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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD14-DPC	3-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD14-DPC-TIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD15-DPC	2-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a collision involving a side impact to a TC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD15-PREP-SIMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	1.02E-08	6.39E-09	1.21E-08	DE-SHIELD-DEGRADE
WHF-ESD15-DPC	2-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, and the canister remains intact.	ESD15-PREP-SIMPACT, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD15-DPC	2-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD15-PREP-SIMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	1.02E-08	6.39E-09	1.21E-08	RR-FILTERED
WHF-ESD15-DPC	2-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD15-PREP-SIMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.07E-12	4.61E-13	2.07E-12	RR-FILTERED-ITC
WHF-ESD15-DPC	2-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD15-PREP-SIMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	3.50E-10	1.03E-10	9.13E-10	RR-UNFILTERED
WHF-ESD15-DPC	2-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD15-PREP-SIMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.13E-14	0.00E+00	1.28E-13	RR-UNFILTERED-ITC
WHF-ESD15-DPC	3-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask remains intact, and the shielding fails.	ESD15-PREP-DROPON, /CASK-DROP, SHIELD- CASK-DROP	2.22E-07	2.20E-07	2.98E-08	DE-SHIELD-DEGRADE
WHF-ESD15-DPC	3-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and the canister remains intact.	ESD15-PREP-DROPON, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD15-DPC	3-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD15-PREP-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	2.22E-07	2.20E-07	2.98E-08	RR-FILTERED
WHF-ESD15-DPC	3-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD15-PREP-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	2.34E-11	1.53E-11	2.74E-11	RR-FILTERED-ITC
WHF-ESD15-DPC	3-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD15-PREP-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	7.80E-09	3.58E-09	1.34E-08	RR-UNFILTERED
WHF-ESD15-DPC	3-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD15-PREP-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	8.27E-13	2.69E-13	2.41E-12	RR-UNFILTERED-ITC
WHF-ESD15-DPC	4-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD15-PREP-DROP, /CASK-DROP, SHIELD- CASK-DROP	9.06E-08	7.85E-09	5.57E-07	DE-SHIELD-DEGRADE
WHF-ESD15-DPC	4-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and the canister remains intact.	ESD15-PREP-DROP, CASK-DROP, /CANISTER- FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD15-DPC	4-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD15-PREP-DROP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, /MODERATOR	9.06E-08	7.85E-09	5.57E-07	RR-FILTERED
WHF-ESD15-DPC	4-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionucilde release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD15-PREP-DROP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, MODERATOR	1.43E-11	5.38E-13	1.89E-10	RR-FILTERED-ITC

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD15-DPC	4-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD15-PREP-DROP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, /MODERATOR	3.38E-09	1.25E-10	2.97E-08	RR-UNFILTERED
WHF-ESD15-DPC	4-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD15-PREP-DROP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, MODERATOR	4.60E-13	0.00E+00	9.27E-12	RR-UNFILTERED-ITC
WHF-ESD15-DPC	5-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD15-PREP-TWOBLOCK, /CASK-TWOBLOCK, SHIELD-CASK-DROP	1.44E-09	5.02E-10	3.40E-09	DE-SHIELD-DEGRADE
WHF-ESD15-DPC	5-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask fails, and the canister remains intact.	ESD15-PREP-TWOBLOCK, CASK-TWOBLOCK, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD15-DPC	5-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD15-PREP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	1.44E-09	5.02E-10	3.40E-09	RR-FILTERED
WHF-ESD15-DPC	5-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionucilde release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD15-PREP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.69E-13	3.84E-14	9.77E-13	RR-FILTERED-ITC
WHF-ESD15-DPC	5-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD15-PREP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, /MODERATOR	5.04E-11	8.03E-12	2.12E-10	RR-UNFILTERED
WHF-ESD15-DPC	5-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD15-PREP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.81E-15	0.00E+00	3.87E-14	RR-UNFILTERED-ITC
WHF-ESD15-DPC	6-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD15-PREP-TIP, /CASK-DROP, SHIELD-CASK- DROP	3.30E-07	1.29E-07	6.95E-07	DE-SHIELD-DEGRADE

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD15-DPC	6-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the transportation cask fails, and the canister remains intact.	ESD15-PREP-TIP, CASK-DROP, /CANISTER- FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD15-DPC	6-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD15-PREP-TIP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, /MODERATOR	3.30E-07	1.29E-07	6.95E-07	RR-FILTERED
WHF-ESD15-DPC	6-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD15-PREP-TIP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, MODERATOR	3.51E-11	9.14E-12	9.94E-11	RR-FILTERED-ITC
WHF-ESD15-DPC	6-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD15-PREP-TIP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, /MODERATOR	1.15E-08	2.08E-09	4.44E-08	RR-UNFILTERED
WHF-ESD15-DPC	6-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD15-PREP-TIP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, MODERATOR	1.16E-12	1.54E-13	5.82E-12	RR-UNFILTERED-ITC
WHF-ESD16-CSNF	2-1	This sequence represents a structural challenge to a CSNF resulting in a filtered radionuclide release due to an impact to a cask valve. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD16-PREP-VALVEIMP, /HVAC-PREP, /MODERATOR-SAMPLING	2.42E-09	2.40E-09	3.25E-10	RR-FILTERED
WHF-ESD16-CSNF	2-2	This sequence represents a structural challenge to a CSNF resulting in a filtered radionuclide release also important to criticality due to an impact to a cask valve. In this sequence the confinement boundary remains intact, and a moderator enters canister.	ESD16-PREP-VALVEIMP, /HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD16-CSNF	2-3	This sequence represents a structural challenge to a CSNF resulting in an unfiltered radionuclide release due to an impact to a cask valve. In this sequence the confinement boundary fails, and a moderator is excluded from entering canister.	ESD16-PREP-VALVEIMP, HVAC-PREP, /MODERATOR-SAMPLING	2.41E-12	1.26E-12	3.19E-12	RR-UNFILTERED
WHF-ESD16-CSNF	2-4	This sequence represents a structural challenge to a CSNF resulting in an unfiltered radionuclide release also important to criticality due to an impact to a cask valve. In this sequence the confinement boundary fails, and a moderator enters canister.	ESD16-PREP-VALVEIMP, HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD16-CSNF	3-1	This sequence represents a structural challenge to a CSNF resulting in a filtered radionuclide release due to a break of the cask sample line. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD16-PREP-SAMPLE, /HVAC-PREP, /MODERATOR-SAMPLING	7.49E-02	4.03E-02	2.29E-01	RR-FILTERED

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD16-CSNF	3-2	This sequence represents a structural challenge to a CSNF resulting in a filtered radionuclide release also important to criticality due to a break of the cask sample line. In this sequence the confinement boundary remains intact, and a moderator enters canister.	ESD16-PREP-SAMPLE, /HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD16-CSNF	3-3	This sequence represents a structural challenge to a CSNF resulting in an unfiltered radionuclide release due to a break of the cask sample line. In this sequence the confinement boundary fails, and a moderator is excluded from entering canister.	ESD16-PREP-SAMPLE, HVAC-PREP, /MODERATOR-SAMPLING	7.05E-05	2.45E-05	2.70E-04	RR-UNFILTERED
WHF-ESD16-CSNF	3-4	This sequence represents a structural challenge to a CSNF resulting in an unfiltered radionuclide release also important to criticality due to a break of the cask sample line. In this sequence the confinement boundary fails, and a moderator enters canister.	ESD16-PREP-SAMPLE, HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD16-CSNF	4-1	This sequence represents a structural challenge to a CSNF resulting in a filtered radionuclide release due to an overpressure of the cask during cooling. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD16-PREP-OVERPRESSURE, /HVAC-PREP, /MODERATOR-SAMPLING	2.94E-02	2.83E-03	1.92E-01	RR-FILTERED
WHF-ESD16-CSNF	4-2	This sequence represents a structural challenge to a CSNF resulting in a filtered radionuclide release also important to criticality due to an overpressure of the cask during cooling. In this sequence the confinement boundary remains intact, and a moderator enters canister.	ESD16-PREP-OVERPRESSURE, /HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD16-CSNF	4-3	This sequence represents a structural challenge to a CSNF resulting in an unfiltered radionuclide release due to an overpressure of the cask during cooling. In this sequence the confinement boundary fails, and a moderator is excluded from entering canister.	ESD16-PREP-OVERPRESSURE, HVAC-PREP, /MODERATOR-SAMPLING	2.87E-05	1.69E-06	2.93E-04	RR-UNFILTERED
WHF-ESD16-CSNF	4-4	This sequence represents a structural challenge to a CSNF resulting in an unfiltered radionuclide release also important to criticality due to an overpressure of the cask during cooling. In this sequence the confinement boundary fails, and a moderator enters canister.	ESD16-PREP-OVERPRESSURE, HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD17-DPC	2-1	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to an impact to a cask valve. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD17-PREP-VALVEIMP, /HVAC-PREP, /MODERATOR-SAMPLING	4.43E-10	4.41E-10	5.96E-11	RR-FILTERED
WHF-ESD17-DPC	2-2	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an impact to a cask valve. In this sequence the confinement boundary remains intact, and a moderator enters canister.	ESD17-PREP-VALVEIMP, /HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD17-DPC	2-3	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to an impact to a cask valve. In this sequence the confinement boundary fails, and a moderator is excluded from entering canister.	ESD17-PREP-VALVEIMP, HVAC-PREP, /MODERATOR-SAMPLING	4.41E-13	2.69E-13	5.84E-13	RR-UNFILTERED
WHF-ESD17-DPC	2-4	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to an impact to a cask valve. In this sequence the confinement boundary fails, and a moderator enters canister.	ESD17-PREP-VALVEIMP, HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD17-DPC	3-1	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a break of the cask sample line. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD17-PREP-SAMPLE, /HVAC-PREP, /MODERATOR-SAMPLING	6.87E-03	3.70E-03	2.10E-02	RR-FILTERED
WHF-ESD17-DPC	3-2	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a break of the cask sample line. In this sequence the confinement boundary remains intact, and a moderator enters canister.	ESD17-PREP-SAMPLE, /HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD17-DPC	3-3	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a break of the cask sample line. In this sequence the confinement boundary fails, and a moderator is excluded from entering canister.	ESD17-PREP-SAMPLE, HVAC-PREP, /MODERATOR-SAMPLING	6.46E-06	2.25E-06	2.48E-05	RR-UNFILTERED
WHF-ESD17-DPC	3-4	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a break of the cask sample line. In this sequence the confinement boundary fails, and a moderator enters canister.	ESD17-PREP-SAMPLE, HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD17-DPC	4-1	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to an overpressure of the cask during cooling. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD17-PREP-OVERPRESSURE, /HVAC-PREP, /MODERATOR-SAMPLING	2.70E-03	2.59E-04	1.76E-02	RR-FILTERED
WHF-ESD17-DPC	4-2	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an overpressure of the cask during cooling. In this sequence the confinement boundary remains intact, and a moderator enters canister.	ESD17-PREP-OVERPRESSURE, /HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD17-DPC	4-3	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to an overpressure of the cask during cooling. In this sequence the confinement boundary fails, and a moderator is excluded from entering canister.	ESD17-PREP-OVERPRESSURE, HVAC-PREP, /MODERATOR-SAMPLING	2.63E-06	1.55E-07	2.68E-05	RR-UNFILTERED
WHF-ESD17-DPC	4-4	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to an overpressure of the cask during cooling. In this sequence the confinement boundary fails, and a moderator enters canister.	ESD17-PREP-OVERPRESSURE, HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD18-DPC	2-1	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD18-DPC-DROPON, /HVAC-PREP, /MODERATOR-SAMPLING	2.22E-02	2.20E-02	2.98E-03	RR-FILTERED
WHF-ESD18-DPC	2-2	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the confinement boundary remains intact, and a moderator enters canister.	ESD18-DPC-DROPON, /HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD18-DPC	2-3	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the confinement boundary fails, and a moderator is excluded from entering canister.	ESD18-DPC-DROPON, HVAC-PREP, /MODERATOR-SAMPLING	2.20E-05	1.29E-05	2.92E-05	RR-UNFILTERED
WHF-ESD18-DPC	2-4	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the confinement boundary fails, and a moderator enters canister.	ESD18-DPC-DROPON, HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD19-DPC	02-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to an impact to an STC. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD19-POOL-IMPACT, CASK-IMPACT, /BORON	4.07E-09	2.56E-09	4.84E-09	RR-GAS-UNFILTERED
WHF-ESD19-DPC	02-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to an impact to an STC. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD19-POOL-IMPACT, CASK-IMPACT, BORON	6.95E-16	0.00E+00	5.29E-15	RR-GAS-UNFILTERED-ITC
WHF-ESD19-DPC	03-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a an unfiltered gaseous radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD19-POOL-DROPON, CASK-DROP, /BORON	0.00E+00	0.00E+00	0.00E+00	RR-GAS-UNFILTERED
WHF-ESD19-DPC	03-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD19-POOL-DROPON, CASK-DROP, BORON	0.00E+00	0.00E+00	0.00E+00	RR-GAS-UNFILTERED-ITC
WHF-ESD19-DPC	04-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD19-POOL-DROP, CASK-DROP, /BORON	3.62E-08	3.14E-09	2.23E-07	RR-GAS-UNFILTERED
WHF-ESD19-DPC	04-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD19-POOL-DROP, CASK-DROP, BORON	3.40E-14	0.00E+00	2.23E-13	RR-GAS-UNFILTERED-ITC
WHF-ESD 19-DPC	05-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD19-POOL-TWOBLOCK, CASK-FAIL, /BORON	5.78E-05	2.01E-05	1.36E-04	RR-GAS-UNFILTERED

