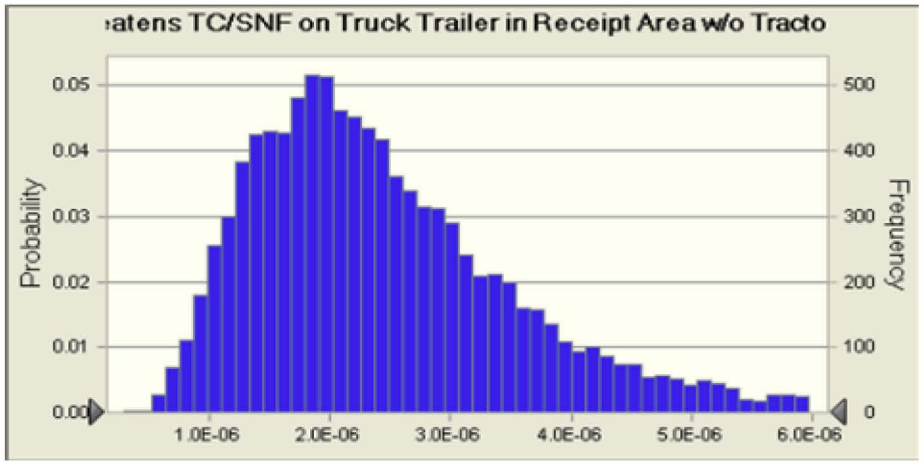
Forecast: Localized Fire Threatens TC/SNF on Truck Trailer in Receipt Area w/o Tractor (No Diesel Present) **Cell: K46**

Summary:

Entire range is from 3.0E-07 to 1.2E-05
Base case is 2.3E-06
After 10,000 trials, the std. error of the mean is 1.2E-08



Statistics:	Forecast values
Trials	10,000
Mean	2.5E-06
Median	2.3E-06
Mode	---
Standard Deviation	1.2E-06
Variance	1.5E-12
Skewness	1.53
Kurtosis	6.87
Coeff. of Variability	0.4918
Minimum	3.0E-07
Maximum	1.2E-05
Range Width	1.1E-05
Mean Std. Error	1.2E-08

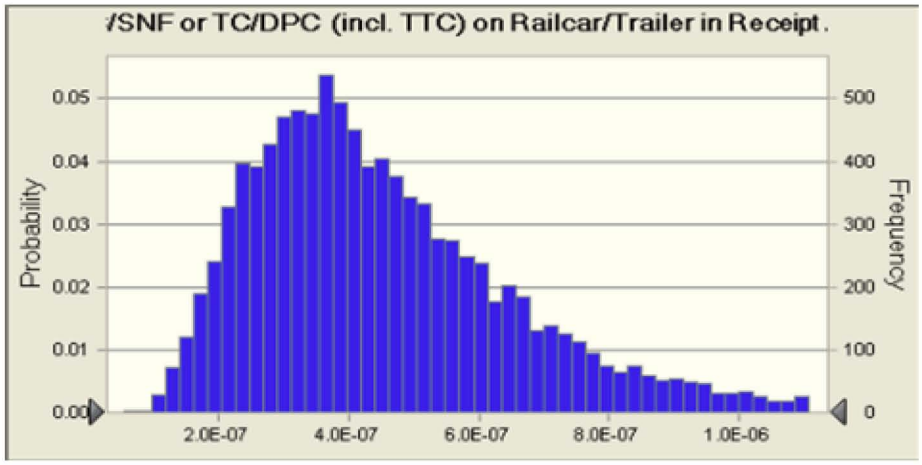
Forecast: Localized Fire Threatens TC/SNF on Truck Trailer in Receipt Area w/o Tractor (No Diesel Present) (cont'd) **Cell: K46**

Percentiles:	Forecast values
0%	3.0E-07
10%	1.2E-06
20%	1.5E-06
30%	1.8E-06
40%	2.0E-06
50%	2.3E-06
60%	2.5E-06
70%	2.9E-06
80%	3.3E-06
90%	4.1E-06
100%	1.2E-05

Forecast: Localized Fire Threatens TC/SNF or TC/DPC (incl. TTC) on Railcar/Trailer in Receipt Area w/Tractor (Diesel Present) **Cell: K24**

Summary:

Entire range is from 5.7E-08 to 2.2E-06
Base case is 4.2E-07
After 10,000 trials, the std. error of the mean is 2.3E-09



Statistics:	Forecast values
Trials	10,000
Mean	4.7E-07
Median	4.2E-07
Mode	---
Standard Deviation	2.3E-07
Variance	5.2E-14
Skewness	1.53
Kurtosis	6.80
Coeff. of Variability	0.4920
Minimum	5.7E-08
Maximum	2.2E-06
Range Width	2.1E-06
Mean Std. Error	2.3E-09

Forecast: Localized Fire Threatens TC/SNF or TC/DPC (incl. TTC) on Railcar/Trailer in Receipt Area w/Tractor (Diesel Present) (cont'd) **Cell: K24**

Percentiles:	Forecast values
0%	5.7E-08
10%	2.3E-07
20%	2.8E-07
30%	3.3E-07
40%	3.7E-07
50%	4.2E-07
60%	4.7E-07
70%	5.3E-07
80%	6.2E-07
90%	7.5E-07
100%	2.2E-06

End of Forecasts

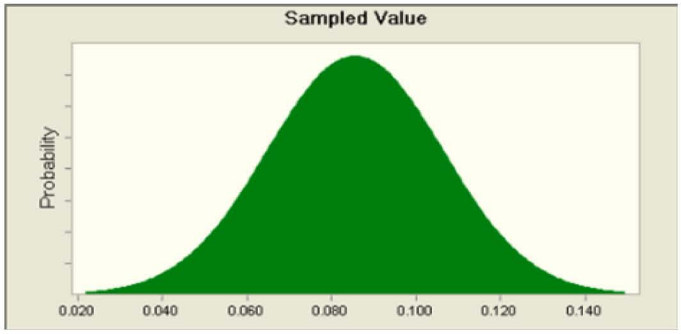
Assumptions

Worksheet: [WHF Fire Frequency_No Suppression.xls]Ignition Source Frequency

Assumption: Sampled Value **Cell: H2**

Normal distribution with parameters:

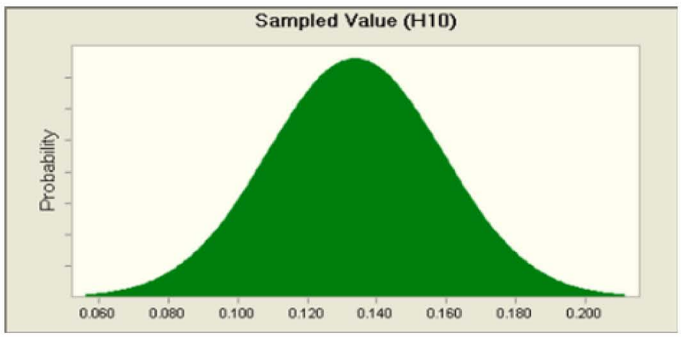
Mean	0.086	(=I2)
97.5%	0.126	(=J2)



