

# Calculation/Analysis Change Notice

1. QA: ~~NA~~ QA *PTC*  
 2. Page 1 of 11 *6/17/08*

Complete only applicable items.

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6. Title:  
ITS SSC/Non-ITS SSC Interactions Analysis

7. Reason for Change:  
Correct editorial and transcriptions errors. Added clarification statement to the "Notes" section in Tables B-1 through G-1.

8. Supersedes Change Notice:  Yes If, Yes, CACN No.: \_\_\_\_\_  No

9. Change Impact:

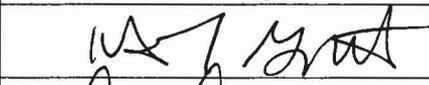
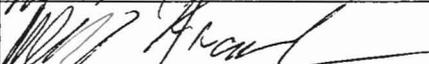
Inputs Changed:  Yes  No Results Impacted:  Yes  No

Assumptions Changed:  Yes  No Design Impacted:  Yes  No

10. Description of Change:

- Page 18; Section 6.1: The acronym "CRCF" is incorrectly identified as the acronym for the "Cask Receipt and Closure Facility" instead of the "Canister Receipt and Closure Facility".
- Page C-15; Table C-1: 7th column, 2nd row: the entry "None Identified" was mistakenly omitted.
- Page C-15; Table C-1: columns 4 through 7, 3rd and 4th row: this row is missing a line separating the 3rd row and the 4th row
- Page F-6; Table F-1: 7th column, 5th row: the entry "None Identified" was mistakenly omitted.
- Page F-7; Table F-1: 3rd column, 2nd row: the entry incorrectly mentions "electrical and controls equipment" instead of "electrical equipment and battery rooms".
- Page G-7; Table G-1: 7th column, 4th row: the entry incorrectly mentions the "waste package emplacement gantry" instead of the "drip shield emplacement gantry".
- "Notes" Section on Pages B-26, C-31, D-38, E-18, F-7, and G-9 edited to add phrase: "None Identified" in Column 7 (Operating Procedures) indicates that at this time corrective measures were not judged to be necessary to reduce the frequency of occurrence of the identified interaction between the ITS SSC and non-ITS SSC.

**11. REVIEWS AND APPROVAL**

Printed Name	Signature	Date
11a. Originator: R.J. Garrett		6-17-08
11b. Checker: P.T. Le		6/17/08
11c. EGS: M.V. Frank		6/17/08
11d. DEM: M.V. Frank		6/17/08
11e. Design Authority: B.E. Rusinko <i>R.C. SLOVIC</i>		17 JUNE 2008

## 6. BODY OF CALCULATION

### 6.1 Compilation of Applicable ITS and Non-ITS SSCs

To implement the interaction analysis methodology presented in Section 4.4, an examination of the functions of the repository ITS and non-ITS SSCs is required. Ref. 2.2.10 through Ref. 2.2.15 were used as the primary input to this analysis for a description of each facility/operational area under review, including the Initial Handling Facility (IHF), Canister Receipt and Closure Facility (CRCF), Wet Handling Facility (WHF), Receipt Facility (RF), Subsurface Operations, and Intra-site Operations, respectively. The attachments to each of these references provide a description of each facility/operational area, the equipment found in each area, as well as a description of the operations that occur in these areas. Ref. 2.2.1 and Ref. 2.2.16 through Ref. 2.2.21 provide an identification of the repository ITS SSCs and their safety functions (in addition to their nuclear safety design bases). Ref. 2.2.2 through Ref. 2.2.9 were used for the purposes of identifying the room numbers in the surface facilities where potential interactions between the ITS SSCs and non-ITS SSCs could occur (as applicable).

### 6.2 Identification of ITS SSC and Non-ITS SSC Interactions

Tables B-1 through G-1 present the interaction analyses for the IHF, CRCF, WHF, RF, Intra-site Operations, and Subsurface Operations, respectively. The content of these tables is based on the list of ITS and non-ITS SSCs presented in Table A-1, facility layout sketches (Ref. 2.2.2 through Ref. 2.2.9), the descriptions of the facilities/operations areas presented in Ref. 2.2.10 through Ref. 2.2.15, and the methodology presented in Section 4. This information is sorted by the following information:

- System or facility
- Subsystem (as applicable)
- ITS SSC
- Non-ITS SSC that could potentially interact with the ITS SSC
- Location of the interaction
- Type of interaction
- Operating procedures, if needed.