050-PSA-WH00-00200-000-00B

Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD19-DPC	05-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD19-POOL-TWOBLOCK, CASK-FAIL, BORON	5.78E-11	2.01E-11	1.36E-10	RR-GAS-UNFILTERED-ITC
WHF-ESD19-DPC	06-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a cask tipover. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD19-POOL-TIP, CASK-DROP, /BORON	4.07E-06	2.56E-06	4.84E-06	RR-GAS-UNFILTERED
WHF-ESD19-DPC	06-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD19-POOL-TIP, CASK-DROP, BORON	4.07E-12	2.57E-12	4.84E-12	RR-GAS-UNFILTERED-ITC
WHF-ESD19-DPC	07-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to an impact to an STC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD19-FLOOR-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	6.10E-09	3.84E-09	7.26E-09	DE-SHIELD-DEGRADE
WHF-ESD19-DPC	07-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact to an STC. In this sequence the transportation cask fails, and the canister remains intact.	ESD19-FLOOR-IMPACT, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD19-DPC	07-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact to an STC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD19-FLOOR-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	6.10E-09	3.84E-09	7.26E-09	RR-FILTERED
WHF-ESD19-DPC	07-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact to an STC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD19-FLOOR-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	6.62E-13	2.69E-13	1.86E-12	RR-FILTERED-ITC
WHF-ESD19-DPC	07-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact to an STC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD19-FLOOR-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	2.10E-10	6.19E-11	5.48E-10	RR-UNFILTERED
WHF-ESD19-DPC	07-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact to an STC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD19-FLOOR-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.83E-14	0.00E+00	8.97E-14	RR-UNFILTERED-ITC
WHF-ESD19-DPC	08-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask remains intact, and the shielding fails.	ESD19-FLOOR-DROPON, /CASK-DROP, SHIELD-CASK-DROP	2.22E-07	2.20E-07	2.93E-08	DE-SHIELD-DEGRADE

050-PSA-WH00-00200-000-00B

Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD19-DPC	08-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and the canister remains intact.	ESD19-FLOOR-DROPON, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD19-DPC	08-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD19-FLOOR-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	2.22E-07	2.20E-07	2.93E-08	RR-FILTERED
WHF-ESD19-DPC	08-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD19-FLOOR-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	2.34E-11	1.53E-11	2.74E-11	RR-FILTERED-ITC
WHF-ESD19-DPC	08-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD19-FLOOR-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	7.80E-09	3.58E-09	1.34E-08	RR-UNFILTERED
WHF-ESD19-DPC	08-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD19-FLOOR-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	8.27E-13	2.69E-13	2.41E-12	RR-UNFILTERED-ITC
WHF-ESD19-DPC	09-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD19-FLOOR-DROP, /CASK-DROP, SHIELD- CASK-DROP	5.43E-08	4.71E-09	3.34E-07	DE-SHIELD-DEGRADE
WHF-ESD19-DPC	09-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and the canister remains intact.	ESD19-FLOOR-DROP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD19-DPC	09-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD19-FLOOR-DROP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, /MODERATOR	5.43E-08	4.71E-09	3.34E-07	RR-FILTERED
WHF-ESD19-DPC	09-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD19-FLOOR-DROP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, MODERATOR	8.61E-12	3.07E-13	1.14E-10	RR-FILTERED-ITC

050-PSA-WH00-00200-000-00B

Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD19-DPC	09-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD19-FLOOR-DROP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, /MODERATOR	2.03E-09	7.48E-11	1.78E-08	RR-UNFILTERED
WHF-ESD19-DPC	09-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD19-FLOOR-DROP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, MODERATOR	2.75E-13	0.00E+00	5.57E-12	RR-UNFILTERED-ITC
WHF-ESD19-DPC	10-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD19-FLOOR-TWOBLOCK, /CASK- TWOBLOCK, SHIELD-CASK-DROP	8.67E-10	3.01E-10	2.04E-09	DE-SHIELD-DEGRADE
WHF-ESD19-DPC	10-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask fails, and the canister remains intact.	ESD19-FLOOR-TWOBLOCK, CASK-TWOBLOCK, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD19-DPC	10-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD19-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	8.67E-10	3.01E-10	2.04E-09	RR-FILTERED
WHF-ESD19-DPC	10-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionucilde release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD19-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, MODERATOR	9.95E-14	0.00E+00	5.87E-13	RR-FILTERED-ITC
WHF-ESD19-DPC	10-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD19-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, /MODERATOR	3.02E-11	4.80E-12	1.27E-10	RR-UNFILTERED
WHF-ESD19-DPC	10-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD19-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.94E-15	0.00E+00	2.28E-14	RR-UNFILTERED-ITC
WHF-ESD19-DPC	11-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD19-FLOOR-TIP, /CASK-DROP, SHIELD- CASK-DROP	6.10E-06	3.84E-06	7.26E-06	DE-SHIELD-DEGRADE

050-PSA-WH00-00200-000-00B

Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD19-DPC	11-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the transportation cask fails, and the canister remains intact.	ESD19-FLOOR-TIP, CASK-DROP, /CANISTER- FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD19-DPC	11-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD19-FLOOR-TIP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, /MODERATOR	6.10E-06	3.84E-06	7.26E-06	RR-FILTERED
WHF-ESD 19-DPC	11-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionucide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD19-FLOOR-TIP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, MODERATOR	6.45E-10	2.75E-10	1.24E-09	RR-FILTERED-ITC
WHF-ESD19-DPC	11-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD19-FLOOR-TIP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, /MODERATOR	2.10E-07	6.19E-08	5.48E-07	RR-UNFILTERED
WHF-ESD19-DPC	11-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD19-FLOOR-TIP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, MODERATOR	2.14E-11	4.49E-12	7.62E-11	RR-UNFILTERED-ITC
WHF-ESD20-CSNF	02-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD20-POOL-IMPACT, CASK-IMPACT, /BORON	4.44E-08	2.79E-08	5.28E-08	RR-GAS-UNFILTERED
WHF-ESD20-CSNF	02-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD20-POOL-IMPACT, CASK-IMPACT, BORON	7.59E-15	0.00E+00	5.77E-14	RR-GAS-UNFILTERED-ITC
WHF-ESD20-CSNF	03-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD20-POOL-DROP, CASK-DROP, /BORON	3.95E-07	3.42E-08	2.43E-06	RR-GAS-UNFILTERED
WHF-ESD20-CSNF	03-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD20-POOL-DROP, CASK-DROP, BORON	3.71E-13	0.00E+00	2.44E-12	RR-GAS-UNFILTERED-ITC
WHF-ESD20-CSNF	04-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD20-POOL-TWOBLOCK, CASK-FAIL, /BORON	6.30E-04	2.19E-04	1.48E-03	RR-GAS-UNFILTERED

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD20-CSNF	04-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD20-POOL-TWOBLOCK, CASK-FAIL, BORON	6.30E-10	2.19E-10	1.48E-09	RR-GAS-UNFILTERED-ITC
WHF-ESD20-CSNF	05-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a cask tipover. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD20-POOL-TIP, CASK-DROP, /BORON	4.44E-05	2.79E-05	5.28E-05	RR-GAS-UNFILTERED
WHF-ESD20-CSNF	05-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD20-POOL-TIP, CASK-DROP, BORON	4.44E-11	2.81E-11	5.28E-11	RR-GAS-UNFILTERED-ITC
WHF-ESD20-CSNF	06-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD20-POOL-DROPON, CASK-DROP, /BORON	0.00E+00	0.00E+00	0.00E+00	RR-GAS-UNFILTERED
WHF-ESD20-CSNF	06-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD20-POOL-DROPON, CASK-DROP, BORON	0.00E+00	0.00E+00	0.00E+00	RR-GAS-UNFILTERED-ITC
WHF-ESD20-CSNF	07-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to an impact to a TC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD20-FLOOR-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	6.65E-08	4.19E-08	7.92E-08	DE-SHIELD-DEGRADE
WHF-ESD20-CSNF	07-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD20-FLOOR-IMPACT, CASK-IMPACT, /CONFINEMENT, /MODERATOR	6.65E-08	4.19E-08	7.92E-08	RR-FILTERED
WHF-ESD20-CSNF	07-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD20-FLOOR-IMPACT, CASK-IMPACT, /CONFINEMENT, MODERATOR	7.22E-12	2.93E-12	2.03E-11	RR-FILTERED-ITC
WHF-ESD20-CSNF	07-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD20-FLOOR-IMPACT, CASK-IMPACT, CONFINEMENT, /MODERATOR	2.29E-09	6.76E-10	5.97E-09	RR-UNFILTERED
WHF-ESD20-CSNF	07-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD20-FLOOR-IMPACT, CASK-IMPACT, CONFINEMENT, MODERATOR	1.99E-13	0.00E+00	9.79E-13	RR-UNFILTERED-ITC

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD20-CSNF	08-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD20-FLOOR-DROP, /CASK-DROP, SHIELD- CASK-DROP	5.93E-07	5.14E-08	3.65E-06	DE-SHIELD-DEGRADE
WHF-ESD20-CSNF	08-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD20-FLOOR-DROP, CASK-DROP, /CONFINEMENT, /MODERATOR	5.93E-07	5.14E-08	3.65E-06	RR-FILTERED
WHF-ESD20-CSNF	08-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD20-FLOOR-DROP, CASK-DROP, /CONFINEMENT, MODERATOR	9.39E-11	3.35E-12	1.24E-09	RR-FILTERED-ITC
WHF-ESD20-CSNF	08-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionucide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD20-FLOOR-DROP, CASK-DROP, CONFINEMENT, /MODERATOR	2.21E-08	8.16E-10	1.94E-07	RR-UNFILTERED
WHF-ESD20-CSNF	08-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD20-FLOOR-DROP, CASK-DROP, CONFINEMENT, MODERATOR	3.00E-12	0.00E+00	6.07E-11	RR-UNFILTERED-ITC
WHF-ESD20-CSNF	09-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD20-FLOOR-TWOBLOCK, /CASK- TWOBLOCK, SHIELD-CASK-DROP	9.46E-09	3.29E-09	2.22E-08	DE-SHIELD-DEGRADE
WHF-ESD20-CSNF	09-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD20-FLOOR-TWOBLOCK, CASK-TWOBLOCK, /CONFINEMENT, /MODERATOR	9.46E-09	3.29E-09	2.22E-08	RR-FILTERED
WHF-ESD20-CSNF	09-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD20-FLOOR-TWOBLOCK, CASK-TWOBLOCK, /CONFINEMENT, MODERATOR	1.09E-12	0.00E+00	6.40E-12	RR-FILTERED-ITC

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD20-CSNF	09-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD20-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CONFINEMENT, /MODERATOR	3.30E-10	5.24E-11	1.39E-09	RR-UNFILTERED
WHF-ESD20-CSNF	09-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD20-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CONFINEMENT, MODERATOR	2.12E-14	0.00E+00	2.49E-13	RR-UNFILTERED-ITC
WHF-ESD20-CSNF	10-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD20-FLOOR-TIP, /CASK-DROP, SHIELD- CASK-DROP	6.65E-05	4.19E-05	7.92E-05	DE-SHIELD-DEGRADE
WHF-ESD20-CSNF	10-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD20-FLOOR-TIP, CASK-DROP, /CONFINEMENT, /MODERATOR	6.65E-05	4.19E-05	7.92E-05	RR-FILTERED
WHF-ESD20-CSNF	10-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD20-FLOOR-TIP, CASK-DROP, /CONFINEMENT, MODERATOR	7.04E-09	3.00E-09	1.35E-08	RR-FILTERED-ITC
WHF-ESD20-CSNF	10-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD20-FLOOR-TIP, CASK-DROP, CONFINEMENT, /MODERATOR	2.29E-06	6.76E-07	5.97E-06	RR-UNFILTERED
WHF-ESD20-CSNF	10-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD20-FLOOR-TIP, CASK-DROP, CONFINEMENT, MODERATOR	2.34E-10	4.90E-11	8.31E-10	RR-UNFILTERED-ITC
WHF-ESD20-CSNF	11-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask remains intact, and the shielding fails.	ESD20-FLOOR-DROPON, /CASK-DROP, SHIELD-CASK-DROP	2.42E-06	2.40E-06	3.25E-07	DE-SHIELD-DEGRADE
WHF-ESD20-CSNF	11-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD20-FLOOR-DROPON, CASK-DROP, /CONFINEMENT, /MODERATOR	2.42E-06	2.40E-06	3.25E-07	RR-FILTERED