Assumption: Sampled Value (H10) **Cell: H10**

Normal distribution with parameters:

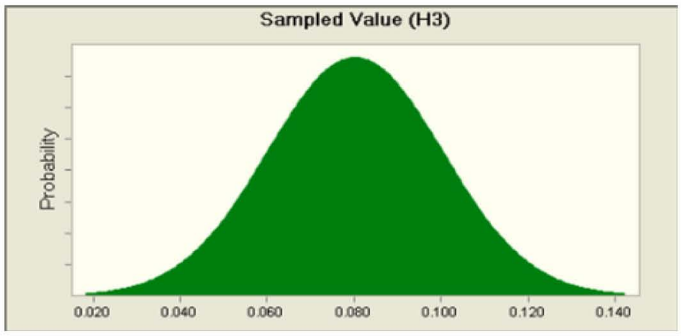
Mean	0.134	(=I10)
97.5%	0.183	(=J10)



Assumption: Sampled Value (H3) **Cell: H3**

Normal distribution with parameters:

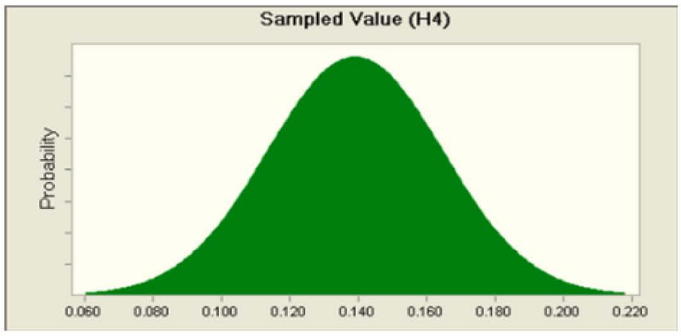
Mean	0.080	(=I3)
97.5%	0.120	(=J3)



Assumption: Sampled Value (H4) **Cell: H4**

Normal distribution with parameters:

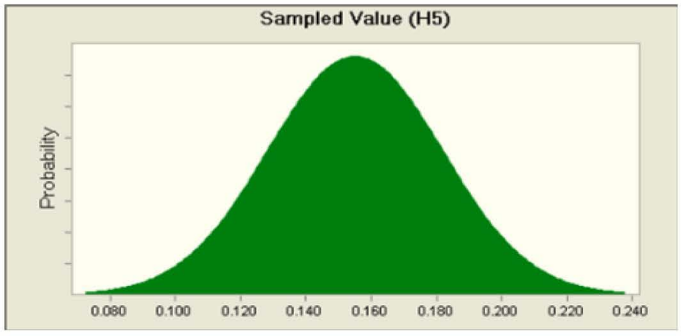
Mean	0.139	(=I4)
97.5%	0.189	(=J4)



Assumption: Sampled Value (H5) **Cell: H5**

Normal distribution with parameters:

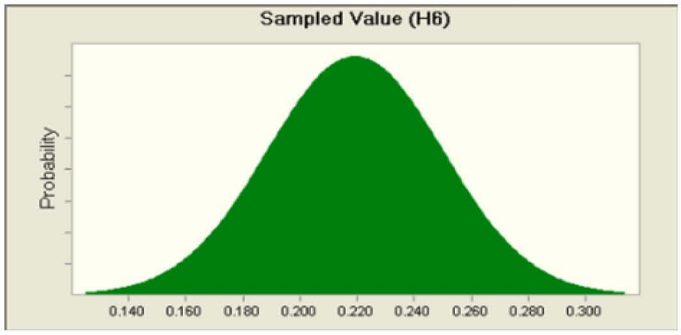
Mean	0.155	(=I5)
97.5%	0.207	(=J5)



Assumption: Sampled Value (H6) **Cell: H6**

Normal distribution with parameters:

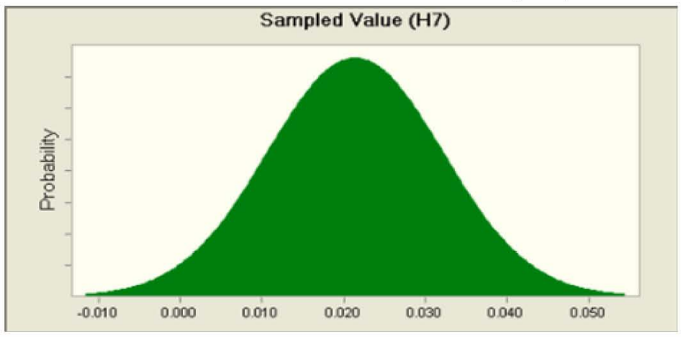
Mean	0.219	(=I6)
97.5%	0.279	(=J6)



Assumption: Sampled Value (H7) **Cell: H7**

Normal distribution with parameters:

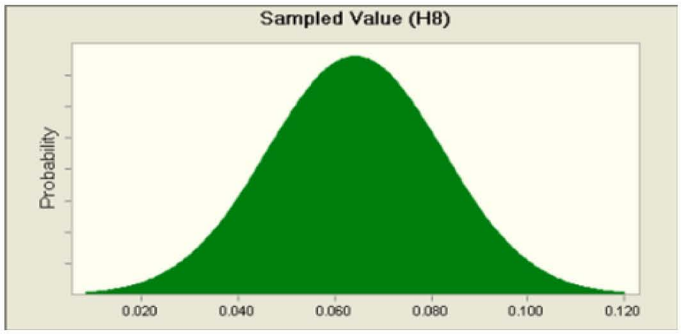
Mean	0.021	(=I7)
97.5%	0.042	(=J7)



Assumption: Sampled Value (H8) **Cell: H8**

Normal distribution with parameters:

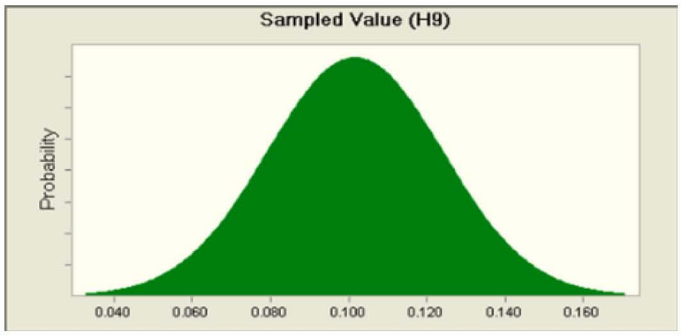
Mean	0.064	(=I8)
97.5%	0.100	(=J8)



Assumption: Sampled Value (H9) **Cell: H9**

Normal distribution with parameters:

