC HOWARD COUNTY, MD My Commission Expires 10-17-2015

CHAPTER 7 – CONFINEMENT EVALUATION

7-1 Clarify the helium leak testing on the vent/siphon block-to-shell weld, describe the helium leak testing method/procedure on this confinement weld in the SAR, and revise the Technical Specification (TS) to assure the helium leak testing on this confinement weld.

The applicant stated in SAR B.7.1.3 that the confinement vent and siphon block-to-shell weld located at the top of the 32PTH DSC is PT-tested in accordance with alternatives to the ASME Code, and did not mention the helium leak testing on this weld in SAR B.9.1.3. Instead of being an alternative, justification, and compensatory measures, the helium leak test is required to demonstrate confinement integrity for the confinement welds per ANSI N14.5 and ISG-25. The applicant should clarify that this confinement weld is helium leak-tested, describe the helium leak testing procedure, applied to this confinement weld, in the SAR, and revise the TS to assure the helium leak testing on this confinement weld.

This information is required by the staff to access compliance with 10 CFR 72.236(j) and (l).

RESPONSE TO RAI 7-1

The vent/siphon block is welded to the shell following installation of the basket. As shown on SAR Drawing ANUH-01-4002, Rev. 0B, the vent/siphon block is welded to the shell on 3 sides; both vertical edges and the top surface with an option (Note 29) to add weld under the block if required to stabilize the block during final welding. Following installation of the inner top cover plate and the drying and draining operations, the DSC cavity is backfilled with helium which also fills the space between the vent/siphon block and the shell with helium. During the leak testing of the inner top cover plate-to-shell weld, the vent/siphon block-to-shell weld is subjected to the same vacuum and is, therefore, included in the closure leak testing.

The text in SAR Sections B.7.1.1 and B.9.1.3 is clarified to state that the vent/siphon block-to-shell weld is included in the helium leak testing of the inner top cover plate-to-shell weld. The optional weld on the underside of the vent/siphon block is clarified on SAR drawing ANUH-01-4002, Rev 0B.

Technical Specification 4.3.4 "Alternatives to Codes and Standards" includes a table "32PTH DSC Shell Assembly Alternatives to ASME Code" which on page 4-8 under NB-6100 and NB-6200 explicitly lists the leak testing of the vent/siphon block welds.

7-2 Identify whether the weld of inner top cover plate to vent/siphon block, as shown in SAR Drawing ANUH-01-4002 (Section E-E), is the confinement weld of the 32PTH2 DSC, and delineate the helium leak testing procedure in the SAR.

The staff reviewed the SAR Drawing ANUH-01-4002 (Section E-E), and identified that beside the vent/siphon block-to-shell weld, the circumferential/longitudinal seam welds, the weld of inner bottom cover plate to shell, and the welds of vent/siphon port covers, the weld connecting the inner top cover plate and the vent/siphon block should function as the confinement weld. If identified as the confinement weld, this weld should be helium leak tested and the test procedure should be addressed in the SAR.

This information is required by the staff to access compliance with 10 CFR 72.236(j) and (l).

RESPONSE TO RAI 7-2

The weld connecting the inner top cover plate to the vent/siphon block is part of the confinement boundary and, as such, is included in the closure leak test described in SAR Section B.9.1.3, Procedure 2; this is shown on SAR Figure B.3.1-2. Diamond Note 35 is added to SAR Drawing ANUH-01-4002, Sheet 2, Section E-E to clarify further.

7-3 Clarify and add helium leak testing in all confinement components/boundaries of the 32PTH2 DSC in SAR Chapter B.7.

The applicant described, in SAR B.9.1.3, the helium leak tests during fabrication and after the 32PTH2 DSC has been loaded with fuel assemblies. The applicant should state in SAR Chapter B.7 that the entire confinement boundary will be helium leak tested during fabrication (a temporary seal plate is used) and after the duel assemblies are loaded (the inner top cover plate and the vent and siphon port cover plates have been welded in place) to demonstrate the confinement integrity of the 32PTH2 DSC. The confinement boundary should include the DSC shell, the vent and siphon block, the inner top and bottom cover plates, and the associated welds such as the circumferential and longitudinal seam welds, the vent and siphon block-to-shell weld, the weld of inner bottom cover plate to shell, the welds of vent and siphon port covers, the weld of inner top cover plate to DSC shell, and the weld of inner top cover plate to vent/siphon block (if identified as the confinement weld).

This information is required by the staff to access compliance with 10 CFR 72.236(j) and (l).

RESPONSE TO RAI 7-3

The following sentence is added to the text in SAR Section B.7.1.1, end of second paragraph:

"This test, coupled with the fabrication leak test described above, ensures that all welds and base material comprising the confinement boundary are physically leak tested to demonstrate an overall leak tight integrity of 1×10^{-7} ref cm^3/s."

7-4 Provide the details how the welds of the inner top cover plate are helium leak tested using other alternate means to meet the leak tight criteria.