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD20-CSNF	11-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD20-FLOOR-DROPON, CASK-DROP, /CONFINEMENT, MODERATOR	2.55E-10	1.67E-10	2.99E-10	RR-FILTERED-ITC
WHF-ESD20-CSNF	11-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD20-FLOOR-DROPON, CASK-DROP, CONFINEMENT, /MODERATOR	8.51E-08	3.91E-08	1.46E-07	RR-UNFILTERED
WHF-ESD20-CSNF	11-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD20-FLOOR-DROPON, CASK-DROP, CONFINEMENT, MODERATOR	9.02E-12	2.93E-12	2.63E-11	RR-UNFILTERED-ITC
WHF-ESD21-CSNF	2-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD21-CSNF-LOWER-DROP, CASK-DROP, /BORON	9.88E-07	8.56E-08	6.07E-06	RR-GAS-UNFILTERED
WHF-ESD21-CSNF	2-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD21-CSNF-LOWER-DROP, CASK-DROP, BORON	9.65E-13	0.00E+00	6.08E-12	RR-GAS-UNFILTERED-ITC
WHF-ESD21-CSNF	3-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD21-CSNF-LOWER-IMPACT, CASK-IMPACT, /BORON	2.22E-07	1.40E-07	2.64E-07	RR-GAS-UNFILTERED
WHF-ESD21-CSNF	3-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD21-CSNF-LOWER-IMPACT, CASK-IMPACT, BORON	1.81E-13	0.00E+00	3.07E-13	RR-GAS-UNFILTERED-ITC
WHF-ESD21-CSNF	4-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a cask tipover. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD21-CSNF-LOWER-TIP, CASK-DROP, /BORON	2.22E-04	1.40E-04	2.64E-04	RR-GAS-UNFILTERED
WHF-ESD21-CSNF	4-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD21-CSNF-LOWER-TIP, CASK-DROP, BORON	2.22E-10	1.40E-10	2.64E-10	RR-GAS-UNFILTERED-ITC

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD21-CSNF	5-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD21-CSNF-LOWER-DROPON, CASK-DROP, /BORON	1.98E-06	1.71E-07	1.22E-05	RR-GAS-UNFILTERED
WHF-ESD21-CSNF	5-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD21-CSNF-LOWER-DROPON, CASK-DROP, BORON	1.93E-12	0.00E+00	1.22E-11	RR-GAS-UNFILTERED-ITC
WHF-ESD21-DPC	2-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD21-DPC-LOWER-DROP, CASK-DROP, /BORON	9.06E-08	7.85E-09	5.57E-07	RR-GAS-UNFILTERED
WHF-ESD21-DPC	2-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD21-DPC-LOWER-DROP, CASK-DROP, BORON	8.85E-14	0.00E+00	5.57E-13	RR-GAS-UNFILTERED-ITC
WHF-ESD21-DPC	3-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to an impact to an STC. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD21-DPC-LOWER-IMPACT, CASK-IMPACT, /BORON	2.03E-08	1.28E-08	2.42E-08	RR-GAS-UNFILTERED
WHF-ESD21-DPC	3-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to an impact to an STC. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD21-DPC-LOWER-IMPACT, CASK-IMPACT, BORON	1.66E-14	0.00E+00	2.82E-14	RR-GAS-UNFILTERED-ITC
WHF-ESD21-DPC	4-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD21-DPC-LOWER-DROPON, CASK-DROP, /BORON	1.81E-07	1.57E-08	1.11E-06	RR-GAS-UNFILTERED
WHF-ESD21-DPC	4-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD21-DPC-LOWER-DROPON, CASK-DROP, BORON	1.77E-13	0.00E+00	1.12E-12	RR-GAS-UNFILTERED-ITC
WHF-ESD21-DPC	5-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release due to a cask tipover. In this sequence the transportation cask fails, and boron concentration is maintained.	ESD21-DPC-LOWER-TIP, CASK-DROP, /BORON	2.03E-05	1.28E-05	2.42E-05	RR-GAS-UNFILTERED
WHF-ESD21-DPC	5-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered gaseous radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, and a loss of boron concentration occurs.	ESD21-DPC-LOWER-TIP, CASK-DROP, BORON	2.03E-11	1.28E-11	2.42E-11	RR-GAS-UNFILTERED-ITC

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD21-TAD	2-2	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release due to a drop of the cask at the operational height. In this sequence the STC fails, and boron concentration is maintained.	ESD21-TAD-LOWER-DROP, CASK-DROP, /BORON	3.05E-07	2.64E-08	1.88E-06	RR-GAS-UNFILTERED
WHF-ESD21-TAD	2-3	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the STC fails, and a loss of boron concentration occurs.	ESD21-TAD-LOWER-DROP, CASK-DROP, BORON	2.98E-13	0.00E+00	1.88E-12	RR-GAS-UNFILTERED-ITC
WHF-ESD21-TAD	3-2	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release due to an impact to an STC. In this sequence the STC fails, and boron concentration is maintained.	ESD21-TAD-LOWER-IMPACT, CASK-IMPACT, /BORON	6.85E-08	4.31E-08	8.14E-08	RR-GAS-UNFILTERED
WHF-ESD21-TAD	3-3	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release also important to criticality due to an impact to an STC. In this sequence the STC fails, and a loss of boron concentration occurs.	ESD21-TAD-LOWER-IMPACT, CASK-IMPACT, BORON	5.58E-14	0.00E+00	9.48E-14	RR-GAS-UNFILTERED-ITC
WHF-ESD21-TAD	4-2	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release due to a drop of a heavy object onto the cask. In this sequence the STC fails, and boron concentration is maintained.	ESD21-TAD-LOWER-DROPON, CASK-DROP, /BORON	3.05E-07	2.64E-08	1.88E-06	RR-GAS-UNFILTERED
WHF-ESD21-TAD	4-3	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the STC fails, and a loss of boron concentration occurs.	ESD21-TAD-LOWER-DROPON, CASK-DROP, BORON	2.98E-13	0.00E+00	1.88E-12	RR-GAS-UNFILTERED-ITC
WHF-ESD21-TAD	5-2	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release due to a cask tipover. In this sequence the STC fails, and boron concentration is maintained.	ESD21-TAD-LOWER-TIP, CASK-DROP, /BORON	6.85E-05	4.31E-05	8.14E-05	RR-GAS-UNFILTERED
WHF-ESD21-TAD	5-3	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release also important to criticality due to a cask tipover. In this sequence the STC fails, and a loss of boron concentration occurs.	ESD21-TAD-LOWER-TIP, CASK-DROP, BORON	6.85E-11	4.31E-11	8.14E-11	RR-GAS-UNFILTERED-ITC
WHF-ESD22-FUEL	2-1	This sequence represents a structural challenge to a fuel assembly resulting in an unfiltered gaseous radionuclide release due to a drop of a fuel assembly. In this sequence boron concentration is maintained.	ESD22-FUEL-DROPRACK, /BORON	0.00E+00	0.00E+00	0.00E+00	RR-GAS-UNFILTERED
WHF-ESD22-FUEL	2-2	This sequence represents a structural challenge to a fuel assembly resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of a fuel assembly. In this sequence a loss of boron concentration occurs.	ESD22-FUEL-DROPRACK, BORON	0.00E+00	0.00E+00	0.00E+00	RR-GAS-UNFILTERED-ITC
WHF-ESD22-FUEL	3-1	This sequence represents a structural challenge to a fuel assembly resulting in an unfiltered gaseous radionuclide release due to a drop of a fuel assembly. In this sequence boron concentration is maintained.	ESD22-FUEL-DROP, /BORON	3.36E-01	2.71E-01	2.45E-01	RR-GAS-UNFILTERED

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD22-FUEL	3-2	This sequence represents a structural challenge to a fuel assembly resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of a fuel assembly. In this sequence a loss of boron concentration occurs.	ESD22-FUEL-DROP, BORON	3.36E-07	2.71E-07	2.45E-07	RR-GAS-UNFILTERED-ITC
WHF-ESD23-POOL	2	This sequence represents a structural challenge to the pool resulting in a direct exposure from loss of shielding due to a mishap during LLW cleanup.	ESD23-LLW-CLEANUP	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD23-POOL	3	This sequence represents a structural challenge to the pool resulting in a direct exposure from loss of shielding due to a mishap during LLW recirculation.	ESD23-LLW-RECIRC	6.97E-06	1.44E-06	2.49E-05	DE-SHIELD-LOSS
WHF-ESD23-POOL	4	This sequence represents a structural challenge to the pool resulting in a direct exposure from loss of shielding due to a drop of a LLW container.	ESD23-LLW-DROP	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD23-POOL	5	This sequence represents a structural challenge to the pool resulting in a direct exposure from loss of shielding due to a failure to decontaminate an STC or DPC.	ESD23-LLW-DECON	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD23-POOL	6	This sequence represents a structural challenge to the pool resulting in a direct exposure from loss of shielding due to a collision of the LLW container.	ESD23-LLW-COLLISION	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD24-TAD	02-2	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release due to an impact to an STC. In this sequence the STC fails, and boron concentration is maintained.	ESD24-POOL-IMPACT, CASK-IMPACT, /BORON	2.74E-08	1.72E-08	3.26E-08	RR-GAS-UNFILTERED
WHF-ESD24-TAD	02-3	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release also important to criticality due to an impact to an STC. In this sequence the STC fails, and a loss of boron concentration occurs.	ESD24-POOL-IMPACT, CASK-IMPACT, BORON	1.20E-14	0.00E+00	4.09E-14	RR-GAS-UNFILTERED-ITC
WHF-ESD24-TAD	03-2	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release due to a drop of the cask at the operational height. In this sequence the STC fails, and boron concentration is maintained.	ESD24-POOL-DROP, CASK-DROP, /BORON	2.44E-07	2.11E-08	1.50E-06	RR-GAS-UNFILTERED
WHF-ESD24-TAD	03-3	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the STC fails, and a loss of boron concentration occurs.	ESD24-POOL-DROP, CASK-DROP, BORON	2.36E-13	0.00E+00	1.50E-12	RR-GAS-UNFILTERED-ITC
WHF-ESD24-TAD	04-2	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release due to a drop of the cask above the operational height. In this sequence the STC fails, and boron concentration is maintained.	ESD24-POOL-TWOBLOCK, CASK-FAIL, /BORON	3.89E-04	1.35E-04	9.14E-04	RR-GAS-UNFILTERED
WHF-ESD24-TAD	04-3	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the STC fails, and a loss of boron concentration occurs.	ESD24-POOL-TWOBLOCK, CASK-FAIL, BORON	3.89E-10	1.35E-10	9.14E-10	RR-GAS-UNFILTERED-ITC
WHF-ESD24-TAD	05-2	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release due to a cask tipover. In this sequence the STC fails, and boron concentration is maintained.	ESD24-POOL-TIP, CASK-DROP, /BORON	2.74E-05	1.72E-05	3.26E-05	RR-GAS-UNFILTERED

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD24-TAD	05-3	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release also important to criticality due to a cask tipover. In this sequence the STC fails, and a loss of boron concentration occurs.	ESD24-POOL-TIP, CASK-DROP, BORON	2.74E-11	1.72E-11	3.26E-11	RR-GAS-UNFILTERED-ITC
WHF-ESD24-TAD	06-2	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release due to a drop of a heavy object onto the cask. In this sequence the STC fails, and boron concentration is maintained.	ESD24-POOL-DROPON, CASK-DROP, /BORON	0.00E+00	0.00E+00	0.00E+00	RR-GAS-UNFILTERED
WHF-ESD24-TAD	06-3	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered gaseous radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the STC fails, and a loss of boron concentration occurs.	ESD24-POOL-DROPON, CASK-DROP, BORON	0.00E+00	0.00E+00	0.00E+00	RR-GAS-UNFILTERED-ITC
WHF-ESD24-TAD	07-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to an impact to an STC. In this sequence the STC remains intact, and the shielding fails.	ESD24-FLOOR-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	6.85E-09	4.31E-09	8.14E-09	DE-SHIELD-DEGRADE
WHF-ESD24-TAD	07-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to an impact to an STC. In this sequence the STC fails, and the canister remains intact.	ESD24-FLOOR-IMPACT, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD24-TAD	07-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to an impact to an STC. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD24-FLOOR-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	6.85E-09	4.31E-09	8.14E-09	RR-FILTERED
WHF-ESD24-TAD	07-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to an impact to an STC. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD24-FLOOR-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	7.32E-13	2.59E-13	2.08E-12	RR-FILTERED-ITC
WHF-ESD24-TAD	07-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to an impact to an STC. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD24-FLOOR-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	2.35E-10	6.95E-11	6.15E-10	RR-UNFILTERED
WHF-ESD24-TAD	07-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to an impact to an STC. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD24-FLOOR-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.59E-14	0.00E+00	1.01E-13	RR-UNFILTERED-ITC
WHF-ESD24-TAD	08-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the STC remains intact, and the shielding fails.	ESD24-FLOOR-DROP, /CASK-DROP, SHIELD- CASK-DROP	6.10E-08	5.28E-09	3.75E-07	DE-SHIELD-DEGRADE
WHF-ESD24-TAD	08-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the STC fails, and the canister remains intact.	ESD24-FLOOR-DROP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD24-TAD	08-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD24-FLOOR-DROP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, /MODERATOR	6.10E-08	5.28E-09	3.75E-07	RR-FILTERED
WHF-ESD24-TAD	08-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD24-FLOOR-DROP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, MODERATOR	9.65E-12	3.88E-13	1.27E-10	RR-FILTERED-ITC
WHF-ESD24-TAD	08-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD24-FLOOR-DROP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, /MODERATOR	2.28E-09	8.39E-11	2.00E-08	RR-UNFILTERED
WHF-ESD24-TAD	08-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD24-FLOOR-DROP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, MODERATOR	3.03E-13	0.00E+00	6.25E-12	RR-UNFILTERED-ITC
WHF-ESD24-TAD	09-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to a drop of the cask above the operational height. In this sequence the STC remains intact, and the shielding fails.	ESD24-FLOOR-TWOBLOCK, /CASK- TWOBLOCK, SHIELD-CASK-DROP	9.73E-10	3.38E-10	2.29E-09	DE-SHIELD-DEGRADE
WHF-ESD24-TAD	09-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to a drop of the cask above the operational height. In this sequence the STC fails, and the canister remains intact.	ESD24-FLOOR-TWOBLOCK, CASK-TWOBLOCK, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD24-TAD	09-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to a drop of the cask above the operational height. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD24-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	9.73E-10	3.38E-10	2.29E-09	RR-FILTERED
WHF-ESD24-TAD	09-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD24-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.03E-13	0.00E+00	6.59E-13	RR-FILTERED-ITC
WHF-ESD24-TAD	09-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to a drop of the cask above the operational height. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD24-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, /MODERATOR	3.39E-11	5.43E-12	1.43E-10	RR-UNFILTERED
WHF-ESD24-TAD	09-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters canister	ESD24-FLOOR-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.51E-15	0.00E+00	2.52E-14	RR-UNFILTERED-ITC