Mean	0.102	(=I9)
97.5%	0.145	(=J9)

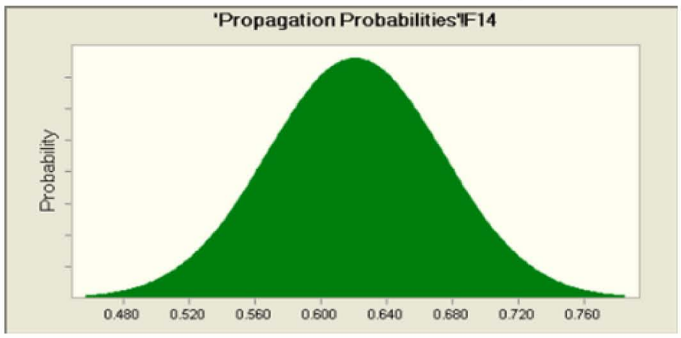


Worksheet: [WHF Fire Frequency_No Suppression.xls]Propagation Probabilities

Assumption: F14 **Cell: F14**

Normal distribution with parameters:

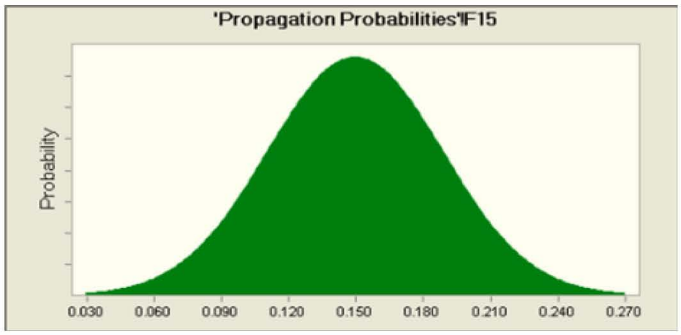
Mean	0.621	(=G14)
97.5%	0.725	(=H14)



Assumption: F15 **Cell: F15**

Normal distribution with parameters:

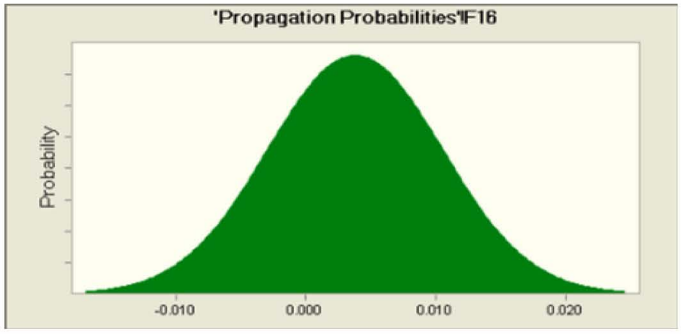
Mean	0.149	(=G15)
97.5%	0.226	(=H15)



Assumption: F16 **Cell: F16**

Normal distribution with parameters:

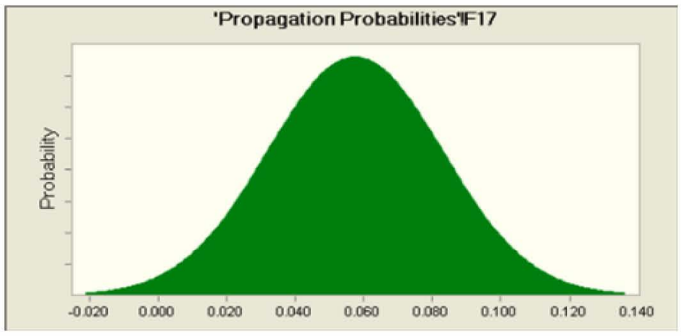
Mean	0.004	(=G16)
97.5%	0.017	(=H16)



Assumption: F17 **Cell: F17**

Normal distribution with parameters:

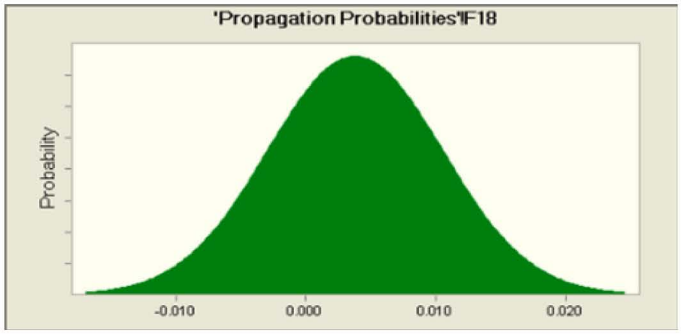
Mean	0.057	(=G17)
97.5%	0.107	(=H17)



Assumption: F18 **Cell: F18**

Normal distribution with parameters:

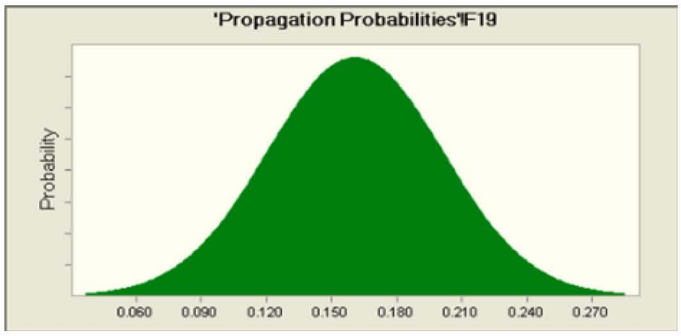
Mean	0.004	(=G18)
97.5%	0.017	(=H18)



Assumption: F19 **Cell: F19**

Normal distribution with parameters:

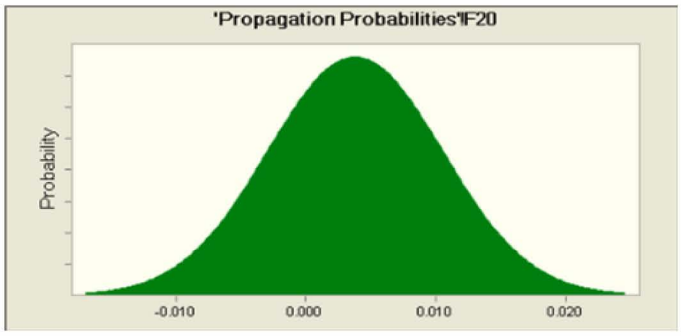
Mean	0.161	(=G19)
97.5%	0.240	(=H19)



Assumption: F20 **Cell: F20**

Normal distribution with parameters:

Mean	0.004	(=G20)
97.5%	0.017	(=H20)

