

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD05-TAD	13	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to an impact with a RF shield door. In this sequence the cell door fails and impacts the waste form, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD5-TAD-IMPACT, ESD5-TAD-IMPACT-DOOR, ESD5-TAD-IMPACT-CONT, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	2-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from degradation of shielding due to an impact to the canister during lid removal. In this sequence the canister remains intact, and the shielding fails.	ESD6-DPC-LIDIMP, /ESD6-DPC-LIDIMP-CAN, ESD6-DPC-LIDIMP-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	2-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to an impact to the canister during lid removal. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-DPC-LIDIMP, ESD6-DPC-LIDIMP-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	2-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an impact to the canister during lid removal. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-DPC-LIDIMP, ESD6-DPC-LIDIMP-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	2-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to an impact to the canister during lid removal. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-DPC-LIDIMP, ESD6-DPC-LIDIMP-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	2-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an impact to the canister during lid removal. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-DPC-LIDIMP, ESD6-DPC-LIDIMP-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	3-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from degradation of shielding due to a drop of the canister from an operational height. In this sequence the canister remains intact, and the shielding fails.	ESD6-DPC-DROP, /ESD6-DPC-DROP-CAN, ESD6-DPC-DROP-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	3-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a drop of the canister from an operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-DPC-DROP, ESD6-DPC-DROP-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	4.924E-08	3.813E-08	5.315E-08
RF-ESD06-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 drop of the canister from an operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-DPC-DROP, ESD6-DPC-DROP-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	4.363E-12	1.306E-12	1.470E-11
RF-ESD06-DPC	3-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a drop of the canister from an operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-DPC-DROP, ESD6-DPC-DROP-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.689E-09	6.604E-10	4.077E-09
RF-ESD06-DPC	3-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a drop of the canister from an operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-DPC-DROP, ESD6-DPC-DROP-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	1.246E-013	+0.000E+000	7.608E-013
RF-ESD06-DPC	4-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from degradation of shielding due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister remains intact, and the shielding fails.	ESD6-DPC-SPUR, /ESD6-DPC-SPUR-CAN, ESD6-DPC-SPUR-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	4-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-DPC-SPUR, ESD6-DPC-SPUR-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	1.724E-06	8.115E-07	3.763E-06
RF-ESD06-DPC	4-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-DPC-SPUR, ESD6-DPC-SPUR-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	1.557E-10	2.912E-11	7.872E-10
RF-ESD06-DPC	4-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-DPC-SPUR, ESD6-DPC-SPUR-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	5.797E-08	1.412E-08	1.972E-07

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD06-DPC	4-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-DPC-SPUR, ESD6-DPC-SPUR-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	4.351E-12	4.994E-13	2.121E-11
RF-ESD06-DPC	5-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from degradation of shielding due to a collision/side impact to a cask. In this sequence the canister remains intact, and the shielding fails.	ESD6-DPC-SIMPACT, /ESD6-DPC-SIMPACT-CAN, ESD6-DPC-SIMPACT-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	5-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a collision/side impact to a cask. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-DPC-SIMPACT, ESD6-DPC-SIMPACT-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	1.351E-011	1.352E-011	9.400E-013
RF-ESD06-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 collision/side impact to a cask. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-DPC-SIMPACT, ESD6-DPC-SIMPACT-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	5.378E-017	+0.000E+000	2.304E-015
RF-ESD06-DPC	5-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a collision/side impact to a cask. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-DPC-SIMPACT, ESD6-DPC-SIMPACT-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	4.597E-013	2.305E-013	7.546E-013
RF-ESD06-DPC	5-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a collision/side impact to a cask. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-DPC-SIMPACT, ESD6-DPC-SIMPACT-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	6-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the canister. In this sequence the canister remains intact, and the shielding fails.	ESD6-DPC-DROPON, /ESD6-DPC-DROPON-CAN, ESD6-DPC-DROPON-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	6-3	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 canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-DPC-DROPON, ESD6-DPC-DROPON-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	4.876E-08	3.868E-008	4.39E-08
RF-ESD06-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 drop of a heavy object onto the canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-DPC-DROPON, ESD6-DPC-DROPON-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	4.277E-12	1.345E-012	1.276E-11
RF-ESD06-DPC	6-5	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 canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-DPC-DROPON, ESD6-DPC-DROPON-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.615E-09	6.578E-010	4.115E-09
RF-ESD06-DPC	6-6	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 canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-DPC-DROPON, ESD6-DPC-DROPON-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	1.311E-13	+0.000E+000	8.470E-13
RF-ESD06-DPC	7-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from degradation of shielding due to a canister drop inside the CTM bell. In this sequence the canister remains intact, and the shielding fails.	ESD6-DPC-CTMBELL, /ESD6-DPC-CTMBELL-CAN, ESD6-DPC-CTMBELL-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	7-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a canister drop inside the CTM bell. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-DPC-CTMBELL, ESD6-DPC-CTMBELL-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-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 canister drop inside the CTM bell. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-DPC-CTMBELL, ESD6-DPC-CTMBELL-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	7-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a canister drop inside the CTM bell. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-DPC-CTMBELL, ESD6-DPC-CTMBELL-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	7-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a canister drop inside the CTM bell. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-DPC-CTMBELL, ESD6-DPC-CTMBELL-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD06-DPC	8-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from degradation of shielding due to a drop of the canister above the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD6-DPC-2BLK, /ESD6-DPC-2BLK-CAN2, ESD6-DPC-2BLK-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-DPC	8-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-DPC-2BLK, ESD6-DPC-2BLK-CAN2, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	9.722E-11	7.375E-12	5.639E-10
RF-ESD06-DPC	8-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-DPC-2BLK, ESD6-DPC-2BLK-CAN2, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	7.322E-15	+0.000E+000	9.263E-14
RF-ESD06-DPC	8-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-DPC-2BLK, ESD6-DPC-2BLK-CAN2, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	3.035E-12	1.152E-13	2.449E-11
RF-ESD06-DPC	8-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-DPC-2BLK, ESD6-DPC-2BLK-CAN2, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	1.152E-16	+0.000E+000	2.873E-15
RF-ESD06-TAD	2-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from degradation of shielding due to an impact to the canister during lid removal. In this sequence the canister remains intact, and the shielding fails.	ESD6-TAD-LIDIMP, /ESD6-TAD-LIDIMP-CAN, ESD6-TAD-LIDIMP-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	2-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to an impact to the canister during lid removal. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-TAD-LIDIMP, ESD6-TAD-LIDIMP-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	3.247E-007	1.079E-007	7.432E-007
RF-ESD06-TAD	2-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to an impact to the canister during lid removal. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-TAD-LIDIMP, ESD6-TAD-LIDIMP-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	2.803E-011	3.098E-012	2.453E-010
RF-ESD06-TAD	2-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to an impact to the canister during lid removal. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-TAD-LIDIMP, ESD6-TAD-LIDIMP-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.035E-08	1.720E-09	4.235E-08
RF-ESD06-TAD	2-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to an impact to the canister during lid removal. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-TAD-LIDIMP, ESD6-TAD-LIDIMP-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	8.489E-13	+0.000E+000	7.782E-12
RF-ESD06-TAD	3-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from degradation of shielding due to a drop of the canister from an operational height. In this sequence the canister remains intact, and the shielding fails.	ESD6-TAD-DROP, /ESD6-TAD-DROP-CAN, ESD6-TAD-DROP-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	3-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a drop of the canister from an operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-TAD-DROP, ESD6-TAD-DROP-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	9.928E-07	7.687E-07	1.072E-06
RF-ESD06-TAD	3-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of the canister from an operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-TAD-DROP, ESD6-TAD-DROP-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	8.797E-11	2.633E-11	2.963E-10
RF-ESD06-TAD	3-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a drop of the canister from an operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-TAD-DROP, ESD6-TAD-DROP-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	3.406E-08	1.331E-08	8.220E-08