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD24-TAD	10-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the STC remains intact, and the shielding fails.	ESD24-FLOOR-TIP, /CASK-DROP, SHIELD- CASK-DROP	6.85E-06	4.31E-06	8.14E-06	DE-SHIELD-DEGRADE
WHF-ESD24-TAD	10-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the STC fails, and the canister remains intact.	ESD24-FLOOR-TIP, CASK-DROP, /CANISTER- FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD24-TAD	10-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to a cask tipover. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD24-FLOOR-TIP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, /MODERATOR	6.85E-06	4.31E-06	8.14E-06	RR-FILTERED
WHF-ESD24-TAD	10-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD24-FLOOR-TIP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, MODERATOR	7.24E-10	3.08E-10	1.39E-09	RR-FILTERED-ITC
WHF-ESD24-TAD	10-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD24-FLOOR-TIP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, /MODERATOR	2.35E-07	6.95E-08	6.15E-07	RR-UNFILTERED
WHF-ESD24-TAD	10-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD24-FLOOR-TIP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, MODERATOR	2.40E-11	5.04E-12	8.55E-11	RR-UNFILTERED-ITC
WHF-ESD24-TAD	11-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the STC remains intact, and the shielding fails.	ESD24-FLOOR-DROPON, /CASK-DROP, SHIELD-CASK-DROP	1.49E-07	1.48E-07	2.01E-08	DE-SHIELD-DEGRADE
WHF-ESD24-TAD	11-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto the cask. In this sequence the STC fails, and the canister remains intact.	ESD24-FLOOR-DROPON, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD24-TAD	11-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD24-FLOOR-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	1.49E-07	1.48E-07	2.01E-08	RR-FILTERED
WHF-ESD24-TAD	11-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD24-FLOOR-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.57E-11	1.02E-11	1.84E-11	RR-FILTERED-ITC

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD24-TAD	11-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD24-FLOOR-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	5.25E-09	2.41E-09	9.00E-09	RR-UNFILTERED
WHF-ESD24-TAD	11-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD24-FLOOR-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	5.43E-13	1.29E-13	1.63E-12	RR-UNFILTERED-ITC
WHF-ESD25-TAD	2-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the STC fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD25-TAD-DROPON, CASK-DROP, /CONFINEMENT, /MODERATOR	1.49E-06	1.48E-06	2.01E-07	RR-FILTERED
WHF-ESD25-TAD	2-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the STC fails, the confinement boundary remains intact, and a moderator enters canister.	ESD25-TAD-DROPON, CASK-DROP, /CONFINEMENT, MODERATOR	1.58E-10	1.03E-10	1.84E-10	RR-FILTERED-ITC
WHF-ESD25-TAD	2-4	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the STC fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD25-TAD-DROPON, CASK-DROP, CONFINEMENT, /MODERATOR	5.25E-08	2.41E-08	9.00E-08	RR-UNFILTERED
WHF-ESD25-TAD	2-5	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the STC fails, the confinement boundary fails, and a moderator enters canister.	ESD25-TAD-DROPON, CASK-DROP, CONFINEMENT, MODERATOR	5.58E-12	1.68E-12	1.62E-11	RR-UNFILTERED-ITC
WHF-ESD25-TAD	3-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to an impact to an STC. In this sequence the STC fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD25-TAD-IMPACT, CASK-IMPACT, /CONFINEMENT, /MODERATOR	1.06E-07	7.99E-08	9.63E-08	RR-FILTERED
WHF-ESD25-TAD	3-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to an impact to an STC. In this sequence the STC fails, the confinement boundary remains intact, and a moderator enters canister.	ESD25-TAD-IMPACT, CASK-IMPACT, /CONFINEMENT, MODERATOR	1.12E-11	5.56E-12	1.88E-11	RR-FILTERED-ITC
WHF-ESD25-TAD	3-4	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to an impact to an STC. In this sequence the STC fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD25-TAD-IMPACT, CASK-IMPACT, CONFINEMENT, /MODERATOR	3.92E-09	1.33E-09	9.61E-09	RR-UNFILTERED
WHF-ESD25-TAD	3-5	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to an impact to an STC. In this sequence the STC fails, the confinement boundary fails, and a moderator enters canister.	ESD25-TAD-IMPACT, CASK-IMPACT, CONFINEMENT, MODERATOR	3.80E-13	0.00E+00	1.85E-12	RR-UNFILTERED-ITC

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD26-TAD	3	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a failure to fully dry the TAD canister during closure. In this sequence the cask overpressurizes.	ESD26-TAD-DRYFAIL, OVERPRESSURE	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD27-TAD	2-1	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a failure to completely weld the TAD lid. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD27-TAD-BADWELD, /HVAC-PREP, /MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD27-TAD	2-2	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a failure to completely weld the TAD lid. In this sequence the confinement boundary remains intact, and a moderator enters canister.	ESD27-TAD-BADWELD, /HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD27-TAD	2-3	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a failure to completely weld the TAD lid. In this sequence the confinement boundary fails, and a moderator is excluded from entering canister.	ESD27-TAD-BADWELD, HVAC-PREP, /MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD27-TAD	2-4	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a failure to completely weld the TAD lid. In this sequence the confinement boundary fails, and a moderator enters canister.	ESD27-TAD-BADWELD, HVAC-PREP, MODERATOR-SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD27-TAD	3-1	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to an impact to the TAD sample line. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD27-TAD-LINE, /HVAC-PREP, /MODERATOR- SAMPLING	1.54E-03	2.55E-04	6.41E-03	RR-FILTERED
WHF-ESD27-TAD	3-2	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to an impact to the TAD sample line. In this sequence the confinement boundary remains intact, and a moderator enters canister.	ESD27-TAD-LINE, /HVAC-PREP, MODERATOR- SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD27-TAD	3-3	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to an impact to the TAD sample line. In this sequence the confinement boundary fails, and a moderator is excluded from entering canister.	ESD27-TAD-LINE, HVAC-PREP, /MODERATOR- SAMPLING	1.64E-06	1.51E-07	1.33E-05	RR-UNFILTERED
WHF-ESD27-TAD	3-4	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to an impact to the TAD sample line. In this sequence the confinement boundary fails, and a moderator enters canister.	ESD27-TAD-LINE, HVAC-PREP, MODERATOR- SAMPLING	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD28-TAD	2-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the STC remains intact, and the shielding fails.	ESD28-TAD-DROPON, /CASK-DROP, SHIELD- CASK-DROP	1.49E-06	1.48E-06	2.01E-07	DE-SHIELD-DEGRADE

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD28-TAD	2-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto the cask. In this sequence the STC fails, and the canister remains intact.	ESD28-TAD-DROPON, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD28-TAD	2-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD28-TAD-DROPON, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, /MODERATOR	1.49E-06	1.48E-06	2.01E-07	RR-FILTERED
WHF-ESD28-TAD	2-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD28-TAD-DROPON, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, MODERATOR	1.58E-10	1.03E-10	1.84E-10	RR-FILTERED-ITC
WHF-ESD28-TAD	2-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD28-TAD-DROPON, CASK-DROP, CANISTER- FAIL, CONFINEMENT, /MODERATOR	5.25E-08	2.41E-08	9.00E-08	RR-UNFILTERED
WHF-ESD28-TAD	2-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD28-TAD-DROPON, CASK-DROP, CANISTER- FAIL, CONFINEMENT, MODERATOR	5.58E-12	1.68E-12	1.62E-11	RR-UNFILTERED-ITC
WHF-ESD28-TAD	3-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the STC remains intact, and the shielding fails.	ESD28-TAD-DROP, /CASK-DROP, SHIELD- CASK-DROP	3.05E-07	2.64E-08	1.88E-06	DE-SHIELD-DEGRADE
WHF-ESD28-TAD	3-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the STC fails, and the canister remains intact.	ESD28-TAD-DROP, CASK-DROP, /CANISTER- FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD28-TAD	3-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD28-TAD-DROP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, /MODERATOR	3.05E-07	2.64E-08	1.88E-06	RR-FILTERED
WHF-ESD28-TAD	3-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD28-TAD-DROP, CASK-DROP, CANISTER- FAIL, /CONFINEMENT, MODERATOR	4.83E-11	1.81E-12	6.37E-10	RR-FILTERED-ITC
WHF-ESD28-TAD	3-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD28-TAD-DROP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, /MODERATOR	1.14E-08	4.20E-10	9.99E-08	RR-UNFILTERED

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD28-TAD	3-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD28-TAD-DROP, CASK-DROP, CANISTER- FAIL, CONFINEMENT, MODERATOR	1.55E-12	0.00E+00	3.12E-11	RR-UNFILTERED-ITC
WHF-ESD28-TAD	4-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to a drop of the cask above the operational height. In this sequence the STC remains intact, and the shielding fails.	ESD28-TAD-TWOBLOCK, /CASK-TWOBLOCK, SHIELD-CASK-DROP	4.86E-09	1.69E-09	1.14E-08	DE-SHIELD-DEGRADE
WHF-ESD28-TAD	4-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to a drop of the cask above the operational height. In this sequence the STC fails, and the canister remains intact.	ESD28-TAD-TWOBLOCK, CASK-TWOBLOCK, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD28-TAD	4-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to a drop of the cask above the operational height. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD28-TAD-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	4.86E-09	1.69E-09	1.14E-08	RR-FILTERED
WHF-ESD28-TAD	4-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD28-TAD-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, MODERATOR	5.69E-13	1.29E-13	3.29E-12	RR-FILTERED-ITC
WHF-ESD28-TAD	4-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to a drop of the cask above the operational height. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD28-TAD-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, /MODERATOR	1.70E-10	2.70E-11	7.13E-10	RR-UNFILTERED
WHF-ESD28-TAD	4-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD28-TAD-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.28E-14	0.00E+00	1.30E-13	RR-UNFILTERED-ITC
WHF-ESD28-TAD	5-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to an impact to an STC. In this sequence the STC remains intact, and the shielding fails.	ESD28-TAD-IMPACT, /CASK-IMPACT, SHIELD- CASK-IMPACT	3.42E-08	2.15E-08	4.07E-08	DE-SHIELD-DEGRADE
WHF-ESD28-TAD	5-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to an impact to an STC. In this sequence the STC fails, and the canister remains intact.	ESD28-TAD-IMPACT, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD28-TAD	5-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to an impact to an STC. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD28-TAD-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	3.42E-08	2.15E-08	4.07E-08	RR-FILTERED