The applicant stated in SAR B.7.1.1 that the welds of the inner top cover plate are tested using an optional test port in the outer top cover plate or other alternate means (e.g., a test head) to meet the leaktight criteria of 1.0×10^{-7} ref-cm^3/s. The applicant should describe in detail the test method, procedure, and accuracy for each alternate means in the SAR to assure the leaktight criteria is met.

This information is required by the staff to access compliance with 10 CFR 72.236(j) and (l).

RESPONSE TO RAI 7-4

The alternate means of demonstrating leak tightness of the confinement boundary, by use of a test head, are identical to what would be done using the outer top cover plate. The only difference is that in the unlikely event that a leak is detected the test head does not require

removal of the outer top cover plate-to-shell root pass before the leak can be identified and repaired.

The leak tight test requirements of SAR Section B.9.1.3 are clarified by adding a reference to ANSI N14.5 as the basis for each of the leak tests. This standard provides the requirements for the test methods, procedures, and accuracy in response to the question.

CHAPTER 8 – OPERATING PROCEDURE

8-1 Revise descriptions of Steps 12 and 16 under SAR B.8.1.1.2 32PTH2 DSC Fuel Loading.

The applicant described "spray the exposed portion of the TC with water" in Step 12 and "continue to spray the TC with water" in Step 16 of SAR B.8.1.1.2 "32PTH2 DSC Fuel Loading." To assure that the demin water is used for decontamination, the applicant should revise the statements as "spray the exposed portion of the TC with demin water" in Step 12 and "continue to spray the TC with demin water" in Step 16 of 32PTH2 DSC Fuel Loading

This information is required by the staff to access compliance with 10 CFR 72.234(f) and 72.236(i).

RESPONSE TO RAI 8-1

Step 12 in SAR Section B.8.1.1.2 is revised to state "spray the exposed portion of the TC with demineralized water". Step 16 in SAR Section B.8.1.1.2 is revised to state "continue to spray the TC with demineralized water."

8-2 Explain description of Step 5 of SAR B.8.1.1.3 32PTH2 DSC Drying and Backfilling.

The applicant described in Step 5 of SAR B.8.1.1.3 32PTH2 DSC Drying and Backfilling "....allow water from the annulus to drain out until the water level is approximately twelve inches below the top shell". The applicant is required to explain how the water level of 12 inches is determined for 32PTH2 DSC drying and backfilling.

This information is required by the staff to access compliance with 10 CFR 72.150 and 72.234(f).

RESPONSE TO RAI 8-2

Twelve inches is chosen based on reasonable engineering judgment that allows sufficient space to perform the required swipes to ensure that the outer surface of the DSC has not been contaminated with pool water due to an unlikely leaking annulus seal. It also serves to ensure that the water surface is far enough below the lip of the DSC shell that there is no boiling off of water that would affect the inner and outer cover plate closure welding, and far enough above the active fuel to ensure the coverage of the active fuel region.

8-3 Provide information of (a) the water amount/percentage allowed (b) the procedure to measure the water amount and (c) the time periods of both helium blowdown and water pumping operations used in the 32PTH2 DSC.

The applicant stated in Step 16(a) and (b) of SAR B.8.1.1.3 32PTH2 DSC Drying and Backfilling "using helium blowdown or water pump to remove the cavity water." The applicant should provide more information on (a) the water amount/percentage allowed in the DSC, (b) the procedure to measure the water amount in the DSC, and (c) the time

periods of helium blowdown operation and the water pumping operation to meet the water limitation in the 32PTH2 DSC.

This information is required by the staff to access compliance with 10 CFR 72.150 and 72.234(f).

RESPONSE TO RAI 8-3

Prior to the start of the bulk water removal the DSC cavity is re-filled with water to remove all air from the cavity in accordance with the caution note following Step 16.b of SAR Section B.8.1.1.3. This ensures that prior to starting the bulk water removal the cavity is full of water with no gas present. As described in Steps 16.a and 16.b of SAR Section B.8.1.1.3 the actual removal of the bulk water is accomplished by either pressurization of the water surface with helium, or by pumping and adding helium to the cavity. At the conclusion of Step 17 of SAR Section B.8.1.1.3 the quantity of water remaining within the cavity is limited to a thin film on the bottom, and on any other horizontal surfaces within the cavity. The total quantity of water within the cavity at this stage is indeterminate, but based on observations during the vacuum drying phase is estimated to be no more than five gallons and typically much less.

The typical duration for the removal of the bulk water is in the order of 90 to 120 minutes. During this period any hydrogen generated by the interaction of the water and basket materials will be dispersed within the rapidly increasing helium volume and represents a very small percentage of the total gas volume. It has been very conservatively estimated that with 500 gallons of water removed from the cavity during the closure operations for the inner top cover plate that it would take at least 12 hours for the volume of hydrogen to reach a concentration of 2.4%.