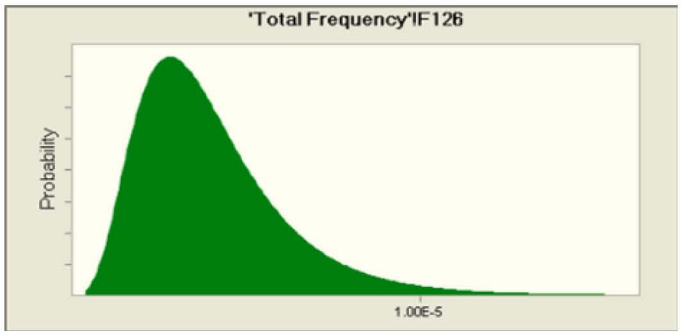


Worksheet: [WHF Fire Frequency_No Suppression.xls]Total Frequency

Assumption: F126 **Cell: F126**

Lognormal distribution with parameters:

50%	3.94E-6	
97.5%	9.40E-6	(=I126)



End of Assumptions

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ATTACHMENT G
EVENT SEQUENCE QUANTIFICATION SUMMARY TABLES

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ATTACHMENT G
EVENT SEQUENCE QUANTIFICATION SUMMARY TABLES

Attachment G contains Table G-1, Event Sequence Quantification Summary, referenced by Section 6.7. It also contains Table G-2, Final Event Sequences Summary; Table G-3, Beyond Category 2 Final Event Sequences Summary; and Table G-4, Important to Criticality Final Event Sequences Summary that are referenced in Section 6.8. Cells in these tables with 0.00E+00 indicate that the value is <E-12. In Table G-2, the event sequence group ID in column 1 is given by four designators, A-B-C-D, where A represents the ESD sequence number, B represents the waste form, C represents the sequence number and D represents the end state release described in column 2. If the release occurs in the pool, "P" in term C means pool, "G" in the term D means Gaseous unfiltered radionuclide release. For example, ESD20-CSNF-SEQ6P-GRRC, is respresented as follows: term ESD20 refers to ESD 20, term CSNF refers to commercial spent nuclear fuel, term SEQ6P refers to sequence 6 that occurs in the pool and term GRRC means a gaseous unfiltered radionuclide release.

The results in this attachment have been produced from the SAPHIRE model in Attachment H using SAPHIRE's "mincut" (minimal cut set upper bound) option with no frequency cutoff. This well-known method estimates the frequency of an event sequence (the union of the corresponding cut set frequencies) as 1 minus the product of the complements of the cut set frequencies. The mincut method economically computes accurate event sequence frequencies provided that the cut set frequencies are not too small (on the order of 10^{-15} or less). If a cut set frequency is actually zero, as it is in some cases, the lack of a contribution to the event sequence frequency is accurately reflected. Likewise, for event sequence frequencies of interest in this analysis, that is, within several orders of magnitude of the Category 2 threshold (10^{-4}), the mincut method produces accurate results. However, when a cut set frequency is very small but greater than zero, the method would encounter the limits of the numerical precision of the computer. To avoid numerical difficulties, SAPHIRE rounds the complement of the cut set frequency (1 minus the frequency) to 1 when the cut set frequency is less than about 10^{-15}. This rounding can result in an underestimate of the event sequence frequency and, in the extreme case, a computed value of zero if all of the complements are rounded to 1. As a result of rounding, very small frequency values may be reported as zero in this attachment. Even so, numbers less than 10^{-15} may appear, because they are calculated as 1 minus the product of the complements of numbers greater than about 10^{-15}.

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Table G-1. Event Sequence Quantification Summary

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD01-CSNF	2-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a truck trailer rollover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD01-CSNF-ROLLOVER, /CASK-DROP, SHIELD-CASK-DROP	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-DEGRADE
WHF-ESD01-CSNF	2-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a truck trailer rollover. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD01-CSNF-ROLLOVER, CASK-DROP, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD01-CSNF	2-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a truck trailer rollover. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD01-CSNF-ROLLOVER, CASK-DROP, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD01-CSNF	2-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a truck trailer rollover. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD01-CSNF-ROLLOVER, CASK-DROP, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD01-CSNF	2-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a truck trailer rollover. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD01-CSNF-ROLLOVER, CASK-DROP, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD01-CSNF	3-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a truck trailer collision with structures or equipment. In this sequence the transportation cask remains intact, and the shielding fails.	ESD01-CSNF-COLL, /CASK-IMPACT, SHIELD-CASK-IMPACT	1.64E-07	9.00E-08	3.78E-07	DE-SHIELD-DEGRADE
WHF-ESD01-CSNF	3-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a truck trailer collision with structures or equipment. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD01-CSNF-COLL, CASK-IMPACT, /CONFINEMENT, /MODERATOR	1.64E-07	9.00E-08	3.78E-07	RR-FILTERED
WHF-ESD01-CSNF	3-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a truck trailer collision with structures or equipment. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD01-CSNF-COLL, CASK-IMPACT, /CONFINEMENT, MODERATOR	1.88E-11	6.29E-12	1.06E-10	RR-FILTERED-ITC
WHF-ESD01-CSNF	3-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a truck trailer collision with structures or equipment. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD01-CSNF-COLL, CASK-IMPACT, CONFINEMENT, /MODERATOR	6.07E-09	1.46E-09	3.23E-08	RR-UNFILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD01-CSNF	3-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a truck trailer collision with structures or equipment. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD01-CSNF-COLL, CASK-IMPACT, CONFINEMENT, MODERATOR	5.83E-13	0.00E+00	4.13E-12	RR-UNFILTERED-ITC
WHF-ESD02-DPC	2-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a railcar collision with structures or equipment. In this sequence the transportation cask remains intact, and the shielding fails.	ESD02-DPC-DERAIL, /CASK-DROP, SHIELD-CASK-DROP	1.63E-09	1.63E-09	2.56E-11	DE-SHIELD-DEGRADE
WHF-ESD02-DPC	2-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a railcar collision with structures or equipment. In this sequence the transportation cask fails, and the canister remains intact.	ESD02-DPC-DERAIL, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD02-DPC	2-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a railcar collision with 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.	ESD02-DPC-DERAIL, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	1.63E-09	1.63E-09	2.56E-11	RR-FILTERED
WHF-ESD02-DPC	2-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a railcar collision with structures or equipment. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD02-DPC-DERAIL, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.73E-13	1.15E-13	2.19E-13	RR-FILTERED-ITC
WHF-ESD02-DPC	2-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a railcar collision with 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.	ESD02-DPC-DERAIL, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	5.77E-11	2.72E-11	9.62E-11	RR-UNFILTERED
WHF-ESD02-DPC	2-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a railcar collision with structures or equipment. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD02-DPC-DERAIL, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.10E-15	0.00E+00	1.61E-14	RR-UNFILTERED-ITC
WHF-ESD02-DPC	3-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a railcar collision with structures or equipment. In this sequence the transportation cask remains intact, and the shielding fails.	ESD02-DPC-COLL, /CASK-IMPACT, SHIELD-CASK-IMPACT	1.49E-08	8.21E-09	3.68E-08	DE-SHIELD-DEGRADE
WHF-ESD02-DPC	3-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a railcar collision with structures or equipment. In this sequence the transportation cask fails, and the canister remains intact.	ESD02-DPC-COLL, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD02-DPC	3-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a railcar collision with 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.	ESD02-DPC-COLL, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	1.49E-08	8.21E-09	3.68E-08	RR-FILTERED
WHF-ESD02-DPC	3-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a railcar collision with structures or equipment. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD02-DPC-COLL, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.61E-12	5.76E-13	6.44E-12	RR-FILTERED-ITC
WHF-ESD02-DPC	3-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a railcar collision with 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.	ESD02-DPC-COLL, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	5.22E-10	1.41E-10	1.95E-09	RR-UNFILTERED
WHF-ESD02-DPC	3-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a railcar collision with structures or equipment. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD02-DPC-COLL, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	4.55E-14	0.00E+00	2.84E-13	RR-UNFILTERED-ITC
WHF-ESD03-AODPC	2-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a rollover of the site transporter. In this sequence the canister remains intact, and the shielding fails.	ESD03-AO-STROLL, /CANISTER-IN-AO, AO-SHIELD-DROP	4.03E-09	3.08E-09	3.34E-09	DE-SHIELD-LOSS
WHF-ESD03-AODPC	2-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a rollover of the site transporter. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD03-AO-STROLL, CANISTER-IN-AO, /HVAC-OFF, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD03-AODPC	2-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a rollover of the site transporter. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD03-AO-STROLL, CANISTER-IN-AO, /HVAC-OFF, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD03-AODPC	2-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a rollover of the site transporter. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD03-AO-STROLL, CANISTER-IN-AO, HVAC-OFF, /MODERATOR	8.05E-09	6.15E-09	6.68E-09	RR-UNFILTERED
WHF-ESD03-AODPC	2-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a rollover of the site transporter. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD03-AO-STROLL, CANISTER-IN-AO, HVAC-OFF, MODERATOR	8.41E-13	4.61E-13	1.74E-12	RR-UNFILTERED-ITC

