

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean <sup>a</sup>	Median <sup>a</sup>	Std Dev <sup>a</sup>	Event Sequence. Cat.	Basis for Categorization
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
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
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
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
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
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
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
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
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
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	2.E-09	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 <sup>a</sup>	Median <sup>a</sup>	Std Dev <sup>a</sup>	Event Sequence. Cat.	Basis for Categorization
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
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
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
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
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
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
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
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
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
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

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean <sup>a</sup>	Median <sup>a</sup>	Std Dev <sup>a</sup>	Event Sequence. Cat.	Basis for Categorization
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
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
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
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
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	5.E-10	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
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	8.E-13	3.E-11	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
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
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
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

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean <sup>a</sup>	Median <sup>a</sup>	Std Dev <sup>a</sup>	Event Sequence. Cat.	Basis for Categorization
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
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
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
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
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	4.E-14	1.E-12	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-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
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
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
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
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

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean <sup>a</sup>	Median <sup>a</sup>	Std Dev <sup>a</sup>	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-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
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-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
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-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
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-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
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

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean <sup>a</sup>	Median <sup>a</sup>	Std Dev <sup>a</sup>	Event Sequence. Cat.	Basis for Categorization
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-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-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

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

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean <sup>a</sup>	Median <sup>a</sup>	Std Dev <sup>a</sup>	Event Sequence. Cat.	Basis for Categorization
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
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-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-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-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

NOTE: <sup>a</sup>The 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-4. Important to Criticality Final Event Sequences Summary

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean	Median	Std Dev	Event Sequence Cat.	Basis for Categorization
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-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-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-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-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-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	5.E-10	Beyond Category 2	Mean of distribution for number of occurrences of event sequence
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-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
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-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-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

Table G-4. Important to Criticality Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean	Median	Std Dev	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-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-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-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-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-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-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-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-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-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-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

Table G-4. Important to Criticality Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean	Median	Std Dev	Event Sequence Cat.	Basis for Categorization
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-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-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
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-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-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-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-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-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-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-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-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

Table G-4. Important to Criticality Final Event Sequences Summary (Continued)

Event Sequence Group ID	End State	Description	Material-At-Risk	Mean	Median	Std Dev	Event Sequence Cat.	Basis for Categorization
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-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-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-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
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-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-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-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: 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.

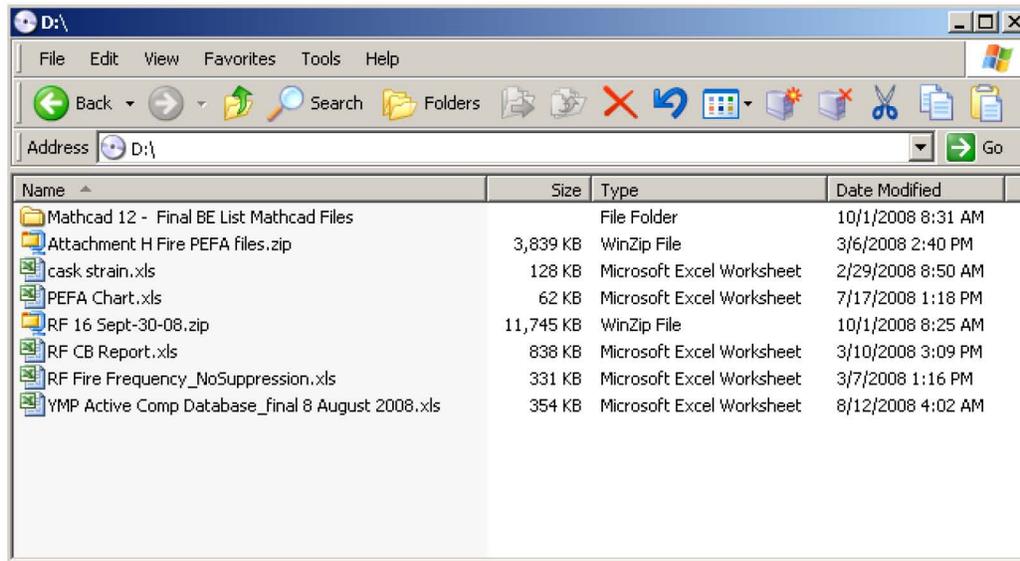
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**ATTACHMENT H**  
**SAPPHIRE MODEL AND SUPPORTING FILES**

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## ATTACHMENT H SAPHIRE MODEL AND SUPPORTING FILES

This attachment is the CD containing the SAPHIRE model and supporting files. The electronic files contained on the CD are identified below.



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