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD06-TAD	3-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of the canister from an operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-TAD-DROP, ESD6-TAD-DROP-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	2.512E-012	+0.000E+000	1.534E-011
RF-ESD06-TAD	4-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from degradation of shielding due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister remains intact, and the shielding fails.	ESD6-TAD-SPUR, /ESD6-TAD-SPUR-CAN, ESD6-TAD-SPUR-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	4-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-TAD-SPUR, ESD6-TAD-SPUR-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	3.476E-05	1.636E-05	7.588E-05
RF-ESD06-TAD	4-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-TAD-SPUR, ESD6-TAD-SPUR-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	3.139E-09	5.871E-10	1.587E-08
RF-ESD06-TAD	4-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-TAD-SPUR, ESD6-TAD-SPUR-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.169E-06	2.846E-07	3.975E-06
RF-ESD06-TAD	4-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to an impact to the canister due to spurious movement of a conveyance. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-TAD-SPUR, ESD6-TAD-SPUR-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	8.773E-11	1.007E-11	4.276E-10
RF-ESD06-TAD	5-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from degradation of shielding due to a collision/side impact to a cask. In this sequence the canister remains intact, and the shielding fails.	ESD6-TAD-SIMPACT, /ESD6-TAD-SIMPACT-CAN, ESD6-TAD-SIMPACT-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	5-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a collision/side impact to a cask. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-TAD-SIMPACT, ESD6-TAD-SIMPACT-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	2.724E-010	2.726E-010	1.895E-011
RF-ESD06-TAD	5-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a collision/side impact to a cask. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-TAD-SIMPACT, ESD6-TAD-SIMPACT-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	1.084E-015	+0.000E+000	4.646E-014
RF-ESD06-TAD	5-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a collision/side impact to a cask. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-TAD-SIMPACT, ESD6-TAD-SIMPACT-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	9.268E-012	4.647E-012	1.521E-011
RF-ESD06-TAD	5-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a collision/side impact to a cask. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-TAD-SIMPACT, ESD6-TAD-SIMPACT-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	6-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the canister. In this sequence the canister remains intact, and the shielding fails.	ESD6-TAD-DROPON, /ESD6-TAD-DROPON-CAN, ESD6-TAD-DROPON-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	6-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a drop of a heavy object onto the canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-TAD-DROPON, ESD6-TAD-DROPON-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	9.83E-07	7.799E-007	8.851E-07
RF-ESD06-TAD	6-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-TAD-DROPON, ESD6-TAD-DROPON-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	8.622E-11	2.711E-011	2.573E-10

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD06-TAD	6-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-TAD-DROPON, ESD6-TAD-DROPON-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	3.256E-08	1.326E-008	8.296E-08
RF-ESD06-TAD	6-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-TAD-DROPON, ESD6-TAD-DROPON-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	2.642E-12	+0.000E+000	1.708E-11
RF-ESD06-TAD	7-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from degradation of shielding due to a canister drop inside the CTM bell. In this sequence the canister remains intact, and the shielding fails.	ESD6-TAD-CTMBELL, /ESD6-TAD-CTMBELL-CAN, ESD6-TAD-CTMBELL-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	7-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a canister drop inside the CTM bell. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-TAD-CTMBELL, ESD6-TAD-CTMBELL-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	7-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a canister drop inside the CTM bell. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-TAD-CTMBELL, ESD6-TAD-CTMBELL-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	7-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a canister drop inside the CTM bell. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-TAD-CTMBELL, ESD6-TAD-CTMBELL-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	7-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a canister drop inside the CTM bell. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-TAD-CTMBELL, ESD6-TAD-CTMBELL-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	8-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from degradation of shielding due to a drop of the canister above the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD6-TAD-2BLK, /ESD6-TAD-2BLK-CAN2, ESD6-TAD-2BLK-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD06-TAD	8-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD6-TAD-2BLK, ESD6-TAD-2BLK-CAN2, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	1.96E-09	1.487E-010	1.137E-08
RF-ESD06-TAD	8-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD6-TAD-2BLK, ESD6-TAD-2BLK-CAN2, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	1.476E-13	+0.000E+000	1.868E-12
RF-ESD06-TAD	8-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD6-TAD-2BLK, ESD6-TAD-2BLK-CAN2, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	6.119E-11	2.324E-012	4.938E-10
RF-ESD06-TAD	8-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD6-TAD-2BLK, ESD6-TAD-2BLK-CAN2, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	2.324E-15	+0.000E+000	5.791E-14
RF-ESD07-DPC	2-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto a canister. In this sequence the canister remains intact, and the shielding fails.	ESD7-DPC-DROPON, /ESD7-DPC-DROPON-CAN, ESD7-DPC-DROPON-SHIELD	DE-SHIELD-LOSS	4.876E-08	3.868E-008	4.39E-08
RF-ESD07-DPC	2-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a drop of a heavy object onto a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD7-DPC-DROPON, ESD7-DPC-DROPON-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	4.876E-08	3.868E-008	4.39E-08
RF-ESD07-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 drop of a heavy object onto a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD7-DPC-DROPON, ESD7-DPC-DROPON-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	4.277E-12	1.345E-012	1.276E-11

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD07-DPC	2-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a drop of a heavy object onto a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD7-DPC-DROPON, ESD7-DPC-DROPON-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.615E-09	6.578E-010	4.115E-09
RF-ESD07-DPC	2-6	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 a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD7-DPC-DROPON, ESD7-DPC-DROPON-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	1.311E-13	+0.000E+000	8.470E-13
RF-ESD07-DPC	3-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a collision of the site transporter with structures or equipment. In this sequence the canister remains intact, and the shielding fails.	ESD7-DPC-COLLIDE, /ESD7-DPC-COLLIDE-CAN, ESD7-DPC-COLLIDE-SHIELD	DE-SHIELD-LOSS	1.586E-005	8.167E-06	5.531E-005
RF-ESD07-DPC	3-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD7-DPC-COLLIDE, ESD7-DPC-COLLIDE-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	1.586E-008	8.167E-09	5.531E-008
RF-ESD07-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 collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD7-DPC-COLLIDE, ESD7-DPC-COLLIDE-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	1.374E-012	2.689E-013	8.109E-012
RF-ESD07-DPC	3-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD7-DPC-COLLIDE, ESD7-DPC-COLLIDE-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	5.711E-10	1.357E-010	6.178E-09
RF-ESD07-DPC	3-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD7-DPC-COLLIDE, ESD7-DPC-COLLIDE-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	4.330E-14	+0.000E+000	4.030E-13
RF-ESD07-DPC	4-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a side impact to an AO. In this sequence the canister remains intact, and the shielding fails.	ESD7-DPC-IMPACT, /ESD7-DPC-IMPACT-CAN, ESD7-DPC-IMPACT-SHIELD	DE-SHIELD-LOSS	2.123E-005	1.603E-005	1.870E-005
RF-ESD07-DPC	4-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a side impact to an AO. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD7-DPC-IMPACT, ESD7-DPC-IMPACT-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	2.123E-008	1.603E-008	1.870E-008
RF-ESD07-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 side impact to an AO. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD7-DPC-IMPACT, ESD7-DPC-IMPACT-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	1.923E-012	5.378E-013	6.269E-012
RF-ESD07-DPC	4-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a side impact to an AO. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD7-DPC-IMPACT, ESD7-DPC-IMPACT-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	7.211E-10	2.732E-10	1.560E-09
RF-ESD07-DPC	4-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a side impact to an AO. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD7-DPC-IMPACT, ESD7-DPC-IMPACT-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	5.174E-014	+0.000E+000	2.311E-013
RF-ESD07-DPC	5-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to an AO tipover. In this sequence the canister remains intact, and the shielding fails.	ESD7-DPC-TIP, /ESD7-DPC-TIP-CAN, ESD7-DPC-TIP-SHIELD	DE-SHIELD-LOSS	3.388E-007	2.131E-007	4.031E-007
RF-ESD07-DPC	5-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to an AO tipover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD7-DPC-TIP, ESD7-DPC-TIP-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	3.388E-007	2.131E-007	4.031E-007
RF-ESD07-DPC	5-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an AO tipover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD7-DPC-TIP, ESD7-DPC-TIP-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	3.170E-011	7.491E-012	1.245E-010
RF-ESD07-DPC	5-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to an AO tipover. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD7-DPC-TIP, ESD7-DPC-TIP-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.096E-08	3.515E-009	2.595E-08

