

BSC

Criteria/Basis Change Notice

1. QA: QA
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Complete only applicable items.

3. Document Identifier: 000-3DR-MGR0-00300-000		4. Rev.: 002	5. CBCN: 010
6a. Title: <i>Basis of Design for the TAD Canister-Based Repository Design Concept</i>		6b. Safety Classification of SSC: ITS / ITWI	
7. Reason for Change: The <i>Basis of Design for the TAD Canister-Based Repository Design Concept</i> (BOD), 000-3DR-MGR0-00300-000-002, criteria 13.2.3.1.44 and 13.2.3.1.13 must be revised due to changes in the <i>Preclosure Nuclear Safety Design Bases</i> , 000-30R-MGR0-03500-000-000, Table D-1, item H.WH.HMH.08 and Table B-1, item H.IH.HTC.04, respectively. This CBCN addresses the changes made in 000-30R-MGR0-03500-000-000 (ACN 01) and (ACN 02). There are no technical impacts to this change.			
8. Supersedes Change Notice:		<input type="checkbox"/> Yes If, Yes, Change Notice: _____ <input checked="" type="checkbox"/> No	
9. Disciplines/Organizations Affected by this Change:			
Nuclear Facilities Project Engr <i>DA 4/6/08</i>	Preclosure Safety Analysis Manager <i>T. Dunn 4/6/08</i> <i>for D. Beckman</i>	Mechanical Discipline Engr. Manager <i>Sgt 4-6-08</i> <i>BR 4/6/08</i>	
		If 6b is ITS/ITWI: Quality Assurance: Quality Assurance <i>SA 4/06/08</i>	
10. Description of Change: The changes are in bold and strike-through. Revise the criteria as follows: 13.2.3.1.13 Canister Transfer Machines The canister transfer machines shall be designed to (a) protect against drop, (b) limit drop height, (c) protect against a drop of a load onto a canister, (d) protect against a spurious movement, (e) limit speed, (f) preclude non-flat bottom drop of a DPC, TAD, or naval SNF canister, (g) protect against direct exposure to personnel, (h) maintain moderator control, (i) preclude canister breach, (k) maintain DOE SNF canister separation in the CRCFs, (l) protect against collapse of the CTM, and (m) protect against a canister or heavy object drop from the CTM (safety functions). <ul style="list-style-type: none"> • The mean probability of dropping a canister from below the two-block height due to the failure of a piece of equipment within the load-bearing shall be less than or equal to: <ul style="list-style-type: none"> -- 1.0×10^{-05} per transfer for each CTM in the Receipt Facility, WHF, and CRCFs -- 2.0×10^{-04} per transfer for each CTM in the IHF. • The mean probability of a drop of a canister from the two-block height due to the failure of any piece of equipment in the load-bearing path shall be less than or equal to 3.0×10^{-08} per lift for the CTM for the CRCFs and WHF, IHF, and the Receipt Facility. • The two-block height drop shall not exceed 45 feet from the bottom of a canister to the floor of the cask or aging overpack or waste package cavity in the Receipt Facility, WHF, and CRCFs and 40 feet in the IHF. • The mean probability of dropping a load onto a canister shall be less than or equal to: <ul style="list-style-type: none"> -- 1.0×10^{-05} per transfer by CTM in the Receipt Facility, CRCFs, and WHF, and -- 1.0×10^{-05} per transfer by the CTM for the IHF. • The mean probability of spurious movement of the CTM while the canister is being lifted or lowered shall be less than or equal to: <ul style="list-style-type: none"> -- 7.0×10^{-09} per lift for each CTM in the CRCFs, IHF and WHF and -- 5.0×10^{-09} per lift for each CTM in the Receipt Facility. • Closure of the CTM slide gate shall be incapable of breaching a canister. • The CTM shall preclude non-flat bottom drop of naval SNF canisters, DPCs, or TADs 			

(13.2.3.1.13 continued)

- The mean probability of inadvertent radiation streaming resulting from the inadvertent opening of the CTM slide gate, the inadvertent raising of the CTM shield skirt, or an inadvertent motion of the CTM away from an open port shall be less than or equal to:
 - 9.0×10^{-05} per transfer in the CRCFs and the WHF
 - 1.0×10^{-04} per transfer in the IHF
 - 1.0×10^{-06} per transfer in the Receipt Facility.
- The speed of the CTM trolley and bridge shall be limited to 20 fpm.
- The mean frequency of collapse of the CTM due to the spectrum of a seismic events shall be less than or equal to 1.0×10^{-05} /yr.
- The mean frequency of a hoist system failure of the CTM due to spectrum of seismic events shall be less than or equal to 2.0×10^{-05} /yr.
- The mean probability of inadvertent introduction of an oil moderator into a canister in the WHF, and the CRCFs shall be less than or equal to 9.0×10^{-05} over a 720-hour period following breach of a canister.
- The mean conditional probability of inadvertent placement of more than four DOE standardized canisters in a TAD waste package, TAD staging rack, or AO shall be less than or equal to 3.0×10^{-06} in the CRCFs.
- The mean frequency of drop by the CTM of the naval SNF canister resulting in breach of the canister shall be less than or equal to 2×10^{-05} over the preclosure period.

[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix B, Table B-1, Items H.IH.HTC.01 through 12 for the IHF; Appendix E, Table E-1, Items H.RF.HTC.02 through 12 for the Receipt Facility; Appendix C, Table C-1, Items H.CR.HTC.01 through 13 for the CRCFs; and Appendix D, Table D-1, Items H.WH.HTC.01 through 12 for the WHF. Some of the interlocks identified for the CTM may be satisfied from the slide gates in Chapter 4. CBCN005, and CBCN009 and CBCN010 to Revision 002 provided this change.]



13.2.3.1.44 Cask Support Frames

The cask support frames at ~~WHF Preparation Station #2, TAD Closure Station, DPC Cutting Station,~~ shall be designed to protect against tipover of a cask (safety function).

- The mean frequency of failure of the **WHF Preparation Station #2** cask support frame and anchorages due to the spectrum of seismic events shall be less than or equal to ~~6.0~~ 1.0×10^{-05} /yr.
- **The mean frequency of failure of the TAD Closure Station and DPC Cutting Station cask support frames and anchorages due to the spectrum of seismic events shall be less than or equal to 6.0×10^{-05} /yr.**
- The mean frequency of a cask drop due to a failure of the truck cask handling frame due to the spectrum of seismic events shall be less than or equal to 2.0×10^{-05} /yr.

[Preclosure NSDB (BSC 2008 [DIRS 184200]), ~~Appendix E, Table E-1, Item H.RF.HMC.02;~~ and Appendix D, Table D-1, Items H.WH.HMH.08, H.WH.HC.04, ~~and H.WH.HD.04,~~ and H.WH.HTF.07 for the WHF. CBCN005, and CBCN009, and CBCN010 to Revision 002 provided this change.]

11. REVIEWS AND APPROVAL

Printed Name	Title	Signature	Date
11a. Preparer: William Biehl	Discipline Engineering Manager		4/04/03
11b. Concurrence: Richard Foster	Manager of Discipline Engineering	per telecom Blusinko for Foster	4/6/08
11c. Concurrence: N/A	Project Engineering Manager	N/A	N/A
11d. Approved: Barbara Rusinko	Engineering Manager		4/6/08