Table B-1. ITS SSC/Non-ITS SSC Interactions for the IHF ITS SSCs (continued)

System or Facility	Subsystem (as Applicable)	ITS SSC	Non-ITS SSC	Location of Interaction	Type of Interaction	Operating Procedures
Naval SNF Waste Package System (continued)	Naval SNF Waste Package (continued)	Entire (continued)	Waste Package Shield Ring Lift Beam (51A-HL00-BEAM-00001)	Room 2004	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
			Waste Package Transfer Carriage (51A-HL00-TRLY-00002)	Rooms 1005, 1006, 1007	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
			Waste Package Transfer Carriage Docking Stations (51A-HL00-75-00001)	Room 1005	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
	Naval SNF Canister	Naval SNF Canister	None Identified	N/A	N/A	N/A

NOTE: DOE = U.S. Department of Energy; HLW = high-level radioactive waste; IHF = Initial Handling Facility; ITS = important to safety; N/A = not applicable; SNF = spent nuclear fuel; SSC = structure, system, or component; SSCs = structures, systems, and components; TEV = transport and emplacement vehicle.

"None Identified" in Column 7 (Operating Procedures) indicates that at this time corrective measures were not judged to be necessary to reduce the frequency of occurrence of the identified interaction between the ITS SSC and non-ITS SSC.

Table C-1. ITS SSC/Non-ITS SSC Interactions for the CRCF ITS SSCs (continued)

System or Facility	Subsystem (as Applicable)	ITS SSC	Non-ITS SSC	Location of Interaction	Type of Interaction	Operating Procedures
<b>Electrical Power System</b>	ITS Power	ITS Distribution (ITS equipment and feeders up to and including ITS Loads, ITS Direct Current Power, ITS Uninterruptible Power Supply Power)	Digital control and management information system	Throughout the CRCF; Outside of CRCF	Functional dependence— automatic control of this SSC	None Identified
			Digital Control & Management Information System	Throughout CRCF; Outside of CRCF	Human Dependence – human interface with this SSC for monitoring	None Identified
<b>Emplacement and Retrieval and Drip Shield Installation (HE)</b>	Emplacement and Retrieval and Drip Shield Installation	Transport and Emplacement Vehicle (TEV)	Electrical Power System – Switchyard and Standby Power, Normal Power, Emergency Power (Life Safety), Normal Direct Current Electrical Power, Normal Uninterruptible Power Supply Power, Site Electrical Distribution, Renewable Energy, Standby Diesel Generator	Room 1005	Functional Dependence – power to energize system	None Identified
			Electrical Support System – Cable Raceway	Room 1015	Functional Dependence – carries power to energize system	None Identified

Table C-1. ITS SSC/Non-ITS SSC Interactions for the CRCF ITS SSCs (continued)

System or Facility	Subsystem (as Applicable)	ITS SSC	Non-ITS SSC	Location of Interaction	Type of Interaction	Operating Procedures
Surface Nuclear Confinement HVAC System	Surface Nuclear Confinement HVAC	Portions of the surface nuclear confinement HVAC system that exhaust from areas with a potential for a breach	Digital Control & Management Information System	Various locations in CRCF	Functional Dependence – interface with control system provided with the SSC for control of this SSC	None Identified
			Digital Control & Management Information System	Various locations in CRCF	Human Dependence – human interface with this SSC	None Identified
			Surface Nuclear-Confinement HVAC System – Non-ITS Supply Subsystems Serving ITS Secondary Confinement Areas	Various locations in CRCF (C-3 Areas including Rooms 1017, 1021, 1022, 1025, 1026, 1023, 1024, 1018, 1019)	Spatial Dependence – Not-ITS SSC in proximity to ITS SSC	None Identified
		Portions of the surface nuclear confinement HVAC system that support the cooling of ITS electrical and controls equipment	Digital Control & Management Information System	Various locations in CRCF	Functional Dependence – interface with control system provided with the SSC for control of this SSC	None Identified
			Digital Control & Management Information System	Various locations in CRCF	Human Dependence – human interface with this SSC	None Identified

NOTE: CRCF = Canister Receipt and Closure Facility; CTM = canister transfer machine; DOE = U.S. Department of Energy; DPC = dual-purpose canister; HLW = high-level radioactive waste; HVAC = heating, ventilation, and air-conditioning; ITS = important to safety; N/A = not applicable; RF = Receipt Facility; SNF = spent nuclear fuel; SSC = structure, system, or component; SSCs = structures, systems, and components; TAD = transportation, aging, and disposal; TEV = transport and emplacement vehicle.

