

Complete only applicable items.

3. Document Identifier: 000-3DR-MGR0-00300-000	ENG.20080307.0009	4. Rev.: 002	5. CBCN: 002
6a. Title: <i>Basis of Design for the TAD Canister-Based Repository Design Concept</i>		6b. Safety Classification of SSC: ITS / Non-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, Criteria must be changed to represent the SSC classification changes in the <i>Preclosure Nuclear Safety Design Bases</i> , 000-30R-MGR0-03500-000-000. These changes are the result of finalizing the NSDB criteria and have been received from PCSA via email in advance of the NSDB signoff copy. Although the NSDB document is not signed off yet, the BOD carried a TBV until the NSDB document is signed off. Specific classification changes include:  <ul style="list-style-type: none"> <li>- a slight modification to the text for the cask transfer trailer for transportation casks in Section 10.1.2,</li> <li>- a slight modification to the text for CRCF TEV rails and CRCF shield windows as non-ITS in Section 4.1.2,</li> <li>- a change in the nomenclature of the DOE standardized canister in Section 11.1.2,</li> <li>- a slight change in the ITS power distribution in Section 16.1.2,</li> <li>- a modification to the fire protection system classification in Section 18.1.2,</li> <li>- a slight modification to the text for IHF TEV rails and removal of confinement doors in Section 3.1.2,</li> <li>- changed the platform shield plate and the W74 upper basket lifting device in the WHF to non-ITS in Section 13.1.2,</li> <li>- changed the staging rack fire barriers to thermal barriers in Section 13.1.2.1,</li> <li>- eliminated equipment confinement doors from the Receipt Facility ITS list in Section 6.1.2,</li> <li>- eliminated the ITS portions of the Surface Confinement HVAC System in the Receipt Facility in Section 19.1.2, and</li> <li>- added a clarification on cask cooling overpressure components in Section 29.1.2.</li> </ul> The classification of the Electrical System in the Receipt Facility does not require change – the reclassification of the Surface Nuclear Confinement HVAC System is sufficient to cover the electrical changes. Rationale statements were added.  Impacts of this change include revising Receipt Facility design products including Surface Confinement HVAC System and the Electrical System, ITS Power Subsystem. Although the NSDB criteria are not being changed on this CBCN, the classification is being updated.			
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 Engineer <i>3/7/08</i>	Electrical/ISC Discipline Engineering Manager <i>3/7/08</i>	Mechanical Discipline Engineering Manager <i>3/7/08</i>	
Civil/Structural/Architectural Discipline Engineering Manager <i>3/7/08</i>	PreClosure Safety Analysis Manager <i>3/7/08</i>		LNS Document Review <i>3/7/08</i>
Nuclear & Radiological Discipline Engineering Manager <i>3/7/08</i>	ESH Review Coordinator <i>3/7/08</i>		
If 6b is ITS/ITWI: Quality Assurance Quality Assurance <i>3/7/08</i>			
10. Description of Change: Revise the following criteria as follows:  <b>3.1.2 System Classification</b> The IHF has been classified as ITS because there are Category 2 events that could occur in the IHF and features of the facility to prevent, reduce the frequency, or mitigate consequences. The structure is ITS because it reduces the frequency of building collapse which maintains the waste form container integrity and maintains personnel shielding. Rails for the TEV (inside the <b>Waste Package Loadout Room</b> building), rails for the waste package transfer trolley, shield doors (including anchorages), <del>confinement doors</del> , cask port slide gate, waste package port slide gate, and cask preparation platform are ITS.  Rails for the commercial railcars (inside the building), ALARA shielding features, IHF loadout platforms, and waste package transfer carriage docking station are non-ITS. The IHF does not include SSCs that are ITWI.  [Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the classification of the system SSCs and Appendix B, Table B-1 provides the functions.]			

### 4.1.2 System Classification

The CRCFs have been classified as ITS because there are Category 2 events sequences that could occur in the CRCFs and features of the facility to prevent, reduce the frequency, or mitigate event sequences. The structures are ITS because they maintain the waste form container integrity, building confinement integrity, and personnel shielding. Rails for the TEV (inside the **Waste Package Loadout Room building**), rails for the waste ~~package~~ **package** transfer trolley, shield doors (including anchorages), **equipment** confinement doors, DOE canister slide gates, cask port slide gates, TAD slide gates, waste package port slide gates, and cask preparation platform are ITS.