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD07-DPC	5-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an AO tipover. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD7-DPC-TIP, ESD7-DPC-TIP-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	9.900E-13	1.152E-013	5.201E-12
RF-ESD07-TAD	2-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto a canister. In this sequence the canister remains intact, and the shielding fails.	ESD7-TAD-DROPON, /ESD7-TAD-DROPON-CAN, ESD7-TAD-DROPON-SHIELD	DE-SHIELD-LOSS	9.830E-07	7.799E-007	8.851E-07
RF-ESD07-TAD	2-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a drop of a heavy object onto a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD7-TAD-DROPON, ESD7-TAD-DROPON-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	9.830E-07	7.799E-007	8.851E-07
RF-ESD07-TAD	2-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD7-TAD-DROPON, ESD7-TAD-DROPON-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	8.622E-11	2.711E-011	2.573E-10
RF-ESD07-TAD	2-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a drop of a heavy object onto a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD7-TAD-DROPON, ESD7-TAD-DROPON-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	3.256E-08	1.326E-008	8.296E-08
RF-ESD07-TAD	2-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD7-TAD-DROPON, ESD7-TAD-DROPON-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	2.642E-12	+0.000E+000	1.708E-11
RF-ESD07-TAD	3-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from loss of shielding due to a collision of the site transporter with structures or equipment. In this sequence the canister remains intact, and the shielding fails.	ESD7-TAD-COLLIDE, /ESD7-TAD-COLLIDE-CAN, ESD7-TAD-COLLIDE-SHIELD	DE-SHIELD-LOSS	3.198E-004	1.647E-004	1.115E-003
RF-ESD07-TAD	3-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD7-TAD-COLLIDE, ESD7-TAD-COLLIDE-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	3.198E-007	1.647E-007	1.115E-006
RF-ESD07-TAD	3-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD7-TAD-COLLIDE, ESD7-TAD-COLLIDE-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	2.77E-11	5.421E-012	1.635E-010
RF-ESD07-TAD	3-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD7-TAD-COLLIDE, ESD7-TAD-COLLIDE-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.151E-08	2.736E-009	1.246E-07
RF-ESD07-TAD	3-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD7-TAD-COLLIDE, ESD7-TAD-COLLIDE-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	8.729E-13	+0.000E+000	8.124E-12
RF-ESD07-TAD	4-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from loss of shielding due to a side impact to an AO. In this sequence the canister remains intact, and the shielding fails.	ESD7-TAD-IMPACT, /ESD7-TAD-IMPACT-CAN, ESD7-TAD-IMPACT-SHIELD	DE-SHIELD-LOSS	4.280E-004	3.233E-004	3.770E-004
RF-ESD07-TAD	4-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a side impact to an AO. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD7-TAD-IMPACT, ESD7-TAD-IMPACT-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	4.280E-007	3.233E-007	3.770E-007
RF-ESD07-TAD	4-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a side impact to an AO. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD7-TAD-IMPACT, ESD7-TAD-IMPACT-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	3.877E-011	1.084E-011	1.264E-010
RF-ESD07-TAD	4-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a side impact to an AO. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD7-TAD-IMPACT, ESD7-TAD-IMPACT-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.454E-08	5.509E-09	3.146E-08

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD07-TAD	4-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a side impact to an AO. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD7-TAD-IMPACT, ESD7-TAD-IMPACT-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	1.043E-012	+0.000E+000	4.660E-012
RF-ESD07-TAD	5-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from loss of shielding due to an AO tipover. In this sequence the canister remains intact, and the shielding fails.	ESD7-TAD-TIP, /ESD7-TAD-TIP-CAN, ESD7-TAD-TIP-SHIELD	DE-SHIELD-LOSS	6.831E-006	4.297E-006	8.128E-006
RF-ESD07-TAD	5-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to an AO tipover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD7-TAD-TIP, ESD7-TAD-TIP-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	6.831E-006	4.297E-006	8.128E-006
RF-ESD07-TAD	5-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to an AO tipover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD7-TAD-TIP, ESD7-TAD-TIP-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	6.391E-010	1.510E-010	2.510E-009
RF-ESD07-TAD	5-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to an AO tipover. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD7-TAD-TIP, ESD7-TAD-TIP-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	2.209E-07	7.087E-08	5.231E-07
RF-ESD07-TAD	5-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to an AO tipover. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD7-TAD-TIP, ESD7-TAD-TIP-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	1.996E-011	2.324E-012	1.049E-010
RF-ESD08-DPC	2-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to site transporter rollover. In this sequence the canister remains intact, and the shielding fails.	ESD8-DPC-ROLL, /ESD8-DPC-ROLL-CAN, ESD8-DPC-ROLL-SHIELD	DE-SHIELD-LOSS	8.051E-009	6.153E-009	6.675E-009
RF-ESD08-DPC	2-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to site transporter rollover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD8-DPC-ROLL, ESD8-DPC-ROLL-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	8.051E-009	6.153E-009	6.675E-009
RF-ESD08-DPC	2-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to site transporter rollover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD8-DPC-ROLL, ESD8-DPC-ROLL-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	7.400E-013	1.537E-013	2.273E-012
RF-ESD08-DPC	2-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to site transporter rollover. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD8-DPC-ROLL, ESD8-DPC-ROLL-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	2.609E-10	1.019E-10	5.145E-10
RF-ESD08-DPC	2-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to site transporter rollover. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD8-DPC-ROLL, ESD8-DPC-ROLL-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	1.706E-014	+0.000E+000	1.080E-013
RF-ESD08-DPC	3-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a collision of the site transporter with structures or equipment. In this sequence the canister remains intact, and the shielding fails.	ESD8-DPC-COLLIDE, /ESD8-DPC-COLLIDE-CAN, ESD8-DPC-COLLIDE-SHIELD	DE-SHIELD-LOSS	1.586E-005	8.167E-006	5.531E-005
RF-ESD08-DPC	3-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD8-DPC-COLLIDE, ESD8-DPC-COLLIDE-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	1.586E-008	8.167E-009	5.531E-008
RF-ESD08-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 collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD8-DPC-COLLIDE, ESD8-DPC-COLLIDE-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	1.374E-012	2.689E-013	8.109E-012
RF-ESD08-DPC	3-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD8-DPC-COLLIDE, ESD8-DPC-COLLIDE-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	5.711E-10	1.357E-10	6.178E-09
RF-ESD08-DPC	3-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD8-DPC-COLLIDE, ESD8-DPC-COLLIDE-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	4.330E-014	+0.000E+000	4.030E-013