"None Identified" in Column 7 (Operating Procedures) indicates that at this time corrective measures were not judged to be necessary to reduce the frequency of occurrence of the identified interaction between the ITS SSC and non-ITS SSC.

Table D-1. ITS SSC/Non-ITS Interactions for the WHF ITS SSCs (continued)

System or Facility	Subsystem (as Applicable)	ITS SSC	Non-ITS SSC	Location of Interaction	Type of Interaction	Operating Procedures
Wet Handling Facility (continued)	Wet Handling Facility (WHF) (continued)	Decontamination Pit, Decontamination Pit Seismic Restraints (050-HM00-BRAC-00001) (continued)	Decontamination Pit Cover (050-HM00-HTCH-00001)	Room 1016; Decontamination Pit P002	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified

NOTE: BWR = boiling water reactor; CRCF = Canister Receipt and Closure Facility; DOE = U.S. Department of Energy; DPC = dual-purpose canister; HVAC = heating, ventilation, and air-conditioning; ITS = important to safety; N/A = not applicable; PWR = pressurized water reactor; RC = rail cask; RF = Receipt Facility; SNF = spent nuclear fuel; SSC = structure, system, or component; SSCs = structures, systems, and components; STC = shielded transfer cask; TAD = transportation, aging, and disposal; TC = truck cask; WHF = Wet Handling Facility.

“None Identified” in Column 7 (Operating Procedures) indicates that at this time corrective measures were not judged to be necessary to reduce the frequency of occurrence of the identified interaction between the ITS SSC and non-ITS SSC.

Table E-1. ITS SSC/Non-ITS SSC Interactions for the RF ITS SSCs (continued)

System or Facility	Subsystem (as Applicable)	ITS SSC	Non-ITS SSC	Location of Interaction	Type of Interaction	Operating Procedures
Receipt Facility (continued)	Receipt Facility (continued)	Lid Bolting Room Platform (200-HMC0-PLAT-00003)	Electrical Power System – Switchyard and Standby Power, Normal Power, Emergency Power (Life Safety), Normal Direct Current Electrical Power, Normal Uninterruptible Power Supply Power, Site Electrical Distribution, Renewable Energy, Standby Diesel Generator	Throughout RF	Functional Dependence – power to energize motors, etc.	None Identified
			Electrical Support System – Cable Raceway	Throughout RF	Functional Dependence – carries power to energize motors, etc.	None Identified

NOTE: AO = aging overpack; BWR = boiling water reactor; CTM = canister transfer machine; DOE = U.S. Department of Energy; DPC = dual-purpose canister; IHF = Initial Handling Facility; ITS = important to safety; N/A = not applicable; PWR = pressurized water reactor; RF = Receipt Facility; SSC = structure, system, or component; SSCs = structures, systems, and components; TAD = transport, aging, and disposal.

“None Identified” in Column 7 (Operating Procedures) indicates that at this time corrective measures were not judged to be necessary to reduce the frequency of occurrence of the identified interaction between the ITS SSC and non-ITS SSC.

Table F-1. ITS SSC/Non-ITS SSC Interactions for the Intra-Site Operations ITS SSCs (continued)

System or Facility	Subsystem (as Applicable)	ITS SSC	Non-ITS SSC	Location of Interaction	Type of Interaction	Operating Procedures
<b>Electrical Power System</b>	ITS Power	ITS Distribution (ITS equipment and feeders up to and including ITS loads, ITS direct current power, ITS uninterruptible power supply power)	Digital Control and Management Information System	Throughout the site	Human dependence—human interface with this SSC for monitoring	None Identified.
		ITS Diesel Generators A and B	Electrical Support System – Cable Raceway	Emergency Diesel Generator Facility (EDGF); throughout the site	Functional Dependence – carries power	None Identified.
			Digital Control and Management Information System	EDGF; throughout the site	Functional dependence—interface with control system provided with the SSC for control of this SSC	None Identified.
			Digital Control and Management Information System	EDGF; throughout the site	Human dependence – human control of/ interface with this SSC	None Identified.
			EDGF Structure	EDGF	Spatial dependence—non-ITS SSC in proximity to ITS SSC	None Identified.
<b>Mechanical Handling System</b>	Cask Handling	Transportation cask	None Identified.	N/A	N/A	N/A