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD03-AODPC	3-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a ST collision with structures or equipment. In this sequence the canister remains intact, and the shielding fails.	ESD03-AO-STCOLLIDE, /CANISTER-IN-AO, AO-SHIELD-IMPACT	1.59E-05	8.17E-06	5.53E-05	DE-SHIELD-LOSS
WHF-ESD03-AODPC	3-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD03-AO-STCOLLIDE, CANISTER-IN-AO, /HVAC-OFF, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD03-AODPC	3-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD03-AO-STCOLLIDE, CANISTER-IN-AO, /HVAC-OFF, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD03-AODPC	3-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD03-AO-STCOLLIDE, CANISTER-IN-AO, HVAC-OFF, /MODERATOR	1.59E-05	8.17E-06	5.53E-05	RR-UNFILTERED
WHF-ESD03-AODPC	3-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD03-AO-STCOLLIDE, CANISTER-IN-AO, HVAC-OFF, MODERATOR	1.61E-09	5.86E-10	7.29E-09	RR-UNFILTERED-ITC
WHF-ESD04-DPC	2-2	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in a direct exposure from degradation of shielding due to a truck trailer rollover. In this sequence the shielded transfer cask remains intact, and the shielding fails.	ESD04-HDPC-CTROLL, /CASK-DROP, SHIELD-CASK-DROP	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-DEGRADE
WHF-ESD04-DPC	2-3	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in a direct exposure from loss of shielding due to a truck trailer rollover. In this sequence the shielded transfer cask fails, and the canister remains intact.	ESD04-HDPC-CTROLL, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD04-DPC	2-4	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in a filtered radionuclide release due to a truck trailer rollover. In this sequence the shielded transfer cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD04-HDPC-CTROLL, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD04-DPC	2-5	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in a filtered radionuclide release also important to criticality due to a truck trailer rollover. In this sequence the shielded transfer cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD04-HDPC-CTROLL, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD04-DPC	2-6	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in an unfiltered radionuclide release due to a truck trailer rollover. In this sequence the shielded transfer cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD04-HDPC-CTROLL, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD04-DPC	2-7	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in an unfiltered radionuclide release also important to criticality due to a truck trailer rollover. In this sequence the shielded transfer cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD04-HDPC-CTROLL, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD04-DPC	3-2	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in a direct exposure from degradation of shielding due to a truck trailer collision with structures or equipment. In this sequence the shielded transfer cask remains intact, and the shielding fails.	ESD04-HDPC-CTCOLLIDE, /CASK-IMPACT, SHIELD-CASK-IMPACT	2.47E-08	7.42E-09	5.62E-07	DE-SHIELD-DEGRADE
WHF-ESD04-DPC	3-3	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in a direct exposure from loss of shielding due to a truck trailer collision with structures or equipment. In this sequence the shielded transfer cask fails, and the canister remains intact.	ESD04-HDPC-CTCOLLIDE, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD04-DPC	3-4	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in a filtered radionuclide release due to a truck trailer collision with structures or equipment. In this sequence the shielded transfer cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD04-HDPC-CTCOLLIDE, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	2.47E-08	7.42E-09	5.62E-07	RR-FILTERED
WHF-ESD04-DPC	3-5	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in a filtered radionuclide release also important to criticality due to a truck trailer collision with structures or equipment. In this sequence the shielded transfer cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD04-HDPC-CTCOLLIDE, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	2.67E-12	4.99E-13	8.17E-11	RR-FILTERED-ITC
WHF-ESD04-DPC	3-6	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in an unfiltered radionuclide release due to a truck trailer collision with structures or equipment. In this sequence the shielded transfer cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD04-HDPC-CTCOLLIDE, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	7.26E-10	1.18E-10	9.05E-09	RR-UNFILTERED
WHF-ESD04-DPC	3-7	This sequence represents a structural challenge to a DPC inside a shielded transfer cask resulting in an unfiltered radionuclide release also important to criticality due to a truck trailer collision with structures or equipment. In this sequence the shielded transfer cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD04-HDPC-CTCOLLIDE, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	5.63E-14	0.00E+00	1.27E-12	RR-UNFILTERED-ITC
WHF-ESD05-CSNF	2-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD05-UPEND-CASK-TIP, /CASK-DROP, SHIELD-CASK-DROP	3.60E-06	1.41E-06	7.59E-06	DE-SHIELD-DEGRADE
WHF-ESD05-CSNF	2-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD05-UPEND-CASK-TIP, CASK-DROP, /CONFINEMENT, /MODERATOR	3.60E-06	1.41E-06	7.59E-06	RR-FILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD05-CSNF	2-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD05-UPEND-CASK-TIP, CASK-DROP, /CONFINEMENT, MODERATOR	3.83E-10	9.98E-11	1.08E-09	RR-FILTERED-ITC
WHF-ESD05-CSNF	2-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD05-UPEND-CASK-TIP, CASK-DROP, CONFINEMENT, /MODERATOR	1.25E-07	2.26E-08	4.84E-07	RR-UNFILTERED
WHF-ESD05-CSNF	2-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD05-UPEND-CASK-TIP, CASK-DROP, CONFINEMENT, MODERATOR	1.26E-11	1.68E-12	6.35E-11	RR-UNFILTERED-ITC
WHF-ESD05-CSNF	3-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a collision involving a side impact to a TC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD05-UPEND-SIDE-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	2.32E-07	1.75E-07	2.04E-07	DE-SHIELD-DEGRADE
WHF-ESD05-CSNF	3-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD05-UPEND-SIDE-IMPACT, CASK-IMPACT, /CONFINEMENT, /MODERATOR	2.32E-07	1.75E-07	2.04E-07	RR-FILTERED
WHF-ESD05-CSNF	3-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD05-UPEND-SIDE-IMPACT, CASK-IMPACT, /CONFINEMENT, MODERATOR	2.40E-11	1.22E-11	4.10E-11	RR-FILTERED-ITC
WHF-ESD05-CSNF	3-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD05-UPEND-SIDE-IMPACT, CASK-IMPACT, CONFINEMENT, /MODERATOR	8.23E-09	2.92E-09	1.83E-08	RR-UNFILTERED
WHF-ESD05-CSNF	3-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD05-UPEND-SIDE-IMPACT, CASK-IMPACT, CONFINEMENT, MODERATOR	7.72E-13	0.00E+00	3.50E-12	RR-UNFILTERED-ITC
WHF-ESD05-CSNF	4-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask remains intact, and the shielding fails.	ESD05-UPEND-DROPON-CASK, /CASK-DROP, SHIELD-CASK-DROP	1.04E-06	1.06E-07	7.25E-06	DE-SHIELD-DEGRADE