Rails for the commercial railcars (inside the buildings), **shield windows**, ALARA shielding features, CRCF loadout platforms, and waste package transfer carriage docking stations are non-ITS. The CRCFs do not include SSCs that are ITWI.

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the classification of the system SSCs and Appendix D, Table D-1 provides the functions.]*

### 6.1.2 System Classification

The Receipt Facility has been classified as ITS because there are Category 2 event sequences that could occur in the Receipt Facility and there are features of the facility to prevent, reduce the frequency of, or mitigate event sequences. The structure is ITS because it maintains the waste form container integrity, building confinement integrity, and personnel shielding. The shield doors (including anchorages), ~~confinement doors~~, cask port slide gate, aging overpack port slide gate, cask preparation platform and lid bolting room platform are ITS.

The rails for railcars and ALARA shielding features are non-ITS. The Receipt Facility does not include SSCs that are ITWI.

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the classification for the system SSCs and Appendix C, Table C-1 provides the functions. Although not explicit in the NSDB tables for the Receipt Facility, the changes to the Surface Nuclear Confinement HVAC System for the Receipt Facility as identified in Section 19.1.2 result in reclassification of the Surface Nuclear Confinement HVAC System equipment and the supporting portions of the Electrical Power System as non-ITS.]*

### 10.1.2 System Classification

The Aging Facility has been classified as ITS because there are event sequences at the Aging Facility that rely on features of the facility to prevent, reduce the frequency of, or mitigate the consequences such that these event sequences are categorized as beyond Category 2. The aging pad, horizontal aging module, cask tractor (for use with the cask transfer trailer), cask transfer trailers (for use with **transportation casks and** horizontal shielded transfer casks), site transporter, horizontal shielded transfer cask (for use with horizontal aging modules), and the aging overpack are ITS to maintain waste form container integrity and personnel shielding. The Aging Facility support structures (including utility buildings, if applicable), mobile platform, and mobile cranes are non-ITS. The Aging Facility does not include SSCs that are ITWI.

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the classification of the SSCs. Classification of the system is based on the inclusion of ITS SSCs within the system. Although the specific text in reference to event sequences at the Aging Facility is no longer included in the classification section of the Preclosure NSDB, it is still applicable to the facility.]*

### 11.1.2 System Classification

The DOE and commercial waste package system has been classified as ITS because there are Category 2 event sequences that rely on the waste package for radionuclide containment. The **DOE** standardized ~~DOE SNF~~ canisters, HLW canisters, TAD canisters, and DPCs are ITS. The waste packages are ITWI.

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the classification for the system and Q-List (BSC 2008 [DIRS 180109]) for ITWI SSCs.]*

**13.1.2.1 Components Classified as ITS**

The mechanical handling system has been classified as ITS. The following mechanical handling system equipment is ITS:

**Cask Handling**

- Transportation cask
- Site prime mover
- Cask handling yokes in the IHF, CRCFs, WHF, and Receipt Facility
- Pool cask handling yoke and pool yoke lift adapter in the WHF
- Cask handling crane(s) in the IHF, CRCFs, WHF, and Receipt Facility
- Cask transfer trolleys and pedestals in the IHF, CRCFs, WHF, and Receipt Facility
- Naval cask pedestal in the IHF
- Cask preparation crane in the IHF

**Cask Handling/Cask Receipt**

- Entrance vestibule crane in the WHF
- Lid bolting room crane in the Receipt Facility
- Naval cask lift bail and naval cask lift plate in the IHF
- Horizontal lifting beam in the Receipt Facility

**Cask Handling/Cask Preparation**

- Auxiliary pool crane in the WHF
- Preparation station jib cranes (1 and 2) in the WHF
- Cask support frame (preparation station #2) in the WHF
- Cask lid lifting grapples in the CRCFs and Receipt Facility
- Lid lifting grapples in the WHF
- Truck cask lid lifting grapples in the WHF
- Truck cask lid adapters in the WHF
- Rail cask lid adapters in the WHF, CRCFs, IHF and Receipt Facility
- Long reach grapple adapter in the WHF
- DPC lid adapters in the CRCFs, WHF and Receipt Facility

**Cask Handling/Waste Package Preparation**

- Waste package handling crane in the IHF and CRCFs

**Waste Transfer/Fuel Assembly Transfer**

- Spent fuel transfer machine in the WHF
- Lifting grapples (BWR and PWR) in WHF
- ~~W74 upper basket lifting device in the WHF~~
- SNF staging racks in the WHF