TECHNICAL SPECIFICATIONS

TS-1 Clarify or provide the time limit when using helium blowdown for the vacuum drying of the 32PTH2 DSC.

The applicant indicated in TS 3.1.1.b that there is no time limit if helium is used for blowdown for 24PT4 DSC vacuum drying, and in TS 3.1.1.c that the helium shall be used for all drainage of liquid water from the 32PTH2 DSC without mentioning the time limit for vacuum drying. To assure the proper operation of vacuum drying, the applicant should indicate "the required time limit" or "no time limit" in TS when helium is used in the vacuum drying of 32PTH2 DSC.

This information is required by the staff to access compliance with 10 CFR 72.150, 72.234(f) and 72.236(i).

RESPONSE TO RAI TS-1

An item titled "Time Limit" is added to TS 3.1.1.c and states "No time limits apply for vacuum drying of the 32PHT2 DSC."

List of Additional Changes, Not Associated with the RAI

	Additional Changes	Reason for the Change
1	The second sentence in Note (2) of Technical Specifications Table 3-5 is deleted.	The deleted sentence describes an element of the criticality analysis. This type of information is not appropriate for technical specifications. The note is retained in UFSAR Tables B.2.1-5 and B.6.6-3.
2	Editorial changes to TS page 3-7 and UFSAR pages B.7.1-1, B.7.1-2, B.9.1-2, B.9.4-1	Editorial corrections for clarification.

RAIs and Additional Changes, with Associated Changed TS and UFSAR Pages

RAI or Additional Item #	Changed TS Page	Changed UFSAR Page
7-1	None	Drawing ANUH-01-4002, B.7.1-1, B.7.1-2, B.9.1-2
7-2	None	Drawing ANUH-01-4002
7-3	None	B.7.1-2
7-4	None	B.9.1-2, B.9.4-1
8-1	None	B.8.1-4
8-2	None	None
8-3	None	None
TS-1	3-7	None
Additional Item 1	2-30	None
Additional Item 2	3-7	B.7.1-1, B.7.1-2, B.9.1-2, B.9.4-1

Enclosure 5 to TN E-33846

CoC 1029 Amendment 3, Revision 5
Changed TS Pages

Table 3–5 Maximum Planar Average Initial Enrichment versus Neutron Poison Plate Requirements for the 32PTH2 DSC (DAMAGED FUEL ASSEMBLY)

Fuel Assembly Class	Minimum Soluble Boron ppm	Maximum Planar Average Initial Enrichment[2] (wt. % U-235) as a Function of Basket Type (Neutron Poison Plate Loading)			
			Basket Type[1]		
			B	C	D
CE 16x16	2600	With CC	4.45	4.60	4.90
	2600	Without CC	4.50	4.70	5.00

Notes:

(1) The neutron poison plate loading requirements as a function of Basket Type are per Table 3-9.

(2) The maximum planar average initial enrichments are design nominal values.

3.1.1.c *32PTH2 DSC Bulkwater Removal Medium and Vacuum Drying Pressure*

LCO 3.1.1.c

Medium:

Helium shall be used for all drainage of liquid water from the 32PTH2 DSC.

Pressure:

The 32PTH2 DSC vacuum drying pressure shall be sustained at or below 3 Torr (3 mm Hg) absolute for a period of at least 30 minutes following evacuation.

Time Limit:

No time limits apply for vacuum drying of the 32PTH2 DSC.

APPLICABILITY: *32PTH2 DSC during LOADING OPERATIONS but before TRANSFER OPERATIONS.*

Enclosure 7 to TN E-33846

Public Version of
CoC 1029 Amendment 3, Revision 5
Changed UFSAR Proprietary Pages

DRAWING NO. ANUH-01-4002 SHEET 1 OF 6

PROPRIETARY AND SECURITY RELATED INFORMATION WITHHELD UNDER 10 CFR 2.390

REVISION	DESCRIPTION	DATE
0B	REVISED PER NRC RAI 7-2 AND 7-1	11/15/12
0A	FIRST ISSUE.	12/13/11

ALL DIMENSIONS ARE NOMINAL UNLESS A SPECIFIC TOLERANCE IS INDICATED WITH THE DRAWING DIMENSION

DIMENSIONS ARE IN INCHES AND DEGREES UNLESS NOTED OTHERWISE. DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH ASME Y14.5M-1994.

INTERPRET WELD SYMBOLS PER ANSI / AWS 2.4

U.S PATENT NO. 4,780,269

TRANSNUCLEAR
AN AREVA COMPANY

SAFETY ANALYSIS REPORT

NUHOMS® 32PTH2
TRANSPORTABLE CANISTER FOR
PWR FUEL MAIN ASSEMBLY

DRAWING NO.	SCALE	SHEET
ANUH-01-4002	NONE	1 OF 6

PROPRIETARY AND SECURITY
RELATED INFORMATION WITHHELD
UNDER 10 CFR 2.390

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