050-PSA-WH00-00200-000-00B

Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD28-TAD	5-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to an impact to an STC. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD28-TAD-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	3.61E-12	1.55E-12	6.96E-12	RR-FILTERED-ITC
WHF-ESD28-TAD	5-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to an impact to an STC. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD28-TAD-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	1.18E-09	3.47E-10	3.07E-09	RR-UNFILTERED
WHF-ESD28-TAD	5-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to an impact to an STC. In this sequence the STC fails, the canifer fails, the confinement boundary fails, and a moderator enters canister.	ESD28-TAD-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.05E-13	0.00E+00	4.30E-13	RR-UNFILTERED-ITC
WHF-ESD28-TAD	6-2	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the STC remains intact, and the shielding fails.	ESD28-TAD-TIP, /CASK-DROP, SHIELD-CASK- DROP	1.11E-06	4.34E-07	2.34E-06	DE-SHIELD-DEGRADE
WHF-ESD28-TAD	6-3	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the STC fails, and the canister remains intact.	ESD28-TAD-TIP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD28-TAD	6-4	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to a cask tipover. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD28-TAD-TIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	1.11E-06	4.34E-07	2.34E-06	RR-FILTERED
WHF-ESD28-TAD	6-5	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD28-TAD-TIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.18E-10	3.08E-11	3.35E-10	RR-FILTERED-ITC
WHF-ESD28-TAD	6-6	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD28-TAD-TIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	3.86E-08	6.99E-09	1.49E-07	RR-UNFILTERED
WHF-ESD28-TAD	6-7	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD28-TAD-TIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.90E-12	5.17E-13	1.96E-11	RR-UNFILTERED-ITC
WHF-ESD29-DPC	2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a temporary loss of shielding during preparation activities.	ESD29-EXPOSURE-RING	6.78E-02	4.26E-02	8.06E-02	DE-SHIELD-LOSS
WHF-ESD29-DPC	3	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a temporary loss of shielding during preparation activities.	ESD29-EXPOSURE-CTM	3.17E-03	2.90E-03	1.28E-03	DE-SHIELD-LOSS

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD29-DPC	4	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a temporary loss of shielding during preparation activities.	ESD29-EXPOSURE-LIFT	2.74E-01	2.24E-01	1.61E-01	DE-SHIELD-LOSS
WHF-ESD29-TAD	2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a temporary loss of shielding during TAD closure activities.	ESD29-TAD-RING	6.67E-02	2.60E-02	1.41E-01	DE-SHIELD-LOSS
WHF-ESD29-TAD	3	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a temporary loss of shielding during TAD closure activities.	ESD29-TAD-CTM	2.24E-02	1.72E-02	1.74E-02	DE-SHIELD-LOSS
WHF-ESD30-DPC	2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a temporary loss of shielding during pool activities.	ESD30-EXPOSURE-SPLASH	1.91E-02	1.95E-03	1.32E-01	DE-SHIELD-LOSS
WHF-ESD30-DPC	3	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a temporary loss of shielding during pool activities.	ESD30-EXPOSURE-DECON	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD30-FUEL	2	This sequence results from the SFTM lifting a spent fuel assembly too high causing a direct exposure from loss of water shielding during pool activities.	ESD30-EXPOSURE-FUELHIGH	4.71E-02	2.40E-02	7.45E-02	DE-SHIELD-LOSS
WHF-ESD31-CSNF	2-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from loss of shielding due to a localized fire in the cask receipt area. In this sequence the transportation cask remains intact, and the shielding fails.	ESD31-CSNF-TCVEST, /BARE-FUEL-FIRE, SHIELD-FIRE	1.13E-02	1.01E-02	5.61E-03	DE-SHIELD-LOSS
WHF-ESD31-CSNF	2-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a localized fire in the cask receipt area. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-CSNF-TCVEST, BARE-FUEL-FIRE, /CONFINEMENT, /MODERATOR-BARE-FUEL	5.63E-04	5.03E-04	2.81E-04	RR-FILTERED
WHF-ESD31-CSNF	2-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a localized fire in the cask receipt area. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-CSNF-TCVEST, BARE-FUEL-FIRE, /CONFINEMENT, MODERATOR-BARE-FUEL	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD31-CSNF	2-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a localized fire in the cask receipt area. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-CSNF-TCVEST, BARE-FUEL-FIRE, CONFINEMENT, /MODERATOR-BARE-FUEL	1.94E-05	8.27E-06	3.60E-05	RR-UNFILTERED
WHF-ESD31-CSNF	2-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the cask receipt area. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD31-CSNF-TCVEST, BARE-FUEL-FIRE, CONFINEMENT, MODERATOR-BARE-FUEL	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD31-CSNF	3-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from loss of shielding due to a localized fire in the cask preparation area. In this sequence the transportation cask remains intact, and the shielding fails.	ESD31-CSNF-PREP, /BARE-FUEL-FIRE, SHIELD-FIRE	2.03E-02	1.81E-02	1.01E-02	DE-SHIELD-LOSS
WHF-ESD31-CSNF	3-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a localized fire in the cask preparation area. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-CSNF-PREP, BARE-FUEL-FIRE, /HVAC- FIRE, /MODERATOR-BARE-FUEL	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD31-CSNF	3-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a localized fire in the cask preparation area. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-CSNF-PREP, BARE-FUEL-FIRE, /HVAC- FIRE, MODERATOR-BARE-FUEL	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD31-CSNF	3-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a localized fire in the cask preparation area. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-CSNF-PREP, BARE-FUEL-FIRE, HVAC- FIRE, /MODERATOR-BARE-FUEL	1.01E-03	9.06E-04	5.05E-04	RR-UNFILTERED
WHF-ESD31-CSNF	3-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the cask preparation area. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD31-CSNF-PREP, BARE-FUEL-FIRE, HVAC- FIRE, MODERATOR-BARE-FUEL	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD31-CSNF	4-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from loss of shielding due to a large fire in the WHF. In this sequence the transportation cask remains intact, and the shielding fails.	ESD31-CSNF-LARGE, /BARE-FUEL-FIRE, SHIELD-FIRE	4.13E-02	3.64E-02	2.18E-02	DE-SHIELD-LOSS
WHF-ESD31-CSNF	4-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a large fire in the WHF. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-CSNF-LARGE, BARE-FUEL-FIRE, /HVAC- FIRE, /MODERATOR-BARE-FUEL	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD31-CSNF	4-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a large fire in the WHF. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-CSNF-LARGE, BARE-FUEL-FIRE, /HVAC- FIRE, MODERATOR-BARE-FUEL	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD31-CSNF	4-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a large fire in the WHF. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-CSNF-LARGE, BARE-FUEL-FIRE, HVAC- FIRE, /MODERATOR-BARE-FUEL	2.06E-03	1.82E-03	1.09E-03	RR-UNFILTERED

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD31-CSNF	4-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a large fire in the WHF. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD31-CSNF-LARGE, BARE-FUEL-FIRE, HVAC- FIRE, MODERATOR-BARE-FUEL	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD31-DPC	2-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a localized fire in the cask receipt area. In this sequence the canister remains intact, and the shielding fails.	ESD31-DPC-TCVEST, /CANISTER-FIRE, SHIELD-FIRE	4.13E-03	3.69E-03	2.06E-03	DE-SHIELD-LOSS
WHF-ESD31-DPC	2-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a localized fire in the cask receipt area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-DPC-TCVEST, CANISTER-FIRE, /CONFINEMENT, /MODERATOR-FIRE	8.25E-09	7.38E-09	4.11E-09	RR-FILTERED
WHF-ESD31-DPC	2-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a localized fire in the cask receipt area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-DPC-TCVEST, CANISTER-FIRE, /CONFINEMENT, MODERATOR-FIRE	8.25E-09	7.38E-09	4.11E-09	RR-FILTERED-ITC
WHF-ESD31-DPC	2-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a localized fire in the cask receipt area. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-DPC-TCVEST, CANISTER-FIRE, CONFINEMENT, /MODERATOR-FIRE	2.84E-10	1.21E-10	5.29E-10	RR-UNFILTERED
WHF-ESD31-DPC	2-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the cask receipt area. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-DPC-TCVEST, CANISTER-FIRE, CONFINEMENT, MODERATOR-FIRE	2.84E-10	1.21E-10	5.29E-10	RR-UNFILTERED-ITC
WHF-ESD31-DPC	3-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a localized fire in the cask preparation area. In this sequence the canister remains intact, and the shielding fails.	ESD31-DPC-PREP, /CANISTER-FIRE, SHIELD- FIRE	3.06E-03	2.74E-03	1.53E-03	DE-SHIELD-LOSS
WHF-ESD31-DPC	3-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a localized fire in the cask preparation area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-DPC-PREP, CANISTER-FIRE, /HVAC- FIRE, /MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD31-DPC	3-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a localized fire in the cask preparation area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-DPC-PREP, CANISTER-FIRE, /HVAC- FIRE, MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD31-DPC	3-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a localized fire in the cask preparation area. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-DPC-PREP, CANISTER-FIRE, HVAC- FIRE, /MODERATOR-FIRE	6.12E-09	5.47E-09	3.05E-09	RR-UNFILTERED

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD31-DPC	3-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the cask preparation area. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-DPC-PREP, CANISTER-FIRE, HVAC- FIRE, MODERATOR-FIRE	6.12E-09	5.47E-09	3.05E-09	RR-UNFILTERED-ITC
WHF-ESD31-DPC	4-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a localized fire in the cask unloading room. In this sequence the canister remains intact, and the shielding fails.	ESD31-DPC-UNLOAD, /CANISTER-FIRE, SHIELD-FIRE	1.69E-04	1.51E-04	8.40E-05	DE-SHIELD-LOSS
WHF-ESD31-DPC	4-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a localized fire in the cask unloading room. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-DPC-UNLOAD, CANISTER-FIRE, /CONFINEMENT, /MODERATOR-FIRE	3.37E-10	3.01E-10	1.68E-10	RR-FILTERED
WHF-ESD31-DPC	4-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a localized fire in the cask unloading room. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-DPC-UNLOAD, CANISTER-FIRE, /CONFINEMENT, MODERATOR-FIRE	3.37E-10	3.01E-10	1.68E-10	RR-FILTERED-ITC
WHF-ESD31-DPC	4-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a localized fire in the cask unloading room. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-DPC-UNLOAD, CANISTER-FIRE, CONFINEMENT, /MODERATOR-FIRE	1.16E-11	4.96E-12	2.16E-11	RR-UNFILTERED
WHF-ESD31-DPC	4-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the cask unloading room. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-DPC-UNLOAD, CANISTER-FIRE, CONFINEMENT, MODERATOR-FIRE	1.16E-11	4.96E-12	2.16E-11	RR-UNFILTERED-ITC
WHF-ESD31-DPC	5-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a localized fire in the CTM room. In this sequence the canister remains intact, and the shielding fails.	ESD31-DPC-CTM, /CANISTER-FIRE-CTM, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD31-DPC	5-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a localized fire in the CTM room. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-DPC-CTM, CANISTER-FIRE-CTM, /CONFINEMENT, /MODERATOR-FIRE	4.00E-09	3.57E-09	1.99E-09	RR-FILTERED
WHF-ESD31-DPC	5-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a localized fire in the CTM room. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-DPC-CTM, CANISTER-FIRE-CTM, /CONFINEMENT, MODERATOR-FIRE	4.00E-09	3.57E-09	1.99E-09	RR-FILTERED-ITC
WHF-ESD31-DPC	5-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a localized fire in the CTM room. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-DPC-CTM, CANISTER-FIRE-CTM, CONFINEMENT, /MODERATOR-FIRE	1.38E-10	5.87E-11	2.56E-10	RR-UNFILTERED

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Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD31-DPC	5-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the CTM room. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-DPC-CTM, CANISTER-FIRE-CTM, CONFINEMENT, MODERATOR-FIRE	1.38E-10	5.87E-11	2.56E-10	RR-UNFILTERED-ITC
WHF-ESD31-DPC	6-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a localized fire in the DPC cutting area. In this sequence the canister remains intact, and the shielding fails.	ESD31-DPC-DPCCUT, /CANISTER-FIRE, SHIELD-FIRE	5.85E-03	5.23E-03	2.91E-03	DE-SHIELD-LOSS
WHF-ESD31-DPC	6-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a localized fire in the DPC cutting area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-DPC-DPCCUT, CANISTER-FIRE, /HVAC- FIRE, /MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD31-DPC	6-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a localized fire in the DPC cutting area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-DPC-DPCCUT, CANISTER-FIRE, /HVAC- FIRE, MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD31-DPC	6-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a localized fire in the DPC cutting area. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-DPC-DPCCUT, CANISTER-FIRE, HVAC- FIRE, /MODERATOR-FIRE	1.17E-08	1.05E-08	5.83E-09	RR-UNFILTERED
WHF-ESD31-DPC	6-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the DPC cutting area. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-DPC-DPCCUT, CANISTER-FIRE, HVAC- FIRE, MODERATOR-FIRE	1.17E-08	1.05E-08	5.83E-09	RR-UNFILTERED-ITC
WHF-ESD31-DPC	7-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a large fire in the WHF. In this sequence the canister remains intact, and the shielding fails.	ESD31-DPC-LARGE, /CANISTER-FIRE, SHIELD- FIRE	3.44E-02	3.03E-02	1.82E-02	DE-SHIELD-LOSS
WHF-ESD31-DPC	7-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a large fire in the WHF. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-DPC-LARGE, CANISTER-FIRE, /HVAC- FIRE, /MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD31-DPC	7-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a large fire in the WHF. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-DPC-LARGE, CANISTER-FIRE, /HVAC- FIRE, MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD31-DPC	7-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a large fire in the WHF. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-DPC-LARGE, CANISTER-FIRE, HVAC- FIRE, /MODERATOR-FIRE	6.87E-08	6.07E-08	3.64E-08	RR-UNFILTERED