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD08-DPC	4-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a drop of an aging overpack. In this sequence the canister remains intact, and the shielding fails.	ESD8-DPC-DROP, /ESD8-DPC-DROP-CAN, ESD8-DPC-DROP-SHIELD	DE-SHIELD-LOSS	1.303E-010	6.523E-011	2.290E-010
RF-ESD08-DPC	4-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a drop of an aging overpack. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD8-DPC-DROP, ESD8-DPC-DROP-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	1.303E-010	6.523E-011	2.290E-010
RF-ESD08-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 drop of an aging overpack. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD8-DPC-DROP, ESD8-DPC-DROP-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	6.834E-015	+0.000E+000	1.120E-013
RF-ESD08-DPC	4-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a drop of an aging overpack. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD8-DPC-DROP, ESD8-DPC-DROP-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	4.351E-12	1.152E-012	1.413E-11
RF-ESD08-DPC	4-6	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a drop of an aging overpack. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD8-DPC-DROP, ESD8-DPC-DROP-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	2.689E-17	+0.000E+000	1.488E-15
RF-ESD08-TAD	2-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from loss of shielding due to site transporter rollover. In this sequence the canister remains intact, and the shielding fails.	ESD8-TAD-ROLL, /ESD8-TAD-ROLL-CAN, ESD8-TAD-ROLL-SHIELD	DE-SHIELD-LOSS	1.623E-007	1.241E-007	1.346E-007
RF-ESD08-TAD	2-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to site transporter rollover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD8-TAD-ROLL, ESD8-TAD-ROLL-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	1.623E-007	1.241E-007	1.346E-007
RF-ESD08-TAD	2-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to site transporter rollover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD8-TAD-ROLL, ESD8-TAD-ROLL-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	1.492E-011	3.098E-012	4.582E-011
RF-ESD08-TAD	2-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to site transporter rollover. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD8-TAD-ROLL, ESD8-TAD-ROLL-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	5.260E-09	2.054E-09	1.037E-08
RF-ESD08-TAD	2-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to site transporter rollover. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD8-TAD-ROLL, ESD8-TAD-ROLL-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	3.439E-013	+0.000E+000	2.178E-012
RF-ESD08-TAD	3-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from loss of shielding due to a collision of the site transporter with structures or equipment. In this sequence the canister remains intact, and the shielding fails.	ESD8-TAD-COLLIDE, /ESD8-TAD-COLLIDE-CAN, ESD8-TAD-COLLIDE-SHI	DE-SHIELD-LOSS	3.198E-004	1.647E-004	1.115E-003
RF-ESD08-TAD	3-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD8-TAD-COLLIDE, ESD8-TAD-COLLIDE-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	3.198E-007	1.647E-007	1.115E-006
RF-ESD08-TAD	3-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD8-TAD-COLLIDE, ESD8-TAD-COLLIDE-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	2.770E-011	5.421E-012	1.635E-010
RF-ESD08-TAD	3-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD8-TAD-COLLIDE, ESD8-TAD-COLLIDE-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.151E-08	2.736E-09	1.246E-07
RF-ESD08-TAD	3-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a collision of the site transporter with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD8-TAD-COLLIDE, ESD8-TAD-COLLIDE-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	8.729E-013	+0.000E+000	8.124E-012

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD08-TAD	4-2	This sequence represents a structural challenge to a TAD canister resulting in a direct exposure from loss of shielding due to a drop of an aging overpack. In this sequence the canister remains intact, and the shielding fails.	ESD8-TAD-DROP, /ESD8-TAD-DROP-CAN, ESD8-TAD-DROP-SHIELD	DE-SHIELD-LOSS	2.627E-009	1.315E-009	4.617E-009
RF-ESD08-TAD	4-3	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release due to a drop of an aging overpack. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD8-TAD-DROP, ESD8-TAD-DROP-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	2.627E-009	1.315E-009	4.617E-009
RF-ESD08-TAD	4-4	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of an aging overpack. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD8-TAD-DROP, ESD8-TAD-DROP-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	1.378E-013	+0.000E+000	2.258E-012
RF-ESD08-TAD	4-5	This sequence represents a structural challenge to a TAD canister resulting in an unfiltered radionuclide release due to a drop of an aging overpack. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD8-TAD-DROP, ESD8-TAD-DROP-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	8.771E-11	2.324E-011	2.849E-10
RF-ESD08-TAD	4-6	This sequence represents a structural challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a drop of an aging overpack. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD8-TAD-DROP, ESD8-TAD-DROP-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	5.421E-16	+0.000E+000	2.999E-14
RF-ESD09	2-2	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a direct exposure from degradation of shielding due to a horizontal cask transfer trailer roll over. In this sequence the transportation cask remains intact, and the shielding fails.	ESD9-ROLL, /ESD9-ROLL-TCASK, ESD9-ROLL-SHIELD	DE-SHIELD-DEGRADE	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD09	2-3	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a direct exposure from loss of shielding due to a horizontal cask transfer trailer roll over. In this sequence the transportation cask fails, and the canister remains intact.	ESD9-ROLL, ESD9-ROLL-TCASK, /ESD9-ROLL-CAN	DE-SHIELD-LOSS	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD09	2-4	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a filtered radionuclide release due to a horizontal cask transfer trailer roll over. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD9-ROLL, ESD9-ROLL-TCASK, ESD9-ROLL-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD09	2-5	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a horizontal cask transfer trailer roll over. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD9-ROLL, ESD9-ROLL-TCASK, ESD9-ROLL-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD09	2-6	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in an unfiltered radionuclide release due to a horizontal cask transfer trailer roll over. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD9-ROLL, ESD9-ROLL-TCASK, ESD9-ROLL-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD09	2-7	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a horizontal cask transfer trailer roll over. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD9-ROLL, ESD9-ROLL-TCASK, ESD9-ROLL-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD09	3-2	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a direct exposure from degradation of shielding due to a collision of the horizontal cask transfer trailer with facility structures or equipment. In this sequence the transportation cask remains intact, and the shielding fails.	ESD9-COLLIDE, /ESD9-COLLIDE-TCASK, ESD9-COLLIDE-SHIELD	DE-SHIELD-DEGRADE	2.130E-005	7.054E-06	4.458E-004
RF-ESD09	3-3	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a direct exposure from loss of shielding due to a collision of the horizontal cask transfer trailer with facility structures or equipment. In this sequence the transportation cask fails, and the canister remains intact.	ESD9-COLLIDE, ESD9-COLLIDE-TCASK, /ESD9-COLLIDE-CAN	DE-SHIELD-LOSS	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD09	3-4	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a filtered radionuclide release due to a collision of the horizontal cask transfer trailer with facility structures or equipment. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD9-COLLIDE, ESD9-COLLIDE-TCASK, ESD9-COLLIDE-CAN, /200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-FILTERED	2.130E-08	7.054E-009	4.458E-07