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD05-CSNF	4-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD05-UPEND-DROPON-CASK, CASK-DROP, /CONFINEMENT, /MODERATOR	1.04E-06	1.06E-07	7.25E-06	RR-FILTERED
WHF-ESD05-CSNF	4-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD05-UPEND-DROPON-CASK, CASK-DROP, /CONFINEMENT, MODERATOR	1.63E-10	7.96E-12	3.25E-09	RR-FILTERED-ITC
WHF-ESD05-CSNF	4-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD05-UPEND-DROPON-CASK, CASK-DROP, CONFINEMENT, /MODERATOR	5.02E-08	1.84E-09	1.15E-06	RR-UNFILTERED
WHF-ESD05-CSNF	4-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD05-UPEND-DROPON-CASK, CASK-DROP, CONFINEMENT, MODERATOR	4.03E-12	0.00E+00	5.57E-11	RR-UNFILTERED-ITC
WHF-ESD05-CSNF	5-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD05-UPEND-DROP-OP, /CASK-DROP, SHIELD-CASK-DROP	9.88E-07	8.56E-08	6.07E-06	DE-SHIELD-DEGRADE
WHF-ESD05-CSNF	5-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD05-UPEND-DROP-OP, CASK-DROP, /CONFINEMENT, /MODERATOR	9.88E-07	8.56E-08	6.07E-06	RR-FILTERED
WHF-ESD05-CSNF	5-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD05-UPEND-DROP-OP, CASK-DROP, /CONFINEMENT, MODERATOR	1.57E-10	5.87E-12	2.06E-09	RR-FILTERED-ITC
WHF-ESD05-CSNF	5-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD05-UPEND-DROP-OP, CASK-DROP, CONFINEMENT, /MODERATOR	3.69E-08	1.36E-09	3.24E-07	RR-UNFILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD05-CSNF	5-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD05-UPEND-DROP-OP, CASK-DROP, CONFINEMENT, MODERATOR	5.02E-12	0.00E+00	1.01E-10	RR-UNFILTERED-ITC
WHF-ESD05-CSNF	6-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD05-UPEND-DROP-ABOVE, /CASK-TWOBLOCK, SHIELD-CASK-DROP	1.58E-08	5.48E-09	3.70E-08	DE-SHIELD-DEGRADE
WHF-ESD05-CSNF	6-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD05-UPEND-DROP-ABOVE, CASK-TWOBLOCK, /CONFINEMENT, /MODERATOR	1.58E-08	5.48E-09	3.70E-08	RR-FILTERED
WHF-ESD05-CSNF	6-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD05-UPEND-DROP-ABOVE, CASK-TWOBLOCK, /CONFINEMENT, MODERATOR	1.85E-12	4.19E-13	1.07E-11	RR-FILTERED-ITC
WHF-ESD05-CSNF	6-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD05-UPEND-DROP-ABOVE, CASK-TWOBLOCK, CONFINEMENT, /MODERATOR	5.50E-10	8.76E-11	2.31E-09	RR-UNFILTERED
WHF-ESD05-CSNF	6-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD05-UPEND-DROP-ABOVE, CASK-TWOBLOCK, CONFINEMENT, MODERATOR	4.15E-14	0.00E+00	4.22E-13	RR-UNFILTERED-ITC
WHF-ESD06-TTC	2-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-TTC-UP-DROP, /CASK-DROP, SHIELD-CASK-DROP	9.11E-07	7.62E-07	9.73E-07	DE-SHIELD-DEGRADE
WHF-ESD06-TTC	2-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-TTC-UP-DROP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-TTC	2-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-TTC-UP-DROP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	9.11E-07	7.62E-07	9.73E-07	RR-FILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD06-TTC	2-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-TTC-UP-DROP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	9.57E-11	5.11E-11	1.99E-10	RR-FILTERED-ITC
WHF-ESD06-TTC	2-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-TTC-UP-DROP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	3.23E-08	1.19E-08	7.11E-08	RR-UNFILTERED
WHF-ESD06-TTC	2-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-TTC-UP-DROP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.37E-12	8.45E-13	1.10E-11	RR-UNFILTERED-ITC
WHF-ESD06-TTC	3-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-TTC-UP-TWOBLOCK, /CASK-TWOBLOCK, SHIELD-CASK-DROP	4.33E-09	1.51E-09	1.02E-08	DE-SHIELD-DEGRADE
WHF-ESD06-TTC	3-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-TTC-UP-TWOBLOCK, CASK-TWOBLOCK, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-TTC	3-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-TTC-UP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	4.33E-09	1.51E-09	1.02E-08	RR-FILTERED
WHF-ESD06-TTC	3-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-TTC-UP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, MODERATOR	5.17E-13	1.15E-13	2.93E-12	RR-FILTERED-ITC
WHF-ESD06-TTC	3-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-TTC-UP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, /MODERATOR	1.51E-10	2.41E-11	6.35E-10	RR-UNFILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD06-TTC	3-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-TTC-UP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.39E-14	0.00E+00	1.16E-13	RR-UNFILTERED-ITC
WHF-ESD06-TTC	4-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-TTC-UP-TIP, /CASK-DROP, SHIELD-CASK-DROP	3.30E-07	1.29E-07	6.95E-07	DE-SHIELD-DEGRADE
WHF-ESD06-TTC	4-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-TTC-UP-TIP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-TTC	4-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-TTC-UP-TIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	3.30E-07	1.29E-07	6.95E-07	RR-FILTERED
WHF-ESD06-TTC	4-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-TTC-UP-TIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	3.51E-11	9.14E-12	9.94E-11	RR-FILTERED-ITC
WHF-ESD06-TTC	4-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-TTC-UP-TIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	1.15E-08	2.08E-09	4.44E-08	RR-UNFILTERED
WHF-ESD06-TTC	4-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-TTC-UP-TIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.16E-12	1.54E-13	5.82E-12	RR-UNFILTERED-ITC
WHF-ESD06-TTC	5-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to an impact to a TC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-TTC-UP-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	2.12E-08	1.60E-08	1.87E-08	DE-SHIELD-DEGRADE
WHF-ESD06-TTC	5-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact to a TC. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-TTC-UP-IMPACT, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-TTC	5-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-TTC-UP-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	2.12E-08	1.60E-08	1.87E-08	RR-FILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD06-TTC	5-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-TTC-UP-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	2.20E-12	1.11E-12	3.75E-12	RR-FILTERED-ITC
WHF-ESD06-TTC	5-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-TTC-UP-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	7.54E-10	2.68E-10	1.68E-09	RR-UNFILTERED
WHF-ESD06-TTC	5-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-TTC-UP-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	7.07E-14	0.00E+00	3.21E-13	RR-UNFILTERED-ITC
WHF-ESD06-TTC	6-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-TTC-UP-DROPON, /CASK-DROP, SHIELD-CASK-DROP	9.56E-08	9.73E-09	6.64E-07	DE-SHIELD-DEGRADE
WHF-ESD06-TTC	6-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-TTC-UP-DROPON, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-TTC	6-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-TTC-UP-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	9.56E-08	9.73E-09	6.64E-07	RR-FILTERED
WHF-ESD06-TTC	6-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-TTC-UP-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.50E-11	7.30E-13	2.98E-10	RR-FILTERED-ITC
WHF-ESD06-TTC	6-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-TTC-UP-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	4.60E-09	1.69E-10	1.06E-07	RR-UNFILTERED
WHF-ESD06-TTC	6-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-TTC-UP-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.70E-13	0.00E+00	5.10E-12	RR-UNFILTERED-ITC

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD06-TTC	7-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to an impact from unplanned carrier movement. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-TTC-UP-MOVE, /CASK-DROP, SHIELD-CASK-DROP	1.70E-09	8.31E-10	3.25E-09	DE-SHIELD-DEGRADE
WHF-ESD06-TTC	7-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-TTC-UP-MOVE, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-TTC	7-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-TTC-UP-MOVE, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	1.70E-09	8.31E-10	3.25E-09	RR-FILTERED
WHF-ESD06-TTC	7-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-TTC-UP-MOVE, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.65E-13	3.84E-14	4.84E-13	RR-FILTERED-ITC
WHF-ESD06-TTC	7-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-TTC-UP-MOVE, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	5.72E-11	1.38E-11	1.87E-10	RR-UNFILTERED
WHF-ESD06-TTC	7-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-TTC-UP-MOVE, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.43E-15	0.00E+00	2.58E-14	RR-UNFILTERED-ITC
WHF-ESD06-VTC	2-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-VTC-UP-DROP, /CASK-DROP, SHIELD-CASK-DROP	9.06E-08	7.85E-09	5.57E-07	DE-SHIELD-DEGRADE
WHF-ESD06-VTC	2-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-VTC-UP-DROP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-VTC	2-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-VTC-UP-DROP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	9.06E-08	7.85E-09	5.57E-07	RR-FILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD06-VTC	2-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-VTC-UP-DROP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.43E-11	5.38E-13	1.89E-10	RR-FILTERED-ITC
WHF-ESD06-VTC	2-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-VTC-UP-DROP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	3.38E-09	1.25E-10	2.97E-08	RR-UNFILTERED
WHF-ESD06-VTC	2-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-VTC-UP-DROP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	4.60E-13	0.00E+00	9.27E-12	RR-UNFILTERED-ITC
WHF-ESD06-VTC	3-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-VTC-UP-TWOBLOCK, /CASK-TWOBLOCK, SHIELD-CASK-DROP	1.44E-09	5.02E-10	3.40E-09	DE-SHIELD-DEGRADE
WHF-ESD06-VTC	3-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask above the operational height. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-VTC-UP-TWOBLOCK, CASK-TWOBLOCK, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-VTC	3-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-VTC-UP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	1.44E-09	5.02E-10	3.40E-09	RR-FILTERED
WHF-ESD06-VTC	3-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-VTC-UP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.69E-13	3.84E-14	9.77E-13	RR-FILTERED-ITC
WHF-ESD06-VTC	3-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-VTC-UP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, /MODERATOR	5.04E-11	8.03E-12	2.12E-10	RR-UNFILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD06-VTC	3-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask above the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-VTC-UP-TWOBLOCK, CASK-TWOBLOCK, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.81E-15	0.00E+00	3.87E-14	RR-UNFILTERED-ITC
WHF-ESD06-VTC	4-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-VTC-UP-TIP, /CASK-DROP, SHIELD-CASK-DROP	3.30E-07	1.29E-07	6.95E-07	DE-SHIELD-DEGRADE
WHF-ESD06-VTC	4-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-VTC-UP-TIP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-VTC	4-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-VTC-UP-TIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	3.30E-07	1.29E-07	6.95E-07	RR-FILTERED
WHF-ESD06-VTC	4-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-VTC-UP-TIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	3.51E-11	9.14E-12	9.94E-11	RR-FILTERED-ITC
WHF-ESD06-VTC	4-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-VTC-UP-TIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	1.15E-08	2.08E-09	4.44E-08	RR-UNFILTERED
WHF-ESD06-VTC	4-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-VTC-UP-TIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.16E-12	1.54E-13	5.82E-12	RR-UNFILTERED-ITC
WHF-ESD06-VTC	5-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to an impact to a TC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-VTC-UP-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	2.12E-08	1.60E-08	1.87E-08	DE-SHIELD-DEGRADE
WHF-ESD06-VTC	5-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact to a TC. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-VTC-UP-IMPACT, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-VTC	5-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-VTC-UP-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	2.12E-08	1.60E-08	1.87E-08	RR-FILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD06-VTC	5-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-VTC-UP-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	2.20E-12	1.11E-12	3.75E-12	RR-FILTERED-ITC
WHF-ESD06-VTC	5-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-VTC-UP-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	7.54E-10	2.68E-10	1.68E-09	RR-UNFILTERED
WHF-ESD06-VTC	5-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-VTC-UP-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	7.07E-14	0.00E+00	3.21E-13	RR-UNFILTERED-ITC
WHF-ESD06-VTC	6-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-VTC-UP-DROPON, /CASK-DROP, SHIELD-CASK-DROP	9.56E-08	9.73E-09	6.64E-07	DE-SHIELD-DEGRADE
WHF-ESD06-VTC	6-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-VTC-UP-DROPON, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-VTC	6-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-VTC-UP-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	9.56E-08	9.73E-09	6.64E-07	RR-FILTERED
WHF-ESD06-VTC	6-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-VTC-UP-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.50E-11	7.30E-13	2.98E-10	RR-FILTERED-ITC
WHF-ESD06-VTC	6-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-VTC-UP-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	4.60E-09	1.69E-10	1.06E-07	RR-UNFILTERED
WHF-ESD06-VTC	6-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-VTC-UP-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.70E-13	0.00E+00	5.10E-12	RR-UNFILTERED-ITC