**Waste Transfer/Canister Transfer**

- Truck cask handling frame in the WHF
- Canister transfer machine maintenance crane in the Receipt Facility
- Canister transfer machine in the IHF, CRCFs, WHF, and Receipt Facility
- Canister grapples in the IHF and CRCFs
- Canister transfer machine grapples in the IHF, CRCFs, WHF, and Receipt Facility
- Naval canister lifting adapter in the IHF
- DOE waste package inner lid grapple in the IHF
- Naval waste package inner lid grapple in the IHF
- TAD canister staging racks (and fire thermal barrier) in the CRCFs
- DOE canister staging racks (and fire thermal barrier) in the CRCFs
- DPC and TAD shielded transfer casks

**Waste Package Closure**

- Remote handling system bridge included as part of IHF and CRCFs

**TAD Closure**

- TAD closure jib crane in the WHF
- Cask support frame (TAD closure station) in the WHF

**Waste Package Loadout**

- Waste package shield rings in the IHF and CRCFs
- Waste package transfer trolley (including pedestals, seismic rail restraints, and rails) in the IHF and CRCFs

**DPC Cutting**

- DPC cutting jib crane in the WHF
- Cask support frame (DPC cutting station) in the WHF

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the ITS classification of the system and Appendix D, Table D-1 provides the functions. MGR-RD [DIRS 177491], Sections 3.1.2.G and 3.1.2.H provide specific direction that the naval canisters and the M-290 cask system will only be handled in the IHF (not CRCFs).]*

**13.1.2.2 Components Classified as Non-ITS**

The following mechanical handling system equipment have been classified as non-ITS. The mechanical handling system does not include SSCs that are ITWI.

**Cask Handling**

- Platform shield plate in the **WHF**, CRCFs and Receipt Facility
- Decontamination pit equipment - spray nozzle in the WHF
- Decontamination pit equipment - pump module **in the WHF**
- Long reach tool adapter in the WHF
- Horizontal cask stand in the Receipt Facility
- Mobile lift in the WHF, CRCFs and Receipt Facility

**Cask Handling/Cask Receipt**

- Cask tilting frame in the WHF, CRCFs and Receipt Facility
- Mobile access platform in the IHF, WHF, CRCFs and Receipt Facility
- Impact limiter and personnel barrier lifting devices in the IHF, WHF, CRCFs and Receipt Facility

**Cask Handling/Cask Preparation**

- Truck cask lid adapters in the IHF and CRCFs
- Cask lid bolt impact wrench in the Receipt Facility
- Cask shield ring in the WHF

**Cask Handling/Waste Package Preparation**

- Waste package pallet yoke in the IHF and CRCFs

**Waste Transfer/Canister Transfer/Assembly Transfer**

- Canister transfer machine maintenance crane in the IHF, WHF, and CRCFs
- **W74 upper basket lifting device in the WHF**

**Waste Package Closure**

- Robotic arms in the IHF and CRCFs
- Portions of remote handling system that do not include the bridge, included as part of the IHF and CRCFs
- Remote handling system manipulator arm in the IHF and CRCFs
- Lid handling tool in the IHF and CRCFs
- Waste package closure room crane in the IHF and CRCFs
- Closure support room cranes in the CRCFs
- Process opening cover in the IHF and CRCFs

**TAD Closure**

- TAD canister welding machine in the WHF

**Waste Package Loadout**

- Waste package shield ring lift beam in the IHF and CRCFs
- Waste package transfer carriage in the IHF and CRCFs

**DPC Cutting**

- DPC cutting machine in the WHF
- Siphon tube shear tool in the WHF
- DPC lid receptacle in the WHF
- DPC adaptor plate types 1, 2, and 3 in the WHF
- DPC shield plug adapter in the WHF

In addition, the cask handling/cask restoration system and remediation system (**in the WHF**) are non-ITS.

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the non-ITS classification of the system SSCs Appendix D, Table D-1 provides the functions. MGR-RD [DIRS 177491], Sections 3.1.2.G and 3.1.2.H provide specific direction that the naval canisters and the M-290 cask system will only be handled in the IHF (not CRCFs).]*

### 16.1.2 System Classification

The ITS diesel generators A and B, including ITS diesel generator fuel oil system, ITS diesel generator air start system, ITS diesel generator jacket water cooling system, ITS diesel generator lubricating oil system, ITS diesel generator air intake and exhaust system has been classified as ITS. The ITS power **distribution** (feeders up to and including ITS loads, ITS direct current power, and ITS UPS power) has been classified as ITS.

The switchyard and standby power, emergency power (life safety), normal power, normal direct current electrical power, normal UPS power, site electrical distribution (for normal power), renewable energy, and standby diesel generators are non-ITS. The electrical power system does not include SSCs that are ITWI.

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the classification for the system and Appendix F, Table F-1 provides the functions. The 'Emergency' designations for the electrical system was changed to ITS and emergency power (life safety) added in accordance with Repository System Codes (BSC 2007 [DIRS 184183]). Although not explicit in the NSDB tables for the Receipt Facility, the changes to the Surface Nuclear Confinement HVAC System for the Receipt Facility as identified in Section 19.1.2 result in reclassification of the Surface Nuclear Confinement HVAC System equipment and the supporting portions of the Electrical Power System in the Receipt Facility as non-ITS.]*

### 18.1.2 System Classification

The ~~double interlock~~ preaction valves, sprinkler heads, and system actuation panels associated with double-interlock preaction suppression systems for fire suppression **in that protect areas where nuclear materials are handled there is a potential for canister breach (in the CRCF and WHF)** have been classified as ITS. The fire detection system for the ~~double interlock~~ ITS preaction valves with associated detectors and control box **(in the CRCFs and WHF)** are classified as ITS.

The fire suppression system components other than those associated with double-interlock preaction suppression systems for fire suppression **in that protect areas where nuclear materials are handled there is a potential for canister breach (in the CRCFs and WHF)** are non-ITS. The fire detection system or all other systems except the double-interlock preaction valve with associated detectors and control box are non-ITS. The fire water, fire barriers, explosion protection, and fire alarm are non-ITS. The fire protection system does not include SSCs that are ITWI.

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the classification of the system and Appendix D, Table D-1 for the functions. TMRB-2007-038 (BSC 2007 [DIRS 182184]), Preaction Double Interlock Fire Suppression.]*

### 19.1.2 System Classification

The surface nuclear confinement HVAC system has been classified as ITS. The portions of the surface nuclear confinement HVAC system that are ITS, are those ~~systems~~ **portions in the WHF and CRCFs** that exhaust from areas with a potential for a breach and the systems that support the cooling of ITS electrical and battery rooms.

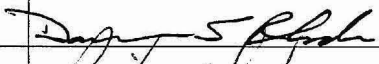
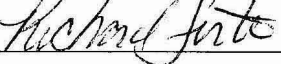
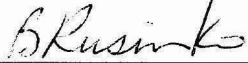
The portions of the surface nuclear confinement HVAC system that are non-ITS, are those ~~systems~~ **portions** that do not exhaust from areas with a potential for a breach or do not support the cooling of ITS electrical equipment and battery rooms, including SSCs that supply ITS ~~tertiary~~ confinement areas ~~and non-ITS tertiary confinement areas~~. The surface nuclear confinement HVAC system does not include SSCs that are ITWI.

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the classification for the system. Although not explicit in the NSDB tables, the Surface Nuclear Confinement HVAC System components in the Receipt Facility were reclassified as non-ITS. This also affects the supporting Electrical Power System equipment in the Receipt Facility.]*

### 29.1.2 System Classification

The cask/canister/waste package process system has been classified as ITS. The cask cooling subsystem, **cask/DPC overpressure protection features** in the WHF are ITS. The cask cavity gas sampling; **the cask cooling subsystem components other than cask/DPC overpressure protection features in the WHF**; cask, canister, and waste package inerting; decontamination water treatment; waste package survey; waste package decontamination; and TAD canister drying are non-ITS. The cask/canister/waste package process system does not include SSCs that are ITWI.

*[Preclosure NSDB (BSC 2008 [DIRS 184200]), Appendix A, Table A-1 specifically provides the classification of the system.]*

11. REVIEWS AND APPROVAL			
Printed Name	Title	Signature	Date
11a. Preparer: David S. Rhodes	Discipline Engineering Manager		3-7-08
11b. Concurrence: Richard Foster	Manager of Discipline Engineering		3-7-08
11c. Concurrence: N/A	Project Engineering Manager	N/A	N/A
11d. Approved: Barbara Rusinko	Engineering Manager		3/7/08