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD09	3-5	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a collision of the horizontal cask transfer trailer with facility structures or equipment. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD9-COLLIDE, ESD9-COLLIDE-TCASK, ESD9-COLLIDE-CAN, /200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-FILTERED	1.475E-12	2.305E-013	1.785E-11
RF-ESD09	3-6	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in an unfiltered radionuclide release due to a collision of the horizontal cask transfer trailer with facility structures or equipment. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD9-COLLIDE, ESD9-COLLIDE-TCASK, ESD9-COLLIDE-CAN, 200-CONFINEMENT, /200-MODERATOR-SOURCE	RR-UNFILTERED	1.007E-09	1.186E-010	2.560E-08
RF-ESD09	3-7	This sequence represents a structural challenge to a SD09 inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a collision of the horizontal cask transfer trailer with facility structures or equipment. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD9-COLLIDE, ESD9-COLLIDE-TCASK, ESD9-COLLIDE-CAN, 200-CONFINEMENT, 200-MODERATOR-SOURCE	RR-ITC-UNFILTERED	4.002E-14	+0.000E+000	4.422E-13
RF-ESD10	2	This sequence represents a structural challenge to a SD10 resulting in a direct exposure from loss of shielding due to challenges during preparation activities.	PREPSHIELD	DE-SHIELD-LOSS	1.370E-001	1.103E-001	9.962E-002
RF-ESD11	2	This sequence represents a structural challenge to a SD11 resulting in a direct exposure from loss of shielding due to challenges during CTM activities.	CTMSHIELD	DE-SHIELD-LOSS	6.667E-002	3.073E-002	1.392E-001
RF-ESD12-DPC	2-2	This sequence represents a thermal challenge to a DPC resulting in a direct exposure from loss of shielding due to localized fire in the lid bolting room with diesel present. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-BOLT-FIRE-CSK-DPC, /ESD12-CAN-AO, ESD12-DPC-SHIELD-AO	DE-SHIELD-LOSS	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	2-3	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release due to localized fire in the lid bolting room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-BOLT-FIRE-CSK-DPC, ESD12-CAN-AO, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	2-4	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the lid bolting room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-BOLT-FIRE-CSK-DPC, ESD12-CAN-AO, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	2.749E-010	1.774E-010	3.211E-010
RF-ESD12-DPC	2-5	This sequence represents a thermal challenge to a DPC resulting in an unfiltered radionuclide release due to localized fire in the lid bolting room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-BOLT-FIRE-CSK-DPC, ESD12-CAN-AO, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	2-6	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the lid bolting room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-BOLT-FIRE-CSK-DPC, ESD12-CAN-AO, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	9.201E-12	2.958E-12	2.225E-11
RF-ESD12-DPC	3-2	This sequence represents a thermal challenge to a DPC resulting in a direct exposure from loss of shielding due to localized fire in the loading room with diesel present. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-LOAD-FIRE-CSK-DPC, /ESD12-CAN-AO, ESD12-DPC-SHIELD-AO	DE-SHIELD-LOSS	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	3-3	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release due to localized fire in the loading room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-LOAD-FIRE-CSK-DPC, ESD12-CAN-AO, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	3-4	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the loading room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-LOAD-FIRE-CSK-DPC, ESD12-CAN-AO, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	1.188E-010	7.798E-011	1.354E-010
RF-ESD12-DPC	3-5	This sequence represents a thermal challenge to a DPC resulting in an unfiltered radionuclide release due to localized fire in the loading room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-LOAD-FIRE-CSK-DPC, ESD12-CAN-AO, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	3-6	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the loading room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-LOAD-FIRE-CSK-DPC, ESD12-CAN-AO, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	3.983E-12	1.306E-12	9.564E-12
RF-ESD12-DPC	4-2	This sequence represents a thermal challenge to a DPC resulting in a direct exposure from loss of shielding due to localized fire in the preparation room with diesel present. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-PREP-FIRE-CSK-DC, /ESD12-CAN-TC, ESD12-DPC-SHIELD-TC	DE-SHIELD-LOSS	6.362E-004	5.690E-004	3.171E-004

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD12-DPC	4-3	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release due to localized fire in the preparation room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CSK-DC, ESD12-CAN-TC, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	4-4	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-PREP-FIRE-CSK-DC, ESD12-CAN-TC, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	1.263E-009	9.266E-010	1.161E-009
RF-ESD12-DPC	4-5	This sequence represents a thermal challenge to a DPC resulting in an unfiltered radionuclide release due to localized fire in the preparation room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CSK-DC, ESD12-CAN-TC, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	4-6	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-PREP-FIRE-CSK-DC, ESD12-CAN-TC, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	4.233E-11	1.560E-11	9.206E-11
RF-ESD12-DPC	5-2	This sequence represents a thermal challenge to a DPC resulting in a direct exposure from loss of shielding due to localized fire in the preparation room threatens a cask. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-PREP-FIRE-CSK-DPC, /ESD12-CAN-TC, ESD12-DPC-SHIELD-TC	DE-SHIELD-LOSS	4.131E-003	3.790E-003	1.790E-003
RF-ESD12-DPC	5-3	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release due to localized fire in the preparation room threatens a cask. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CSK-DPC, ESD12-CAN-TC, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	5-4	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room threatens a cask. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-PREP-FIRE-CSK-DPC, ESD12-CAN-TC, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	8.196E-009	6.189E-009	7.102E-009
RF-ESD12-DPC	5-5	This sequence represents a thermal challenge to a DPC resulting in an unfiltered radionuclide release due to localized fire in the preparation room threatens a cask. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CSK-DPC, ESD12-CAN-TC, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	5-6	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room threatens a cask. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-PREP-FIRE-CSK-DPC, ESD12-CAN-TC, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	2.752E-10	1.041E-10	5.884E-10
RF-ESD12-DPC	6-2	This sequence represents a thermal challenge to a DPC resulting in a direct exposure from loss of shielding due to localized fire in the preparation room threatens a canister. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-PREP-FIRE-CAN-DPC, /ESD12-CAN-TC, ESD12-DPC-SHIELD-TC	DE-SHIELD-LOSS	7.226E-004	6.545E-004	3.370E-004
RF-ESD12-DPC	6-3	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release due to localized fire in the preparation room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CAN-DPC, ESD12-CAN-TC, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	6-4	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-PREP-FIRE-CAN-DPC, ESD12-CAN-TC, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	1.434E-009	1.069E-009	1.280E-009
RF-ESD12-DPC	6-5	This sequence represents a thermal challenge to a DPC resulting in an unfiltered radionuclide release due to localized fire in the preparation room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CAN-DPC, ESD12-CAN-TC, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	6-6	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-PREP-FIRE-CAN-DPC, ESD12-CAN-TC, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	4.810E-11	1.794E-11	1.037E-10
RF-ESD12-DPC	7-2	This sequence represents a thermal challenge to a DPC resulting in a direct exposure from loss of shielding due to localized fire in the cask unloading room threatens a canister. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-UNLD-FIRE-CAN-DPC, /ESD12-CAN-TC, ESD12-DPC-SHIELD-TC	DE-SHIELD-LOSS	1.376E-004	1.229E-004	6.899E-005

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD12-DPC	7-3	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release due to localized fire in the cask unloading room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-UNLD-FIRE-CAN-DPC, ESD12-CAN-TC, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	7-4	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the cask unloading room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-UNLD-FIRE-CAN-DPC, ESD12-CAN-TC, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	2.730E-010	2.001E-010	2.517E-010
RF-ESD12-DPC	7-5	This sequence represents a thermal challenge to a DPC resulting in an unfiltered radionuclide release due to localized fire in the cask unloading room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-UNLD-FIRE-CAN-DPC, ESD12-CAN-TC, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	7-6	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the cask unloading room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-UNLD-FIRE-CAN-DPC, ESD12-CAN-TC, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	9.150E-12	3.380E-12	1.992E-11
RF-ESD12-DPC	8-2	This sequence represents a thermal challenge to a DPC resulting in a direct exposure from loss of shielding due to localized fire in the canister transfer room threatens a canister. In this sequence the canister remains intact, and the canister fails.	ESD12-XFER-FIRE-CSK-DPC, /ESD12-CAN, ESD12-DPC-SHIELD-CAN	DE-SHIELD-LOSS	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	8-3	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release due to localized fire in the canister transfer room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-XFER-FIRE-CSK-DPC, ESD12-CAN, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	8-4	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the canister transfer room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-XFER-FIRE-CSK-DPC, ESD12-CAN, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	3.780E-009	3.381E-009	1.904E-009
RF-ESD12-DPC	8-5	This sequence represents a thermal challenge to a DPC resulting in an unfiltered radionuclide release due to localized fire in the canister transfer room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-XFER-FIRE-CSK-DPC, ESD12-CAN, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	8-6	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to localized fire in the canister transfer room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-XFER-FIRE-CSK-DPC, ESD12-CAN, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	1.277E-10	5.620E-11	2.390E-10
RF-ESD12-DPC	9-2	This sequence represents a thermal challenge to a DPC resulting in a direct exposure from loss of shielding due to a large fire affecting the facility. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-LARGE-FIRE-DPC, /ESD12-CAN-SPLIT-DPC, ESD12-DPC-SHIELD-LF	DE-SHIELD-LOSS	1.433E-002	1.279E-002	7.234E-003
RF-ESD12-DPC	9-3	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release due to a large fire affecting the facility. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-LARGE-FIRE-DPC, ESD12-CAN-SPLIT-DPC, /200-CONFINEMENT-LG-FIRE, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	9-4	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a large fire affecting the facility. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-LARGE-FIRE-DPC, ESD12-CAN-SPLIT-DPC, /200-CONFINEMENT-LG-FIRE, 200-MODERATOR-FIRE	RR-ITC-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	9-5	This sequence represents a thermal challenge to a DPC resulting in an unfiltered radionuclide release due to a large fire affecting the facility. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-LARGE-FIRE-DPC, ESD12-CAN-SPLIT-DPC, 200-CONFINEMENT-LG-FIRE, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-DPC	9-6	This sequence represents a thermal challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a large fire affecting the facility. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-LARGE-FIRE-DPC, ESD12-CAN-SPLIT-DPC, 200-CONFINEMENT-LG-FIRE, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	4.775E-008	3.876E-008	3.530E-008
RF-ESD12-TAD	2-2	This sequence represents a thermal challenge to a TAD canister resulting in a direct exposure from loss of shielding due to localized fire in the lid bolting room with diesel present. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-BOLT-FIRE-CSK-TAD, /ESD12-CAN-AO, ESD12-TAD-SHIELD-AO	DE-SHIELD-LOSS	+0.000E+000	+0.000E+000	+0.000E+000