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD31-DPC	7-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a large fire in the WHF. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-DPC-LARGE, CANISTER-FIRE, HVAC- FIRE, MODERATOR-FIRE	6.87E-08	6.07E-08	3.64E-08	RR-UNFILTERED-ITC
WHF-ESD31-TAD	2-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a localized fire in the TAD closure area. In this sequence the canister remains intact, and the shielding fails.	ESD31-TAD-CLOSURE, /CANISTER-FIRE, SHIELD-FIRE	2.66E-02	2.38E-02	1.33E-02	DE-SHIELD-LOSS
WHF-ESD31-TAD	2-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a localized fire in the TAD closure area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-TAD-CLOSURE, CANISTER-FIRE, /HVAC-FIRE, /MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD31-TAD	2-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a localized fire in the TAD closure area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-TAD-CLOSURE, CANISTER-FIRE, /HVAC-FIRE, MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD31-TAD	2-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a localized fire in the TAD closure area. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-TAD-CLOSURE, CANISTER-FIRE, HVAC- FIRE, /MODERATOR-FIRE	5.33E-08	4.76E-08	2.66E-08	RR-UNFILTERED
WHF-ESD31-TAD	2-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the TAD closure area. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-TAD-CLOSURE, CANISTER-FIRE, HVAC- FIRE, MODERATOR-FIRE	5.33E-08	4.76E-08	2.66E-08	RR-UNFILTERED-ITC
WHF-ESD31-TAD	3-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a localized fire in the cask receipt area. In this sequence the canister remains intact, and the shielding fails.	ESD31-TAD-STVEST, /CANISTER-FIRE-AO, SHIELD-FIRE-AO	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD31-TAD	3-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a localized fire in the cask receipt area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-TAD-STVEST, CANISTER-FIRE-AO, /CONFINEMENT, /MODERATOR-FIRE	4.05E-10	3.62E-10	2.02E-10	RR-FILTERED
WHF-ESD31-TAD	3-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a localized fire in the cask receipt area. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-TAD-STVEST, CANISTER-FIRE-AO, /CONFINEMENT, MODERATOR-FIRE	4.05E-10	3.62E-10	2.02E-10	RR-FILTERED-ITC
WHF-ESD31-TAD	3-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a localized fire in the cask receipt area. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-TAD-STVEST, CANISTER-FIRE-AO, CONFINEMENT, /MODERATOR-FIRE	1.39E-11	5.95E-12	2.60E-11	RR-UNFILTERED

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Table G-1. Event Sequence Quantification Summary (Continued)

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD31-TAD	3-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the cask receipt area. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-TAD-STVEST, CANISTER-FIRE-AO, CONFINEMENT, MODERATOR-FIRE	1.39E-11	5.95E-12	2.60E-11	RR-UNFILTERED-ITC
WHF-ESD31-TAD	4-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a localized fire in the cask loading room. In this sequence the canister remains intact, and the shielding fails.	ESD31-TAD-LOAD, /CANISTER-FIRE-AO, SHIELD-FIRE-AO	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD31-TAD	4-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a localized fire in the cask loading room. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-TAD-LOAD, CANISTER-FIRE-AO, /CONFINEMENT, /MODERATOR-FIRE	3.36E-10	3.00E-10	1.67E-10	RR-FILTERED
WHF-ESD31-TAD	4-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a localized fire in the cask loading room. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-TAD-LOAD, CANISTER-FIRE-AO, /CONFINEMENT, MODERATOR-FIRE	3.36E-10	3.00E-10	1.67E-10	RR-FILTERED-ITC
WHF-ESD31-TAD	4-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a localized fire in the cask loading room. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-TAD-LOAD, CANISTER-FIRE-AO, CONFINEMENT, /MODERATOR-FIRE	1.16E-11	4.92E-12	2.15E-11	RR-UNFILTERED
WHF-ESD31-TAD	4-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the cask loading room. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-TAD-LOAD, CANISTER-FIRE-AO, CONFINEMENT, MODERATOR-FIRE	1.16E-11	4.92E-12	2.15E-11	RR-UNFILTERED-ITC
WHF-ESD31-TAD	5-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a localized fire in the CTM room. In this sequence the canister remains intact, and the shielding fails.	ESD31-TAD-CTM, /CANISTER-FIRE-CTM, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD31-TAD	5-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a localized fire in the CTM room. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-TAD-CTM, CANISTER-FIRE-CTM, /CONFINEMENT, /MODERATOR-FIRE	1.12E-08	1.00E-08	5.58E-09	RR-FILTERED
WHF-ESD31-TAD	5-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a localized fire in the CTM room. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-TAD-CTM, CANISTER-FIRE-CTM, /CONFINEMENT, MODERATOR-FIRE	1.12E-08	1.00E-08	5.58E-09	RR-FILTERED-ITC
WHF-ESD31-TAD	5-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a localized fire in the CTM room. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-TAD-CTM, CANISTER-FIRE-CTM, CONFINEMENT, /MODERATOR-FIRE	3.85E-10	1.64E-10	7.16E-10	RR-UNFILTERED

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD31-TAD	5-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a localized fire in the CTM room. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-TAD-CTM, CANISTER-FIRE-CTM, CONFINEMENT, MODERATOR-FIRE	3.85E-10	1.64E-10	7.16E-10	RR-UNFILTERED-ITC
WHF-ESD31-TAD	6-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a large fire in the WHF. In this sequence the canister remains intact, and the shielding fails.	ESD31-TAD-LARGE, /CANISTER-FIRE, SHIELD- FIRE	7.75E-02	6.85E-02	4.11E-02	DE-SHIELD-LOSS
WHF-ESD31-TAD	6-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a large fire in the WHF. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD31-TAD-LARGE, CANISTER-FIRE, /HVAC- FIRE, /MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD31-TAD	6-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a large fire in the WHF. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD31-TAD-LARGE, CANISTER-FIRE, /HVAC- FIRE, MODERATOR-FIRE	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD31-TAD	6-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a large fire in the WHF. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD31-TAD-LARGE, CANISTER-FIRE, HVAC- FIRE, /MODERATOR-FIRE	1.55E-07	1.37E-07	8.21E-08	RR-UNFILTERED
WHF-ESD31-TAD	6-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a large fire in the WHF. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD31-TAD-LARGE, CANISTER-FIRE, HVAC- FIRE, MODERATOR-FIRE	1.55E-07	1.37E-07	8.21E-08	RR-UNFILTERED-ITC

NOTE: AO = aging overpack; CSNF = commercial spent nuclear fuel; CTM = canister transfer machine; CTT = cask transfer trolley; DPC = dual-purpose canister; HVAC = heating, ventilation, and air conditioning; LLW = low-level radioactive waste; SFTM = spent fuel transfer machine; ST = site transporter; STC = shielded transfer cask; TAD = transportation, aging, and disposal canister; TC = transportation cask; WHF = Wet Handling Facility.

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Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD01-CSNF-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during receipt activities, resulting in a direct exposure from degradation of shielding. In this sequence the transportation cask containment function remains intact, and the shielding fails.	1 transportation cask with uncanistered SNF assemblies	2.E-07	9.E-08	4.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-CSNF-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during receipt activities, resulting in a filtered radionuclide release. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering the cask.	1 transportation cask with uncanistered SNF assemblies	2.E-07	9.E-08	4.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-CSNF-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during receipt activities, resulting in a filtered radionuclide release also important to criticality. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters the cask.	1 transportation cask with uncanistered SNF assemblies	2.E-11	6.E-12	1.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-CSNF-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during receipt activities, resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering the cask.	1 transportation cask with uncanistered SNF assemblies	6.E-09	1.E-09	3.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-CSNF-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during receipt activities, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters the cask.	1 transportation cask with uncanistered SNF assemblies	6.E-13	0.E+00	4.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-DPC-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask, during receipt activities, resulting in a direct exposure from degradation of shielding. In this sequence the transportation cask containment function remains intact, and the shielding fails.	1 DPC	2.E-08	1.E-08	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-DPC-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask, during receipt activities, resulting in a direct exposure from loss of shielding. In this sequence the transportation cask fails, and the canister remains intact.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-DPC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during receipt activities, resulting in a filtered radionuclide release. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	2.E-08	1.E-08	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-DPC-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during receipt activities, resulting in a filtered radionuclide release also important to criticality. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	2.E-12	7.E-13	6.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-DPC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during receipt activities, resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	6.E-10	2.E-10	2.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-DPC-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during receipt activities, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	5.E-14	0.E+00	3.E-13	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside an aging overpack, during receipt activities, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 DPC	2.E-05	8.E-06	6.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution

Table G-2. Final Event Sequences Summary

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD03-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside an aging overpack, during receipt activities, resulting in a filtered radionuclide release. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-DPC-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an aging overpack, during receipt activities, resulting in a filtered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside an aging overpack, during receipt activities, resulting in an unfiltered radionuclide release. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	2.E-05	8.E-06	6.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD03-DPC-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an aging overpack, during receipt activities, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	2.E-09	6.E-10	1.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-DPC-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a horizontal DPC inside an STC, during receipt activities, resulting in a direct exposure from degradation of shielding. In this sequence the STC containment function remains intact, and the shielding fails.	1 DPC	2.E-08	7.E-09	6.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-DPC-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a horizontal DPC inside an STC, during receipt activities, resulting in a direct exposure from loss of shielding. In this sequence the STC fails, and the canister remains intact.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-DPC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a horizontal DPC inside an STC, during receipt activities, resulting in a filtered radionuclide release. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	2.E-08	7.E-09	6.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-DPC-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a horizontal DPC inside an STC, during receipt activities, resulting in a filtered radionuclide release also important to criticality. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	3.E-12	5.E-13	8.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-DPC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a horizontal DPC inside an STC, during receipt activities, resulting in an unfiltered radionuclide release. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	7.E-10	1.E-10	9.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-DPC-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a horizontal DPC inside an STC, during receipt activities, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	6.E-14	0.E+00	1.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-CSNF-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during removal of impact limiters, upending, and transfer to preparation station, resulting in a direct exposure from degradation of shielding. In this sequence the transportation cask containment function remains intact, and the shielding fails.	1 transportation cask with uncanistered SNF assemblies	7.E-06	3.E-06	3.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-CSNF-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during removal of impact limiters, upending, and transfer to preparation station, resulting in a filtered radionuclide release. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering the cask.	1 transportation cask with uncanistered SNF assemblies	7.E-06	3.E-06	3.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD05-CSNF-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during removal of impact limiters, upending, and transfer to preparation station, resulting in a filtered radionuclide release also important to criticality. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters the cask.	1 transportation cask with uncanistered SNF assemblies	6.E-10	2.E-10	2.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-CSNF-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during removal of impact limiters, upending, and transfer to preparation station, resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering the cask.	1 transportation cask with uncanistered SNF assemblies	2.E-07	4.E-08	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-CSNF-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during removal of impact limiters, upending, and transfer to preparation station, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters the cask.	1 transportation cask with uncanistered SNF assemblies	3.E-11	3.E-12	1.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-TTC-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask upended with a tilting frame, during removal of impact limiters, upending, and transfer to a CTT, resulting in a direct exposure from degradation of shielding. In this sequence the transportation cask containment function remains intact, and the shielding fails.	1 DPC	1.E-06	1.E-06	2.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-TTC-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask upended with a tilting frame, during removal of impact limiters, upending, and transfer to a CTT, resulting in a direct exposure from loss of shielding. In this sequence the transportation cask fails, and the canister remains intact.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-TTC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask upended with a tilting frame, during removal of impact limiters, upending, and transfer to a CTT, resulting in a filtered radionuclide release. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	1.E-06	1.E-06	2.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-TTC-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask upended with a tilting frame, during removal of impact limiters, upending, and transfer to a CTT, resulting in a filtered radionuclide release also important to criticality. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	2.E-10	8.E-11	2.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-TTC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask upended with a tilting frame, during removal of impact limiters, upending, and transfer to a CTT, resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	5.E-08	2.E-08	2.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-TTC-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask upended with a tilting frame, during removal of impact limiters, upending, and transfer to a CTT, resulting in an unfiltered radionucilde release also important to criticality. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	5.E-12	1.E-12	2.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-VTC-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask, during removal of impact limiters, upending, and transfer to a CTT, resulting in a direct exposure from degradation of shielding. In this sequence the transportation cask containment function remains intact, and the shielding fails.	1 DPC	6.E-07	2.E-07	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-VTC-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask, during removal of impact limiters, upending, and transfer to a CTT, resulting in a direct exposure from loss of shielding. In this sequence the transportation cask fails, and the canister remains intact.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD06-VTC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during removal of impact limiters, upending, and transfer to a CTT, resulting in a filtered radionuclide release. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	6.E-07	2.E-07	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-VTC-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during removal of impact limiters, upending, and transfer to a CTT, resulting in a filtered radionuclide release also important to criticality. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	6.E-11	2.E-11	2.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-VTC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during removal of impact limiters, upending, and transfer to a CTT, resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	2.E-08	4.E-09	1.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-VTC-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during removal of impact limiters, upending, and transfer to a CTT, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	2.E-12	3.E-13	2.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbolting, transportation cask lid adapter installation), resulting in a direct exposure from degradation of shielding. In this sequence the transportation cask containment function remains intact, and the shielding fails.	1 DPC	1.E-06	8.E-07	8.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbotting, transportation cask lid adapter installation), resulting in a direct exposure from loss of shielding. In this sequence the transportation cask fails, and the canister remains intact.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbolting, transportation cask lid adapter installation), resulting in a filtered radionuclide release. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	1.E-06	8.E-07	8.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbotting, transportation cask lid adapter installation), resulting in a filtered radionuclide release also important to criticality. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	1.E-10	7.E-11	2.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbolting, transportation cask lid adapter installation), resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	4.E-08	2.E-08	8.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbotting, transportation cask lid adapter installation), resulting in an unfiltered radionuclide release also important to criticality. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	4.E-12	1.E-12	1.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-CSNF-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during preparation activities (unbotting, transportation cask lid adapter installation), resulting in a direct exposure from degradation of shielding. In this sequence the transportation cask containment function remains intact, and the shielding fails.	1 transportation cask with uncanistered SNF assemblies	1.E-05	9.E-06	8.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD08-CSNF-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during preparation activities (unbolting, transportation cask lid adapter installation), resulting in a filtered radionuclide release. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering the cask.	1 transportation cask with uncanistered SNF assemblies	1.E-06	9.E-06	8.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-CSNF-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during preparation activities (unbolting, transportation cask lid adapter installation), resulting in a filtered radionuclide release also important to criticality. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters the cask.	1 transportation cask with uncanistered SNF assemblies	1.E-09	7.E-10	2.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-CSNF-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during preparation activities (unbolting, transportation cask lid adapter installation), resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering the cask.	1 transportation cask with uncanistered SNF assemblies	4.E-07	2.E-07	9.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-CSNF-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during preparation activities (unbolting, transportation cask lid adapter installation), resulting in an unfiltered radionuclide release also important to criticality. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters the cask.	1 transportation cask with uncanistered SNF assemblies	4.E-11	1.E-11	1.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (transportation cask lid removal, DPC lid adapter installation), resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 DPC	7.E-07	7.E-07	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (transportation cask iid removal, DPC iid adapter installation), resulting in a filtered radionuclide release. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	7.E-07	7.E-07	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-DPC-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (transportation cask lid removal, DPC lid adapter installation), resulting in a filtered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	7.E-11	5.E-11	9.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (transportation cask lid removal, DPC lid adapter installation), resulting in an unfiltered radionucilde release. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	2.E-08	1.E-08	4.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-DPC-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (transportation cask lid removal, DPC lid adapter installation), resulting in an unfiltered radionucilde release also important to criticality. In this sequence the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	3.E-12	8.E-13	8.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD10-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask, during CTT transfer to Cask Unloading Room, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 DPC	3.E-09	2.E-09	4.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD10-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during CTT transfer to Cask Unloading Room, resulting in a filtered radionuclide release. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	3.E-09	2.E-09	4.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD10-DPC-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during CTT transfer to Cask Unloading Room, resulting in a filtered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	4.E-13	2.E-13	8.E-13	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD10-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during CTT transfer to Cask Unloading Room, resulting in an unfiltered radionuclide release. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	1.E-10	3.E-11	3.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD10-DPC-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask, during CTT transfer to Cask Unloading Room, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	9.E-15	0.E+00	5.E-14	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside an aging overpack, during site transporter transfer to the Loading Room, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 DPC	4.E-05	3.E-05	5.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD11-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside an aging overpack, during site transporter transfer to the Loading Room, resulting in a filtered radionuclide release. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	3.E-07	3.E-07	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-DPC-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an aging overpack, during site transporter transfer to the Loading Room, resulting in a filtered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	3.E-11	2.E-11	3.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside an aging overpack, during site transporter transfer to the Loading Room, resulting in an unfiltered radionuclide release. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	9.E-09	4.E-09	2.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-DPC-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an aging overpack, during site transporter transfer to the Loading Room, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	1.E-12	3.E-13	3.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-TAD-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister inside an aging overpack, during export activities, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 TAD canister	1.E-04	9.E-05	2.E-04	Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-TAD-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an aging overpack, during export activities, resulting in a filtered radionuclide release. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 TAD canister	9.E-07	9.E-07	2.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-TAD-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an aging overpack, during export activities, resulting in a filtered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 TAD canister	9.E-11	6.E-11	1.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-TAD-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an aging overpack, during export activities, resulting in an unfiltered radionuclide release. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 TAD canister	3.E-08	1.E-08	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-TAD-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an aging overpack, during export activities, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 TAD canister	3.E-12	9.E-13	1.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD12-DPC-SEQ10-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in a filtered radionuclide release. In this sequence the cell door fails and impacts the waste form, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ11-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in a filtered radionuclide release also important to criticality. In this sequence the cell door fails and impacts the waste form, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ12-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in an unfiltered radionuclide release. In this sequence the cell door fails and impacts the waste form, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ13-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the cell door fails and impacts the waste form, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in a direct exposure from loss of shielding. In this sequence the cell door structure remains intact, the canister remains intact, and the shielding fails.	1 DPC	4.E-12	1.E-12	9.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in a filtered radionuclide release. In this sequence the cell door structure remains intact, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	4.E-12	1.E-12	9.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in a filtered radionuclide release also important to criticality. In this sequence the cell door structure remains intact, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	8.E-18	0.E+00	5.E-16	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in an unfiltered radionuclide release. In this sequence the cell door structure remains intact, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	1.E-13	0.E+00	6.E-13	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the cell door structure remains intact, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ9-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside an aging overpack, due to site transporter collision with shield door, resulting in a direct exposure from loss of shielding. In this sequence the cell door fails and impacts the waste form, the canister remains intact, and the shielding fails.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ10-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in a filtered radionuclide release. In this sequence the cell door fails and impacts the waste form, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ11-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in a filtered radionuclide release also important to criticality. In this sequence the cell door fails and impacts the waste form, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD12-TAD-SEQ12-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in an unfiltered radionuclide release. In this sequence the cell door fails and impacts the waste form, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ13-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the cell door fails and impacts the waste form, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in a direct exposure from loss of shielding. In this sequence the cell door structure remains intact, the canister remains intact, and the shielding fails.	1 TAD canister	1.E-11	5.E-12	3.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in a filtered radionuclide release. In this sequence the cell door structure remains intact, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 TAD canister	1.E-11	5.E-12	3.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in a filtered radionuclide release also important to criticality. In this sequence the cell door structure remains intact, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 TAD canister	3.E-17	0.E+00	2.E-15	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in an unfiltered radionuclide release. In this sequence the cell door structure remains intact, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 TAD canister	5.E-13	0.E+00	2.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the cell door structure remains intact, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ9-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister inside an STC or aging overpack, due to CTT or site transporter collision with shield door, resulting in a direct exposure from loss of shielding. In this sequence the cell door fails and impacts the waste form, the canister remains intact, and the shielding fails.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD13-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC, during canister transfer by the CTM, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 DPC	2.E-06	1.E-06	5.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD13-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC, during canister transfer by the CTM, resulting in a filtered radionuclide release. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	2.E-06	1.E-06	5.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD13-DPC-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC, during canister transfer by the CTM, resulting in a filtered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	3.E-10	9.E-11	9.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD13-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC, during canister transfer by the CTM, resulting in an unfiltered radionuclide release. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	9.E-08	2.E-08	3.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD13-DPC-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC, during canister transfer by the CTM, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	9.E-12	1.E-12	4.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD13-TAD-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister, during canister transfer by the CTM, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 TAD canister	8.E-06	4.E-06	2.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD13-TAD-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister, during canister transfer by the CTM, resulting in a filtered radionuclide release. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 TAD canister	8.E-06	4.E-06	2.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD13-TAD-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister, during canister transfer by the CTM, resulting in a filtered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 TAD canister	9.E-10	3.E-10	3.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD13-TAD-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister, during canister transfer by the CTM, resulting in an unfiltered radionuclide release. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 TAD canister	3.E-07	6.E-08	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD13-TAD-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister, during canister transfer by the CTM, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 TAD canister	3.E-11	4.E-12	1.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD14-DPC-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from Cask Unloading Room to preparation station, resulting in a direct exposure from degradation of shielding. In this sequence the STC containment function remains intact, and the shielding fails.	1 DPC	3.E-09	2.E-09	4.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD14-DPC-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from Cask Unloading Room to preparation station, resulting in a direct exposure from loss of shielding. In this sequence the STC fails, and the canister remains intact.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD14-DPC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from Cask Unloading Room to preparation station, resulting in a filtered radionuclide release. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	3.E-09	2.E-09	4.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD14-DPC-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from Cask Unloading Room to preparation station, resulting in a filtered radionuclide release also important to criticality. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	4.E-13	2.E-13	8.E-13	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD14-DPC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from Cask Unloading Room to preparation station, resulting in an unfiltered radionuclide release. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	1.E-10	3.E-11	3.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD14-DPC-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from Cask Unloading Room to preparation station, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	9E-15	0.E+00	5.E-14	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD15-DPC-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from preparation station to DPC cutting station, resulting in a direct exposure from degradation of shielding. In this sequence the STC containment function remains intact, and the shielding fails.	1 DPC	7.E-07	4.E-07	3.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD15-DPC-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from preparation station to DPC cutting station, resulting in a direct exposure from loss of shielding. In this sequence the STC fails, and the canister remains intact.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD15-DPC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from preparation station to DPC cutting station, resulting in a filtered radionuclide release. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	7.E-07	4.E-07	3.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD15-DPC-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from preparation station to DPC cutting station, resulting in a filtered radionuclide release also important to criticality. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	7.E-11	3.E-11	2.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD15-DPC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from preparation station to DPC cutting station, resulting in an unfiltered radionuclide release. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	2.E-08	8.E-09	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD15-DPC-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an STC, during STC transfer from preparation station to DPC cutting station, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 DPC	2.E-12	5.E-13	9.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD16-CSNF-SEQ1-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during preparation activities (sampling, gas cooling, water filling), resulting in a filtered radionuclide release. In this sequence the confinement boundary remains intact, and no condition important to criticality occurs.	1 transportation cask with uncanistered SNF assemblies	1.E-01	5.E-02	2.E-01	Category 2	Mean of distribution for number of occurrences of event sequence