Table F-1. ITS SSC/Non-ITS SSC Interactions for the Intra-Site Operations ITS SSCs (continued)

System or Facility	Subsystem (as Applicable)	ITS SSC	Non-ITS SSC	Location of Interaction	Type of Interaction	Operating Procedures
<b>Mechanical Handling System (continued)</b>	Cask Handling (continued)	Site Prime Mover	N/A (Operator)	Balance of Plant (Buffer Areas, rails and roadways leading to the IHF, RF, CRCF, and WHF)	Human Dependence – human interface with/control of this SSC	N/A (This dependence is accounted for in the preclosure safety event sequence analysis [Refs. 2.2.15 and 2.2.21]).
<b>Surface Non-Confinement HVAC System</b>	Surface Non-Confinement HVAC	Portions of the surface non-confinement HVAC system that support the cooling of ITS electrical equipment and battery rooms (EDGF)	Digital Control & Management Information System	EDGF; throughout the site	Functional Dependence – interface with control system provided with the SSC for control of this SSC	None Identified.
			Digital Control & Management Information System	EDGF; throughout the site	Human Dependence – human control of/interface with this SSC	None Identified.
<b>Naval SNF Waste Package System</b>	Naval SNF	Naval SNF Canister	None Identified.	N/A	N/A	N/A

NOTE: BWR = boiling water reactor; CRCF = Canister Receipt and Closure Facility; DOE = U.S. Department of Energy; DPC = dual-purpose canister; EDGF = Emergency Diesel Generator Facility; HAM = horizontal aging module; HLW = high-level radioactive waste; HSTC = horizontal shielded transfer cask; HVAC = heating, ventilation, and air-conditioning; IHF = Initial Handling Facility; ITS = important to safety; N/A = not applicable; PWR = pressurized water reactor; RF = Receipt Facility; SNF = spent nuclear fuel; SSC = structure, system, or component; SSCs = structures, systems, and components; TAD = transport, aging, and disposal canister; WHF = Wet Handling Facility.

“None Identified” in Column 7 (Operating Procedures) indicates that at this time corrective measures were not judged to be necessary to reduce the frequency of occurrence of the identified interaction between the ITS SSC and non-ITS SSC.

Table G-1. ITS SSC/Non-ITS SSC Interactions for the Subsurface Operations ITS SSCs (continued)

System or Facility	Subsystem (as Applicable)	ITS SSC	Non-ITS SSC	Location of Interaction	Type of Interaction	Operating Procedures
<b>Emplacement and Retrieval System/Drip Shield Installation System (continued)</b>	Emplacement and Retrieval/Drip Shield Installation System (continued)	Transport and Emplacement Vehicle (TEV) (continued)	Emplacement Drift Invert (Steel and Ballast)	Subsurface Facility	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
			Waste Package Emplacement Pallet	Subsurface Facility	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
			Drip Shield	Subsurface Facility	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
			Drip Shield Emplacement Gantry	Subsurface Facility	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	The drip shield emplacement gantry shall be located out of proximity of a TEV carrying a filled and sealed waste package.
			Inspection Gantry	Subsurface Facility	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	The inspection gantry shall be located out of proximity of a TEV carrying a filled and sealed waste package.

Table G-1. ITS SSC/Non-ITS SSC Interactions for the Subsurface Operations ITS SSCs (continued)

System or Facility	Subsystem (as Applicable)	ITS SSC	Non-ITS SSC	Location of Interaction	Type of Interaction	Operating Procedures
Naval SNF Waste Package System (continued)	Naval SNF Waste Package (continued)	Naval SNF Waste Package (continued)	Waste Package Emplacement Pallet	Subsurface Facility	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
			Drip Shield	Subsurface Facility	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
			Drip Shield Emplacement Gantry	Subsurface Facility	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
			Inspection Gantry	Subsurface Facility	Spatial Dependence – Non-ITS SSC in proximity to ITS SSC	None Identified
			Subsurface Ventilation	Subsurface Facility	Environmental Dependence—maintain environment; provide cooling to SNF	None Identified

NOTE: DOE = U.S. Department of Energy; ITS = important to safety; SNF = spent nuclear fuel; SSC = structure, system, or component; SSCs = structures, systems, and components; TEV = transport and emplacement vehicle.

“None Identified” in Column 7 (Operating Procedures) indicates that at this time corrective measures were not judged to be necessary to reduce the frequency of occurrence of the identified interaction between the ITS SSC and non-ITS SSC.