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD12-TAD	2-3	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release due to localized fire in the lid bolting room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-BOLT-FIRE-CSK-TAD, ESD12-CAN-AO, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	2-4	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the lid bolting room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-BOLT-FIRE-CSK-TAD, ESD12-CAN-AO, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	5.543E-009	3.563E-009	6.518E-009
RF-ESD12-TAD	2-5	This sequence represents a thermal challenge to a TAD canister resulting in an unfiltered radionuclide release due to localized fire in the lid bolting room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-BOLT-FIRE-CSK-TAD, ESD12-CAN-AO, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	2-6	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the lid bolting room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-BOLT-FIRE-CSK-TAD, ESD12-CAN-AO, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	1.854E-10	5.964E-11	4.492E-10
RF-ESD12-TAD	3-2	This sequence represents a thermal challenge to a TAD canister resulting in a direct exposure from loss of shielding due to localized fire in the loading room with diesel present. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-LOAD-FIRE-CSK-TAD, /ESD12-CAN-AO, ESD12-TAD-SHIELD-AO	DE-SHIELD-LOSS	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	3-3	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release due to localized fire in the loading room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-LOAD-FIRE-CSK-TAD, ESD12-CAN-AO, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	3-4	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the loading room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-LOAD-FIRE-CSK-TAD, ESD12-CAN-AO, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	2.395E-009	1.554E-009	2.779E-009
RF-ESD12-TAD	3-5	This sequence represents a thermal challenge to a TAD canister resulting in an unfiltered radionuclide release due to localized fire in the loading room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-LOAD-FIRE-CSK-TAD, ESD12-CAN-AO, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	3-6	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the loading room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-LOAD-FIRE-CSK-TAD, ESD12-CAN-AO, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	8.020E-11	2.633E-11	1.935E-10
RF-ESD12-TAD	4-2	This sequence represents a thermal challenge to a TAD canister resulting in a direct exposure from loss of shielding due to localized fire in the preparation room with diesel present. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-PREP-FIRE-CSK-TD, /ESD12-CAN-TC, ESD12-TAD-SHIELD-TC	DE-SHIELD-LOSS	3.189E-003	2.845E-003	1.610E-003
RF-ESD12-TAD	4-3	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release due to localized fire in the preparation room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CSK-TD, ESD12-CAN-TC, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	4-4	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room with diesel present. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-PREP-FIRE-CSK-TD, ESD12-CAN-TC, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	6.330E-009	4.634E-009	5.852E-009
RF-ESD12-TAD	4-5	This sequence represents a thermal challenge to a TAD canister resulting in an unfiltered radionuclide release due to localized fire in the preparation room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CSK-TD, ESD12-CAN-TC, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD12-TAD	4-6	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room with diesel present. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-PREP-FIRE-CSK-TD, ESD12-CAN-TC, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	2.121E-10	7.822E-11	4.623E-10
RF-ESD12-TAD	5-2	This sequence represents a thermal challenge to a TAD canister resulting in a direct exposure from loss of shielding due to localized fire in the preparation room threatens a cask. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-PREP-FIRE-CSK-TAD, /ESD12-CAN-TC, ESD12-TAD-SHIELD-TC	DE-SHIELD-LOSS	2.163E-002	2.163E-002	+0.000E+000
RF-ESD12-TAD	5-3	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release due to localized fire in the preparation room threatens a cask. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CSK-TAD, ESD12-CAN-TC, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	5-4	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room threatens a cask. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-PREP-FIRE-CSK-TAD, ESD12-CAN-TC, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	4.285E-008	3.528E-008	2.922E-008
RF-ESD12-TAD	5-5	This sequence represents a thermal challenge to a TAD canister resulting in an unfiltered radionuclide release due to localized fire in the preparation room threatens a cask. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CSK-TAD, ESD12-CAN-TC, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	5-6	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room threatens a cask. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-PREP-FIRE-CSK-TAD, ESD12-CAN-TC, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	1.391E-09	5.863E-10	2.552E-09
RF-ESD12-TAD	6-2	This sequence represents a thermal challenge to a TAD canister resulting in a direct exposure from loss of shielding due to localized fire in the preparation room threatens a canister. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-PREP-FIRE-CAN-TAD, /ESD12-CAN-TC, ESD12-TAD-SHIELD-TC	DE-SHIELD-LOSS	6.310E-003	5.643E-003	3.145E-003
RF-ESD12-TAD	6-3	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release due to localized fire in the preparation room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CAN-TAD, ESD12-CAN-TC, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	6-4	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-PREP-FIRE-CAN-TAD, ESD12-CAN-TC, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	1.252E-008	9.189E-009	1.151E-008
RF-ESD12-TAD	6-5	This sequence represents a thermal challenge to a TAD canister resulting in an unfiltered radionuclide release due to localized fire in the preparation room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-PREP-FIRE-CAN-TAD, ESD12-CAN-TC, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	6-6	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the preparation room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-PREP-FIRE-CAN-TAD, ESD12-CAN-TC, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	4.198E-10	1.549E-10	9.130E-10
RF-ESD12-TAD	7-2	This sequence represents a thermal challenge to a TAD canister resulting in a direct exposure from loss of shielding due to localized fire in the cask unloading room threatens a canister. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-UNLD-FIRE-CAN-TAD, /ESD12-CAN-TC, ESD12-TAD-SHIELD-TC	DE-SHIELD-LOSS	2.705E-003	2.444E-003	1.279E-003
RF-ESD12-TAD	7-3	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release due to localized fire in the cask unloading room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-UNLD-FIRE-CAN-TAD, ESD12-CAN-TC, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	7-4	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the cask unloading room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-UNLD-FIRE-CAN-TAD, ESD12-CAN-TC, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	5.368E-009	3.987E-009	4.820E-009

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

Event Tree	Seq.	Description	Logic	End State	Mean	Median	Std. Dev.
RF-ESD12-TAD	7-5	This sequence represents a thermal challenge to a TAD canister resulting in an unfiltered radionuclide release due to localized fire in the cask unloading room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-UNLD-FIRE-CAN-TAD, ESD12-CAN-TC, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	7-6	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the cask unloading room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-UNLD-FIRE-CAN-TAD, ESD12-CAN-TC, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	1.801E-10	6.661E-11	3.889E-10
RF-ESD12-TAD	8-2	This sequence represents a thermal challenge to a TAD canister resulting in a direct exposure from loss of shielding due to localized fire in the canister transfer room threatens a canister. In this sequence the canister remains intact, and the canister fails.	ESD12-XFER-FIRE-CSK-TAD, /ESD12-CAN, ESD12-TAD-SHIELD-CAN	DE-SHIELD-LOSS	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	8-3	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release due to localized fire in the canister transfer room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-XFER-FIRE-CSK-TAD, ESD12-CAN, /200-CONFINEMENT, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	8-4	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the canister transfer room threatens a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-XFER-FIRE-CSK-TAD, ESD12-CAN, /200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-FILTERED	7.619E-008	6.754E-008	3.978E-008
RF-ESD12-TAD	8-5	This sequence represents a thermal challenge to a TAD canister resulting in an unfiltered radionuclide release due to localized fire in the canister transfer room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-XFER-FIRE-CSK-TAD, ESD12-CAN, 200-CONFINEMENT, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	8-6	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to localized fire in the canister transfer room threatens a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-XFER-FIRE-CSK-TAD, ESD12-CAN, 200-CONFINEMENT, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	2.573E-09	1.121E-09	4.858E-09
RF-ESD12-TAD	9-2	This sequence represents a thermal challenge to a TAD canister resulting in a direct exposure from loss of shielding due to a large fire affecting the facility. In this sequence the canister remains intact, and the confinement boundary fails.	ESD12-LARGE-FIRE-TAD, /ESD12-CAN-SPLIT-TAD, ESD12-TAD-SHIELD-LF	DE-SHIELD-LOSS	2.107E-001	1.880E-001	1.064E-001
RF-ESD12-TAD	9-3	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release due to a large fire affecting the facility. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-LARGE-FIRE-TAD, ESD12-CAN-SPLIT-TAD, /200-CONFINEMENT-LG-FIRE, /200-MODERATOR-FIRE	RR-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	9-4	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a large fire affecting the facility. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-LARGE-FIRE-TAD, ESD12-CAN-SPLIT-TAD, /200-CONFINEMENT-LG-FIRE, 200-MODERATOR-FIRE	RR-ITC-FILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	9-5	This sequence represents a thermal challenge to a TAD canister resulting in an unfiltered radionuclide release due to a large fire affecting the facility. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-LARGE-FIRE-TAD, ESD12-CAN-SPLIT-TAD, 200-CONFINEMENT-LG-FIRE, /200-MODERATOR-FIRE	RR-UNFILTERED	+0.000E+000	+0.000E+000	+0.000E+000
RF-ESD12-TAD	9-6	This sequence represents a thermal challenge to a TAD canister resulting in a filtered radionuclide release also important to criticality due to a large fire affecting the facility. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD12-LARGE-FIRE-TAD, ESD12-CAN-SPLIT-TAD, 200-CONFINEMENT-LG-FIRE, 200-MODERATOR-FIRE	RR-ITC-UNFILTERED	5.497E-007	4.750E-007	3.192E-007

NOTE: AO = aging overpack; CTM = canister transfer machine; CTT = cask transfer trolley; DPC = dual-purpose canister; ST = site transporter; TAD = transportation, aging, and disposal canister; TC = transportation cask.
Source: Original

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Table G-2. Final Event Sequences Summary

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD01-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-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
ESD01-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
ESD01-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	8.E-09	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-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	1.E-12	3.E-13	6.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-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	5.E-10	1.E-10	1.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-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	4.E-14	0.E+00	3.E-13	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-TAD-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	3.E-04	2.E-04	1.E-03	Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-TAD-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-TAD-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	3.E-07	2.E-07	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-TAD-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	3.E-11	5.E-12	1.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-TAD-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	1.E-08	3.E-09	3.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-TAD-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	9.E-13	0.E+00	6.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 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	2.E-06	1.E-06	3.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD02-DPC-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
ESD02-DPC-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	2.E-06	1.E-06	3.E-06	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 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	1.E-10	4.E-11	5.E-10	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 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
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 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	9.E-12	7.E-13	4.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-TAD-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	2.E-05	7.E-06	7.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD02-TAD-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-TAD-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	2.E-05	7.E-06	7.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD02-TAD-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	2.E-09	3.E-10	2.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-TAD-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	7.E-07	1.E-07	1.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-TAD-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	6.E-11	4.E-12	1.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD03-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, 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	7.E-07	3.E-07	2.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-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 (unbolting, 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
ESD03-DPC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbolting, 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	7.E-07	3.E-07	2.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-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 (unbolting, 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	6.E-11	9.E-12	3.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-DPC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbolting, 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	2.E-08	5.E-09	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-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 (unbolting, 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	2.E-12	2.E-13	2.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-TAD-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during preparation activities (unbolting, 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 TAD canister	9.E-06	4.E-06	2.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-TAD-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during preparation activities (unbolting, 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 TAD canister	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-TAD-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during preparation activities (unbolting, 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 TAD canister	9.E-06	4.E-06	2.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-TAD-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during preparation activities (unbolting, 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 TAD canister	9.E-10	1.E-10	4.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-TAD-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during preparation activities (unbolting, 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 TAD canister	3.E-07	7.E-08	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD03-TAD-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during preparation activities (unbolting, 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 TAD canister	3.E-11	2.E-12	3.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-DPC-SEQ2-DDL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask, during CTT transfer to the 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
ESD04-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during CTT transfer to the 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
ESD04-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 the 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	3.E-13	8.E-14	2.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during CTT transfer to the 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	4.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-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 the 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	6.E-14	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-TAD-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during CTT transfer to the Cask Unloading Room, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 TAD canister	7.E-08	4.E-08	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-TAD-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during CTT transfer to the 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 TAD canister	7.E-08	4.E-08	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-TAD-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during CTT transfer to the 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 TAD canister	7.E-12	2.E-12	3.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-TAD-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during CTT transfer to the 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 TAD canister	2.E-09	7.E-10	7.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-TAD-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during CTT transfer to the 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 TAD canister	2.E-13	0.E+00	1.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-DPC-SEQ03-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	1.E-11	4.E-12	2.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD05-DPC-SEQ04-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	1.E-11	4.E-12	2.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-DPC-SEQ05-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	3.E-16	0.E+00	5.E-15	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-DPC-SEQ06-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	4.E-13	8.E-14	1.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-DPC-SEQ07-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-DPC-SEQ09-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-DPC-SEQ10-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-DPC-SEQ11-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-DPC-SEQ12-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-DPC-SEQ13-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC inside a transportation cask or an 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 DPC	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-TAD-SEQ03-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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	2.E-10	8.E-11	4.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-TAD-SEQ04-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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	2.E-10	8.E-11	4.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD05-TAD-SEQ05-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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	5.E-15	0.E+00	1.E-13	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-TAD-SEQ06-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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	7.E-12	2.E-12	3.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD05-TAD-SEQ07-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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
ESD05-TAD-SEQ09-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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
ESD05-TAD-SEQ10-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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
ESD05-TAD-SEQ11-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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
ESD05-TAD-SEQ12-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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
ESD05-TAD-SEQ13-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister inside a transportation cask or an 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
ESD06-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	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	9.E-07	4.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	2.E-10	3.E-11	2.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD06-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	6.E-08	2.E-08	3.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	5.E-12	5.E-13	3.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	4.E-05	2.E-05	7.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD06-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	3.E-09	7.E-10	1.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	1.E-06	3.E-07	4.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	1.E-10	1.E-11	7.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC in an aging overpack, during aging overpack assembly and closure, 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	7.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD07-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC in an aging overpack, during aging overpack 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 DPC	4.E-07	3.E-07	4.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC in an aging overpack, during aging overpack 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 DPC	4.E-11	1.E-11	1.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC in an aging overpack, during aging overpack 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 DPC	1.E-08	5.E-09	4.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC in an aging overpack, during aging overpack 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 DPC	1.E-12	2.E-13	1.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-TAD-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister in an aging overpack, during aging overpack assembly and closure, 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-04	6.E-04	1.E-03	Category 2	Mean of distribution for number of occurrences of event sequence