ESD16-CSNF-SEQ2-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during preparation activities (sampling, gas cooling, water filling), resulting in a filtered radionuclide release also important to criticality. In this sequence the confinement boundary remains intact, and unborated water enters the cask.	1 transportation cask with uncanistered SNF assemblies	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD16-CSNF-SEQ3-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during preparation activities (sampling, gas cooling, water filling), resulting in an unfiltered radionuclide release. In this sequence the confinement boundary fails, and no condition important to criticality occurs.	1 transportation cask with uncanistered SNF assemblies	1.E-04	3.E-05	3.E-04	Category 2	Mean of distribution for number of occurrences of event sequence
ESD16-CSNF-SEQ4-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during preparation activities (sampling, gas cooling, water filling), resulting in an unfiltered radionuclide release also important to criticality. In this sequence the confinement boundary fails, and unborated water enters the cask.	1 transportation cask with uncanistered SNF assemblies	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD17-DPC-SEQ1-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC, during preparation activities (sampling, gas cooling, water filling), resulting in a filtered radionuclide release. In this sequence the confinement boundary remains intact, and no condition important to criticality occurs.	1 DPC	9.E-03	5.E-03	2.E-02	Category 2	Mean of distribution for number of occurrences of event sequence
ESD17-DPC-SEQ2-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC, during preparation activities (sampling, gas cooling, water filling), resulting in a filtered radionuclide release also important to criticality. In this sequence the confinement boundary remains intact, and unborated water enters the cask.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD17-DPC-SEQ3-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC, during preparation activities (sampling, gas cooling, water filling), resulting in an unfiltered radionuclide release. In this sequence the confinement boundary fails, and no condition important to criticality occurs.	1 DPC	9.E-06	3.E-06	3.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD17-DPC-SEQ4-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC, during preparation activities (sampling, gas cooling, water filling), resulting in an unfiltered radionuclide release also important to criticality. In this sequence the confinement boundary fails, and unborated water enters the cask.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD18-DPC-SEQ1-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC, during DPC cutting activities, resulting in a filtered radionuclide release. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 DPC	2.E-02	2.E-02	3.E-03	Category 2	Mean of distribution for number of occurrences of event sequence
ESD18-DPC-SEQ2-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC, during DPC cutting activities, resulting in a filtered radionuclide release also important to criticality. In this sequence the confinement boundary remains intact, and a moderator enters the canister.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD18-DPC-SEQ3-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC, during DPC cutting activities, resulting in an unfiltered radionuclide release. In this sequence the confinement boundary fails, and a moderator is excluded from entering the canister.	1 DPC	2.E-05	1.E-05	3.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD18-DPC-SEQ4-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC, during DPC cutting activities, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the confinement boundary fails, and a moderator enters the canister.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD19-DPC-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a DPC inside an STC, during transfer to pool, resulting in a direct exposure from degradation of shielding. In this sequence the STC containment function remains intact, and the shielding fails. This sequence occurs outside the pool.	1 DPC	6.E-06	4.E-06	8.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD19-DPC-SEQ3-DEL	N/A	This event sequence, where a structural challenge to a DPC inside an STC, during transfer to pool, causes the STC to fail and the canister to remain intact, is not applicable to DPCs because their lid is cut.	1 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	N/A
ESD19-DPC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside an STC, during transfer to pool, resulting in a filtered radionuclide release. In this sequence the STC fails, there is no canister containment (canister is not sealed), the confinement boundary remains intact, and a moderator is excluded from entering the canister. This sequence occurs outside the pool.	1 DPC	6.E-06	4.E-06	8.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD19-DPC-SEQ5-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an STC, during transfer to pool, resulting in a filtered radionuclide release also important to criticality. In this sequence the STC fails, there is no canister containment (canister is not sealed), the confinement boundary remains intact, and a moderator enters the canister. This sequence occurs outside the pool.	1 DPC	7.E-10	3.E-10	2.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD19-DPC-SEQ6P-GRRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside an STC, during transfer to pool, resulting in an unfiltered radionuclide release. In this sequence the STC fails, and an adequate boron concentration is maintained. This sequence occurs inside the pool.	1 DPC	7.E-05	2.E-05	2.E-04	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD19-DPC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside an STC, during transfer to pool, resulting in an unfiltered radionucilde release. In this sequence the STC fails, there is no canister containment (canister is not sealed), the confinement boundary fails, and a moderator is excluded from entering the canister. This sequence occurs outside the pool.	1 DPC	2.E-07	7.E-08	6.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD19-DPC-SEQ7P-GRRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an STC, during transfer to pool, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, and the boron concentration drops to an unallowable level. This sequence occurs inside the pool.	1 DPC	7.E-11	2.E-11	2.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD19-DPC-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an STC, during transfer to pool, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, there is no canister containment (canister is not sealed), the confinement boundary fails, and a moderator enters the canister. This sequence occurs outside the pool.	1 DPC	2.E-11	5.E-12	7.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD20-CSNF-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during transfer to pool, resulting in a direct exposure from degradation of shielding. In this sequence the transportation cask containment function remains intact, and the shielding fails. This sequence occurs outside the pool.	1 transportation cask with uncanistered SNF assemblies	7.E-05	5.E-05	9.E-05	Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Recategorization to higher category by alternative distribution
ESD20-CSNF-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during transfer to pool, resulting in a filtered radionuclide release. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering the cask. This sequence occurs outside the pool.	1 transportation cask with uncanistered SNF assemblies	7.E-05	5.E-05	9.E-05	Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Recategorization to higher category by alternative distribution
ESD20-CSNF-SEQ4-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during transfer to pool, resulting in a filtered radionuclide release also important to criticality. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters the cask. This sequence occurs outside the pool.	1 transportation cask with uncanistered SNF assemblies	8.E-09	3.E-09	2.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD20-CSNF-SEQ5P-GRRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during transfer to pool, resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, and an adequate boron concentration is maintained. This sequence occurs inside the pool.	1 transportation cask with uncanistered SNF assemblies	7.E-04	3.E-04	2.E-03	Category 2	Mean of distribution for number of occurrences of event sequence
ESD20-CSNF-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during transfer to pool, resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering the cask. This sequence occurs outside the pool.	1 transportation cask with uncanistered SNF assemblies	2.E-06	7.E-07	6.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD20-CSNF-SEQ6P-GRRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during transfer to pool, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the transportation cask fails, and the boron concentration drops to an unallowable level. This sequence occurs inside the pool.	1 transportation cask with uncanistered SNF assemblies	7.E-10	3.E-10	2.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD20-CSNF-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during transfer to pool, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters the cask. This sequence occurs outside the pool.	1 transportation cask with uncanistered SNF assemblies	2.E-10	5.E-11	8.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD21-CSNF-SEQ2P-GRRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during transfer to pool floor, resulting in an unfiltered radionuclide release. In this sequence the transportation cask fails, and an adequate boron concentration is maintained. This sequence occurs inside the pool.	1 transportation cask with uncanistered SNF assemblies	2.E-04	1.E-04	3.E-04	Category 2	Mean of distribution for number of occurrences of event sequence
ESD21-CSNF-SEQ3P-GRRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a transportation cask with uncanistered SNF assemblies, during transfer to pool floor, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the transportation cask fails, and the boron concentration drops to an unallowable level. This sequence occurs inside the pool.	1 transportation cask with uncanistered SNF assemblies	2.E-10	1.E-10	3.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD21-DPC-SEQ2P-GRRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside an STC, during transfer to pool floor, resulting in an unfiltered radionuclide release. In this sequence the STC fails, and an adequate boron concentration is maintained. This sequence occurs inside the pool.	1 DPC	2.E-05	1.E-05	2.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD21-DPC-SEQ3P-GRRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside an STC, during transfer to pool floor, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, and the boron concentration drops to an unallowable level. This sequence occurs inside the pool.	1 DPC	2.E-11	1.E-11	2.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD21-TAD-SEQ2P-GRRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from pool floor, resulting in an unfiltered radionuclide release. In this sequence the STC fails, and an adequate boron concentration is maintained. This sequence occurs inside the pool.	1 TAD canister	7.E-05	4.E-05	8.E-05	Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Recategorization to higher category by alternative distribution
ESD21-TAD-SEQ3P-GRRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from pool floor, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, and the boron concentration drops to an unallowable level. This sequence occurs inside the pool.	1 TAD canister	7.E-11	4.E-11	8.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD22-FUEL-SEQ2P-GRRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to SNF assemblies, during fuel transfer activities, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the boron concentration drops to an unallowable level. This sequence occurs inside the pool.	2 SNF assemblies	3.E-07	3.E-07	2.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD22-FUEL-SEQP-GRRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to SNF assemblies, during fuel transfer activities, resulting in an unfiltered radionuclide release. In this sequence an adequate boron concentration is maintained. This sequence occurs inside the pool.	2 SNF assemblies	3.E-01	3.E-01	2.E-01	Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD23-POOL-SEQ2P-DEL	Direct exposure, loss of shielding	This event sequence represents a direct exposure during handling of liquid LLW from the WHF pool. In this sequence there are no pivotal events.	liquid LLW	7.E-06	1.E-06	2.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD24-TAD-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from pool to closure station, resulting in a direct exposure from degradation of shielding. In this sequence the STC containment function remains intact, and the shielding fails. This sequence occurs outside the pool.	1 TAD canister	7.E-06	5.E-06	9.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD24-TAD-SEQ3-DEL	N/A	This event sequence, where a structural challenge to a TAD canister inside an STC, during transfer from pool, causes the STC to fail and the canister to remain intact, is not applicable to TAD canisters because they are not sealed.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	N/A
ESD24-TAD-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from pool to closure station, resulting in a filtered radionuclide release. In this sequence the STC fails, there is no canister containment (canister is not sealed), the confinement boundary remains intact, and a moderator is excluded from entering the canister. This sequence occurs outside the pool.	1 TAD canister	7.E-06	5.E-06	9.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD24-TAD-SEQ5-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from pool to closure station, resulting in a filtered radionuclide release also important to criticality. In this sequence the STC fails, there is no canister containment (canister is not sealed), the confinement boundary remains intact, and a moderator enters the canister. This sequence occurs outside the pool.	1 TAD canister	8.E-10	3.E-10	2.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD24-TAD-SEQ6P-GRRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from pool to closure station, resulting in an unfiltered radionuclide release. In this sequence the STC fails, and an adequate boron concentration is maintained. This sequence occurs inside the pool.	1 TAD canister	5.E-04	2.E-04	1.E-03	Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD24-TAD-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from pool to closure station, resulting in an unfiltered radionuclide release. In this sequence the STC fails, there is no canister containment (canister is not sealed), the confinement boundary fails, and a moderator is excluded from entering the canister. This sequence occurs outside the pool.	1 TAD canister	2.E-07	7.E-08	7.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD24-TAD-SEQ7P-GRRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from pool to closure station, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, and the boron concentration drops to an unallowable level. This sequence occurs inside the pool.	1 TAD canister	5.E-10	2.E-10	1.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD24-TAD-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from pool to closure station, resulting in an unfiltered radionucide release also important to criticality. In this sequence the STC fails, there is no canister containment (canister is not sealed), the confinement boundary fails, and a moderator enters the canister. This sequence occurs outside the pool.	1 TAD canister	2.E-11	5.E-12	8.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD25-TAD-SEQ2-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC, during TAD canister assembly and closure, resulting in a filtered radionuclide release. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 TAD canister	2.E-06	2.E-06	2.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD25-TAD-SEQ3-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC, during TAD canister assembly and closure, resulting in a filtered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 TAD canister	2.E-10	1.E-10	2.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD25-TAD-SEQ4-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC, during TAD canister assembly and closure, resulting in an unfiltered radionuclide release. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 TAD canister	6.E-08	3.E-08	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD25-TAD-SEQ5-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC, during TAD canister assembly and closure, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 TAD canister	6.E-12	2.E-12	1.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD26-TAD-SEQ3-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister, due to insufficient drying, resulting in an unfiltered radionuclide release. In this sequence the pressure builds up in the canister, leading to its failure, postulated to be outside a waste-handling surface facility.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD27-TAD-SEQ1-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister, during TAD canister drying and inerting activities, resulting in a filtered radionuclide release. In this sequence the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 TAD canister	2.E-03	3.E-04	6.E-03	Category 2	Mean of distribution for number of occurrences of event sequence
ESD27-TAD-SEQ2-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister, during TAD canister drying and inerting activities, resulting in a filtered radionuclide release also important to criticality. In this sequence the confinement boundary remains intact, and a moderator enters the canister.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD27-TAD-SEQ3-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister, during TAD canister drying and inerting activities, resulting in an unfiltered radionuclide release. In this sequence the confinement boundary fails, and a moderator is excluded from entering the canister.	1 TAD canister	2.E-06	2.E-07	1.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD27-TAD-SEQ4-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister, during TAD canister drying and inerting activities, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the confinement boundary fails, and a moderator enters the canister.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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Table G-2. Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk ¹	Mean ²	Median ²	Std Dev ²	Event Sequence Cat.	Basis for Categorization
ESD28-TAD-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from closure station to a CTT, resulting in a direct exposure from degradation of shielding. In this sequence the STC containment function remains intact, and the shielding fails.	1 TAD canister	3.E-06	2.E-06	9.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD28-TAD-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from closure station to a CTT, resulting in a direct exposure from loss of shielding. In this sequence the STC fails, and the canister remains intact.	1 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD28-TAD-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from closure station to a CTT, resulting in a filtered radionuclide release. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering the canister.	1 TAD canister	3.E-06	2.E-06	9.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD28-TAD-SEQ5-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from closure station to a CTT, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, the canister fails, the confinement boundary remains intact, and a moderator enters the canister.	1 TAD canister	3.E-10	2.E-10	6.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD28-TAD-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from closure station to a CTT, resulting in an unfiltered radionuclide release. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering the canister.	1 TAD canister	1.E-07	4.E-08	3.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD28-TAD-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside an STC, during transfer from closure station to a CTT, resulting in an unfiltered radionuclide release also important to criticality. In this sequence the STC fails, the canister fails, the confinement boundary fails, and a moderator enters the canister.	1 TAD canister	1.E-11	3.E-12	4.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD29-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a direct exposure during operations involving a DPC (transportation cask preparation, transfer by CTM, DPC cutting). In this sequence there are no pivotal events.	1 DPC	3.E-01	3.E-01	2.E-01	Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD29-TAD-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a direct exposure during operations involving a TAD canister (assembly and closure, transfer by CTM). In this sequence there are no pivotal events.	1 TAD canister	9.E-02	5.E-02	2.E-01	Category 2	Mean of distribution for number of occurrences of event sequence
ESD30-DPC-SEQ2-DEL	Direct exposure	This event sequence represents a direct exposure during pool operations (splash of pool water). In this sequence there are no pivotal events.	liquid LLW	2.E-02	2.E-03	1.E-01	Category 2	Mean of distribution for number of occurrences of event sequence
ESD30-FUEL-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a direct exposure during pool operations (fuel assembly lifted too high). In this sequence there are no pivotal events.	1 SNF assembly	5.E-02	2.E-02	7.E-02	Category 2	Mean of distribution for number of occurrences of event sequence
ESD31-CSNF-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a thermal challenge to a transportation cask with uncanistered SNF assemblies, due to a fire, resulting in a direct exposure from loss of shielding. In this sequence the transportation cask containment function remains intact, and the shielding fails.	1 transportation cask with uncanistered SNF assemblies	7.E-02	7.E-02	2.E-02	Category 2	Mean of distribution for number of occurrences of event sequence
ESD31-CSNF-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a thermal challenge to a transportation cask with uncanistered SNF assemblies, due to a fire, resulting in a filtered radionuclide release. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering the cask.	1 transportation cask with uncanistered SNF assemblies	6.E-04	5.E-04	3.E-04	Category 2	Mean of distribution for number of occurrences of event sequence
ESD31-CSNF-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a thermal challenge to a transportation cask with uncanistered SNF assemblies, due to a fire, resulting in a filtered radionuclide release also important to criticality. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters the cask.	1 transportation cask with uncanistered SNF assemblies	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence