

**From:** Joseph Sebrosky  
**To:** Ub.chopra@transnuclear.com  
**Date:** 12/7/05 2:53PM  
**Subject:** Action: NRC comments for NUHOMS HD

UB,

Attached is the last version of the NUHOMS HD peer review comments. Items 41 through 43 are new. You should have already seen comments 1 through 40. Regarding the draft revision 4 to the SAR, there are no additional comments other than the comments that appear in this table and the fax that I had previously sent you that pointed out where the confinement boundary definitions were not consistent.

Please let me know if you have any questions.

Thanks,

Joe

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NUHOMS HD Peer Review Comments  
December 7, 2005

Table 1 - Issues for TN to Address/Correct

| Item # | Document           | Comment  | Status |
|--------|--------------------|--|--------|
| 1      | Tech Specs         | Section 2.1.b fuel types abbreviations are not consistent with other tables in the tech specs<br>a) Westinghouse 17X17 OFA Assembly abbreviated WEO 17X17 in TS 2.1.b, WE 17X17 OFA in TS Table 1, and WEOFA in TS Table 2,<br>b) Framatome 17x17 not abbreviated in section 2.1.b, Table 1 lists it a Framatome MK BW 17x17, and Table 2 abbreviates it as 17x17 MK BW                    |        |
| 2      | Tech Specs         | Table 7 does not list the Framatome 17X17 fuel assembly  |        |
| 3      | Tech Specs         | 2.1.c does not explicitly mention the Framatome 17X17 fuel assembly type   |        |
| 4      | Tech Specs         | Clarification of TS 3.1.1. Procedure A, B and C provides different time limits for completing vacuum drying. How were these time limits established (ie., what gas does it assume is in the DSC - nitrogen, helium, or vacuum)?  |        |
| 5      | Tech Specs and SAR | TS 3.1.1 mentions stepped evacuation. Stepped evacuation is not mentioned in the operating procedures in Chapter 8 of the safety analysis report (SAR). Section 8.1.1.3 step 16 discusses meeting this TS but does not mention stepped evacuation  |        |
| 6      | Tech Specs and SAR | Clarification - What is the basis for the 20 psig limit found in LCO 3.1.1 action statement A.1? Chapter 8 of the SAR appears to have different limits. For example section 8.1.1.3 steps 7 and 13 mention 60 psig maybe applied at the vent port to assist the water pump down (sic). Section 8.1.1.3 step 15 mentions 15 psig as an upper limit. Section 8.2.2 step 14 mentions 20 psig. |        |
| 7      | Tech Spec          | Typos<br>a) TS 4.5 states that "limits on the heat load of the DSC's shall .." It should be DSCs<br>b) TS 4.6.3 parameter 5 should be insolation instead of insulation   |        |

| Item # | Document      | Comment  | Status |
|--------|---------------|--|--------|
| 8      | Tech Spec     | Why is tech spec 5.2.5.b not located in the section 3 of the tech specs with a corresponding action statement?   |        |
| 9      | SAR Chapter 8 | Section 8.1.1.2 step 12 states "up to about 1300 gallons." Remove the word "about" from this sentence.   |        |
| 10     | SAR Chapter 8 | Section 8.1.1.3 step 1 states "fill the transfer cask liquid neutron shield if it was drained for weight reduction during preceding operation." There is no mention of draining the neutron shield in section 8.1.1.2  |        |
| 11     | SAR Chapter 8 | Section 8.1.1.3 step 7 states "up to 60 psig of nitrogen or helium.." Should there be a similar pressure limit in section 8.1.1.2 step 12? Also see comment 6.   |        |
| 12     | SAR Chapter 8 | Section 8.1.1.3 step 29 mentions backfilling the transfer cask with helium to TS requirement. Should this be more specific and mention the annulus and should there be a step in the process to check for gross helium leakage from the transfer cask annulus? |        |
| 13     | SAR Chapter 8 | Section 8.2.1 step 2 mention "ready the transfer cask." Does this step include filling the neutron shield? If so should this step be more explicit?  |        |
| 14     | SAR Chapter 8 | Section 8.2.2 step 9 mentions "covers the annulus." Should this step mention sealing the annulus as in Section 8.1.1.1 step 10.  |        |

| Item # | Document         | Comment  | Status |
|--------|------------------|--|--------|
| 15     | SAR<br>Chapter 8 | <p>Typos</p> <ul style="list-style-type: none"> <li>a) Introduction on page 8-1 mentions HSM-H-H, should be HSM-H</li> <li>b) Introduction on page 8-1 defines ALARA incorrectly should be reasonable instead of reasonable</li> <li>c) 8.1 title includes HSM-H-H should be HSM-H</li> <li>d) Step 7 and 13 of 8.1.1.3 mention "water pump" should be "water pump down."</li> <li>e) Step 7 of 8.1.1.3 mentions "(N.B. step 14 below)" Define N.B.</li> <li>e) step 9 of 8.1.1.3 last sentence mentions "also requires" should be "also required."</li> <li>f) Table 8-1 under other equipment and instruments in the lift yoke and lifting eyes rows mentions NUREG-0612 2 should this be NUREG-0612 rev 2 in these rows?</li> </ul> |        |
| 16     | SAR<br>Chapter 3 | Proposed SAR revision 4 page 3.9.8-19 at the top states that "the highest computed stress intensity factor, $K_I$ of 18.3 ksi in <sup>1/2</sup> ..." The value should be 24.2 consistent with the change that was made to the table on the previous page.  |        |
| 17     | TS               | NFAH is used as an abbreviation but is not defined in the tech specs   |        |
| 18     | TS               | LCO 3.1.1 procedure B (water in the TC cavity/annulus is drained when it exceeds 180F) indicates for a heat load of less than or equal to 16.0 kW there is no time limit. Procedure A (water in the TC cavity/annulus remains below 180F) indicates that there is no limit for heat loads less than 23.2kW. Please explain the basis for the kW limits because it seems procedure A indicates that the water in the annulus won't hit 180F for heat loads less than 23.2 kW.   |        |
| 19     | TS               | LCO 3.1.2 provides a helium backfill pressure of 2.5 +/- 1 psig after completion of vacuum drying. The cask is hot at this time and will most likely be cooler once its in the HSM or because decay heat goes down. As the cask cools the pressure in the DSC will go down and may result in pressure less than atmospheric. Why is this OK?   |        |

| Item # | Document             | Comment  | Status |
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| 20     | TS and SAR chapter 8 | LCO 3.1.3 has a TS for transfer cask helium during loading operations. Why isn't there a tech spec for helium during unloading operations. If a cask needs to be returned or recovered from the HSM early in its operation helium may need to be provided in the transfer cask in order to remain in an analyzed conditions. Also Chapter 8 of the SAR does not discuss transfer cask helium backfill pressure in the DSC retrieval section (Section 8.2.1). |        |
| 21     | TS                   | LCO 3.1.3 Condition B 18 hour completion time seems to exceed 12 hour thermal calculation that was performed. Why is this OK?  |        |
| 22     | TS                   | LCO 3.1.3 The note under the condition column "Not applicable until SR 3.1.3 is performed" appears to only apply to condition B and not condition A. Why does it appear before condition A?  |        |
| 23     | TS                   | TS 4.4.4 NB-4243 refers to Code Case N-595-3. Should refer to ISG-4  |        |
| 24     | TS                   | TS 4.4.4 NB-2531 mentions vent and siphon port cover. Why doesn't this also mention the shield plug weld   |        |
| 25     | TS                   | TS 4.5 allows limits on the heat load of the DSC to be established at a later time for the different heat shield material for the HSM-H. Why is it OK to defer the development of these limits?  |        |
| 26     | TS                   | Typos:<br>a) TS 4.4.4 table item NB-4243 under code requirement column should be "This welds shall" should be "These"  |        |
| 27     | TS                   | Typos:<br>a) page ii 5.2.3 Radiological Environmental monitoring Program. "M" should be capitalized in "monitoring."<br>b) page 1.4-1 second paragraph in Description states "..each of the Specifications of Section 3, Surveillance.." Should include entire definition in this sentence (i.e., Section 3.0, Limiting Condition for Operation (LCO) and Surveillance Requirement Applicability."   |        |

| Item # | Document      | Comment   | Status |
|--------|---------------|---|--------|
| 28     | TS            | TS 1.3 Completion Times - should be consistent with NUREG-1745 in that prior to listing example 1.3-1 on page 1.3-2 the following words should be inserted "The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions."  |        |
| 29     | TS            | Question - why are the completions times in example 1.3-3 higher than the standard tech specs for required action B.1 and B.2? In the standard tech spec the B.2 and B.2 completion times are 6 and 12 hours, respectively, while they are 12 and 36 hours, respectively, in the NUHOMS HD tech specs.  |        |
| 30     | TS            | References in the tech specs should be to FSAR not to the SAR (e.g., 4.1.1 and 4.2.2 reference SAR - should be FSAR)  |        |
| 31     | TS            | Question - TS 5.4 3.b and 3.c reference dose rates that are much lower than those found in other NUHOMS DSC. Is this correct or an oversight?   |        |
| 32     | TS and SAR    | Reference to ASME Code Case N-595-3 should be removed from the TS and SAR. For example TS 4.4.2, and 4.4.4 (NB-4243 row) refer to this code case. SAR section 9.1.1 also references this code case  |        |
| 33     | TS            | Helium leak testing should be added to the TS   |        |
| 34     | SAR Chapter 9 | Section 9.1.2 mentions the pressure test of 18 psig which is not consistent with Chapter 8 values. Specifically use of up to 60 psig pressures are allowed in Chapter 8 while the ASME hydro pressure is 18 psig. Also see comment #6 above   |        |
| 35     | SAR Chapter 8 | Section 8.1.1.3 step 24 mentions non-destructive examination as required by the tech specs for the vent and drain ports, however, Section 8.1.1.3 step 11, and 26 which mention non-destructive examinations for the top shield plug weld and the other top cover plate, respectively, do not mention tech specs. This appears to be inconsistent |        |
| 36     | SAR Chapter 8 | Table 8-1 does not mention the pressure test - test pump, or helium leak testing equipment  |        |

| Item # | Document                              | Comment   | Status |
|--------|---------------------------------------|---|--------|
| 37     | SAR<br>Chapter 8                      | Section 8.1.1.3 step 20 mentions suitable pipe thread sealant. Are suitable pipe thread sealants defined anywhere?  |        |
| 38     | SAR<br>Chapter 8                      | Section 8.1.1.5 step 5 should include a reference to ALARA  |        |
| 39     | SAR<br>Chapter 8                      | Section 8.1.1.5 step 14 - how is it determined or controlled when the DSC reaches the support rail stops at the back of the module?   |        |
| 40     | SAR<br>Chapter 8                      | Section 8.1.1.6 - should site boundary radiation limit periodic verifications be added to this section?   |        |
| 41     | SAR<br>Chapter 9                      | Section 9.1.1 contains the following sentence, "non-destructive examination (NDE) requirements for welds are specified on the drawings provided in Chapter 1; acceptance criteria are as specified by the governing code." Are these NDE requirements in accordance with the governing code in all cases? If not, then the NDE requirements should be captured by technical specifications. (If the NDE requirements are in accordance with the governing code they are by default captured by tech spec 4.4.2) |        |
| 42     | SAR<br>Chapter 9<br>and tech<br>specs | The staff believes that section 9.5 of the SAR should be incorporated by reference in the tech specs because this component is important to safety and is not ASME code controlled. Incorporating this section into tech specs is consistent with what was done for HI-STORM amendment 2 (see TS 3.2.8 in design features and Section 9.1.5.3 of the HI-STORM FSAR)   |        |
| 43     | TS                                    | Hydrogen monitoring during welding should be captured in the technical specification because of its importance to safety  |        |