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD07-TAD-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister in an aging overpack, during aging overpack 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	9.E-06	6.E-06	9.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-TAD-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister in an aging overpack, during aging overpack 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	8.E-10	2.E-10	3.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-TAD-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister in an aging overpack, during aging overpack 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	3.E-07	1.E-07	8.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-TAD-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister in an aging overpack, during aging overpack 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	3.E-11	3.E-12	3.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC in 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 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
ESD08-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC in 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 DPC	2.E-08	2.E-08	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-DPC-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC in 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 DPC	2.E-12	5.E-13	8.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC in 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 DPC	8.E-10	3.E-10	3.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-DPC-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a DPC in 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 DPC	6.E-14	0.E+00	4.E-13	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-TAD-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister in 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	3.E-04	2.E-04	1.E-03	Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-TAD-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister in 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	5.E-07	3.E-07	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-TAD-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister in 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	4.E-11	1.E-11	2.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-TAD-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister in 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	2.E-08	6.E-09	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD08-TAD-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a TAD canister in 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	1.E-12	0.E+00	8.E-12	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a horizontal DPC inside a transportation cask, during export 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-05	7.E-06	4.E-04	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD09-SEQ3-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a horizontal DPC inside a transportation cask, during export 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
ESD09-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a horizontal DPC inside a transportation cask, during export 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	7.E-09	4.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-SEQ5-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a structural challenge to a horizontal DPC inside a transportation cask, during export 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	1.E-12	2.E-13	2.E-11	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a horizontal DPC inside a transportation cask, during export 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	1.E-09	1.E-10	3.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-SEQ7-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a structural challenge to a horizontal DPC inside a transportation cask, during export 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	4.E-14	0.E+00	4.E-13	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD10-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a direct exposure during preparation activities of a transportation cask containing a DPC. In this sequence there are no pivotal events.	1 DPC	1.E-01	1.E-01	1.E-01	Category 2	Mean of distribution for number of occurrences of event sequence
ESD11-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a temporary loss of shielding during CTM operations, while a DPC or a TAD canister is being transferred. In this sequence there are no pivotal events.	1 DPC or 1 TAD canister	7.E-02	3.E-02	1.E-01	Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a thermal challenge to a DPC in a transportation cask, due to a fire, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 DPC	2.E-02	2.E-02	8.E-03	Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a thermal challenge to a DPC, due to a fire, 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
ESD12-DPC-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a thermal challenge to a DPC, due to a fire, 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	2.E-08	1.E-08	9.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a thermal challenge to a DPC, due to a fire, 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	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a thermal challenge to a DPC, due to a fire, 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	5.E-08	4.E-08	3.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a thermal challenge to a TAD canister in a transportation cask, due to a fire, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 TAD canister	2.E-01	2.E-01	1.E-01	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 (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat	Basis for Categorization
ESD12-TAD-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a thermal challenge to a TAD canister, due to a fire, 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	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a thermal challenge to a TAD canister, due to a fire, 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-07	1.E-07	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a thermal challenge to a TAD canister, due to a fire, 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	0.E+00	0.E+00	0.E+00	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a thermal challenge to a TAD canister, due to a fire, 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-07	5.E-07	3.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

NOTE: ^aThe mean, median, and standard deviation displayed are for the number of occurrences, over the preclosure period, of the event sequence under consideration.
 CTM = canister transfer machine; CTT = cask transfer trolley; DPC = dual purpose canister; TAD = transportation, aging, and disposal

Source: Original

Table G-3. Beyond Category 2 Final Event Sequences Summary

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat.	Basis for Categorization
ESD07-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC in an aging overpack, during aging overpack assembly and closure, 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	7.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD06-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	4.E-05	2.E-05	7.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD02-TAD-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	2.E-05	7.E-06	7.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD02-TAD-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	2.E-05	7.E-06	7.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD09-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a horizontal DPC inside a transportation cask, during export 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-05	7.E-06	4.E-04	Beyond Category 2	Mean of distribution for number of occurrences of event sequence near a category threshold. Categorization confirmed by alternative distribution
ESD01-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-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
ESD08-DPC-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a DPC in 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 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-TAD-SEQ2-DED	Direct exposure, degradation of shielding	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during preparation activities (unbolting, 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 TAD canister	9.E-06	4.E-06	2.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-TAD-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during preparation activities (unbolting, 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 TAD canister	9.E-06	4.E-06	2.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-TAD-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister in an aging overpack, during aging overpack 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	9.E-06	6.E-06	9.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	9.E-07	4.E-06	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 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	2.E-06	1.E-06	3.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

Table G-3. Beyond Category 2 Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat.	Basis for Categorization
ESD02-DPC-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	2.E-06	1.E-06	3.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	1.E-06	3.E-07	4.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-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, 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	7.E-07	3.E-07	2.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-DPC-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbolting, 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	7.E-07	3.E-07	2.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD02-TAD-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	7.E-07	1.E-07	1.E-05	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a thermal challenge to a TAD canister, due to a fire, 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-07	5.E-07	3.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-TAD-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister in 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	5.E-07	3.E-07	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC in an aging overpack, during aging overpack 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 DPC	4.E-07	3.E-07	4.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-TAD-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister 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 TAD canister	3.E-07	2.E-07	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-TAD-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during preparation activities (unbolting, 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 TAD canister	3.E-07	7.E-08	1.E-06	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-TAD-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister in an aging overpack, during aging overpack 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	3.E-07	1.E-07	8.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-TAD-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a thermal challenge to a TAD canister, due to a fire, 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-07	1.E-07	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence

Table G-3. Beyond Category 2 Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean ^a	Median ^a	Std Dev ^a	Event Sequence. Cat.	Basis for Categorization
ESD04-TAD-SEQ2-DEL	Direct exposure, loss of shielding	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during CTT transfer to the Cask Unloading Room, resulting in a direct exposure from loss of shielding. In this sequence the canister remains intact, and the shielding fails.	1 TAD canister	7.E-08	4.E-08	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD04-TAD-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a TAD canister inside a transportation cask, during CTT transfer to the 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 TAD canister	7.E-08	4.E-08	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD06-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	6.E-08	2.E-08	3.E-07	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 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	6.E-08	2.E-08	2.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ6-RRC	Unfiltered radionuclide release, important to criticality	This event sequence represents a thermal challenge to a DPC, due to a fire, 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	5.E-08	4.E-08	3.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-DPC-SEQ3-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a DPC in 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 DPC	2.E-08	2.E-08	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD03-DPC-SEQ6-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC inside a transportation cask, during preparation activities (unbolting, 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	2.E-08	4.E-09	9.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD09-SEQ4-RRF	Filtered radionuclide release	This event sequence represents a structural challenge to a horizontal DPC inside a transportation cask, during export 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	7.E-09	4.E-07	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD08-TAD-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a TAD canister in 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	2.E-08	6.E-09	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD01-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	8.E-09	6.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD12-DPC-SEQ4-RRC	Filtered radionuclide release, important to criticality	This event sequence represents a thermal challenge to a DPC, due to a fire, 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	2.E-08	1.E-08	9.E-09	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
ESD07-DPC-SEQ5-RRU	Unfiltered radionuclide release	This event sequence represents a structural challenge to a DPC in an aging overpack, during aging overpack 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 DPC	1.E-08	5.E-09	4.E-08	Beyond Category 2	Mean of distribution for number of occurrences of event sequence