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD06-VTC	7-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to an impact from unplanned carrier movement. In this sequence the transportation cask remains intact, and the shielding fails.	ESD06-VTC-UP-MOVE, /CASK-DROP, SHIELD-CASK-DROP	1.70E-09	8.31E-10	3.25E-09	DE-SHIELD-DEGRADE
WHF-ESD06-VTC	7-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, and the canister remains intact.	ESD06-VTC-UP-MOVE, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD06-VTC	7-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD06-VTC-UP-MOVE, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	1.70E-09	8.31E-10	3.25E-09	RR-FILTERED
WHF-ESD06-VTC	7-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD06-VTC-UP-MOVE, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	1.65E-13	3.84E-14	4.84E-13	RR-FILTERED-ITC
WHF-ESD06-VTC	7-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD06-VTC-UP-MOVE, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	5.72E-11	1.38E-11	1.87E-10	RR-UNFILTERED
WHF-ESD06-VTC	7-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact from unplanned carrier movement. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD06-VTC-UP-MOVE, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	3.43E-15	0.00E+00	2.58E-14	RR-UNFILTERED-ITC
WHF-ESD07-DPC	2-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD07-CPREP-CASKTIP, /CASK-DROP, SHIELD-CASK-DROP	3.35E-07	1.30E-07	6.97E-07	DE-SHIELD-DEGRADE
WHF-ESD07-DPC	2-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the transportation cask fails, and the canister remains intact.	ESD07-CPREP-CASKTIP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD07-DPC	2-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD07-CPREP-CASKTIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	3.35E-07	1.30E-07	6.97E-07	RR-FILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD07-DPC	2-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD07-CPREP-CASKTIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	3.56E-11	9.57E-12	1.21E-10	RR-FILTERED-ITC
WHF-ESD07-DPC	2-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD07-CPREP-CASKTIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	1.16E-08	2.18E-09	4.67E-08	RR-UNFILTERED
WHF-ESD07-DPC	2-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD07-CPREP-CASKTIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	1.21E-12	1.54E-13	6.40E-12	RR-UNFILTERED-ITC
WHF-ESD07-DPC	3-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a collision involving a side impact to a TC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD07-CPREP-SIMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	2.17E-08	1.65E-08	1.86E-08	DE-SHIELD-DEGRADE
WHF-ESD07-DPC	3-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, and the canister remains intact.	ESD07-CPREP-SIMPACT, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD07-DPC	3-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD07-CPREP-SIMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	2.17E-08	1.65E-08	1.86E-08	RR-FILTERED
WHF-ESD07-DPC	3-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD07-CPREP-SIMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	2.21E-12	1.19E-12	3.45E-12	RR-FILTERED-ITC
WHF-ESD07-DPC	3-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD07-CPREP-SIMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	7.21E-10	2.70E-10	1.57E-09	RR-UNFILTERED
WHF-ESD07-DPC	3-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a collision involving a side impact to a TC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD07-CPREP-SIMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	6.69E-14	0.00E+00	2.75E-13	RR-UNFILTERED-ITC

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD07-DPC	4-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask remains intact, and the shielding fails.	ESD07-CPREP-DROPON, /CASK-DROP, SHIELD-CASK-DROP	6.64E-07	6.61E-07	8.95E-08	DE-SHIELD-DEGRADE
WHF-ESD07-DPC	4-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, and the canister remains intact.	ESD07-CPREP-DROPON, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD07-DPC	4-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD07-CPREP-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	6.64E-07	6.61E-07	8.95E-08	RR-FILTERED
WHF-ESD07-DPC	4-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD07-CPREP-DROPON, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	7.02E-11	4.58E-11	8.21E-11	RR-FILTERED-ITC
WHF-ESD07-DPC	4-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD07-CPREP-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	2.34E-08	1.08E-08	4.01E-08	RR-UNFILTERED
WHF-ESD07-DPC	4-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD07-CPREP-DROPON, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	2.49E-12	7.68E-13	7.23E-12	RR-UNFILTERED-ITC
WHF-ESD07-DPC	5-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD07-CPREP-CASKDROP, /CASK-DROP, SHIELD-CASK-DROP	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-DEGRADE
WHF-ESD07-DPC	5-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask fails, and the canister remains intact.	ESD07-CPREP-CASKDROP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD07-DPC	5-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD07-CPREP-CASKDROP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD07-DPC	5-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD07-CPREP-CASKDROP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD07-DPC	5-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD07-CPREP-CASKDROP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD07-DPC	5-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD07-CPREP-CASKDROP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD08-CSNF	2-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to an impact to a TC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD08-CPREP-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	2.37E-07	1.80E-07	2.03E-07	DE-SHIELD-DEGRADE
WHF-ESD08-CSNF	2-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD08-CPREP-IMPACT, CASK-IMPACT, /CONFINEMENT, /MODERATOR	2.37E-07	1.80E-07	2.03E-07	RR-FILTERED
WHF-ESD08-CSNF	2-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD08-CPREP-IMPACT, CASK-IMPACT, /CONFINEMENT, MODERATOR	2.41E-11	1.30E-11	3.76E-11	RR-FILTERED-ITC
WHF-ESD08-CSNF	2-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD08-CPREP-IMPACT, CASK-IMPACT, CONFINEMENT, /MODERATOR	7.87E-09	2.95-09	1.71E-08	RR-UNFILTERED
WHF-ESD08-CSNF	2-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD08-CPREP-IMPACT, CASK-IMPACT, CONFINEMENT, MODERATOR	7.30E-13	0.00E+00	3.00E-12	RR-UNFILTERED-ITC
WHF-ESD08-CSNF	3-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask remains intact, and the shielding fails.	ESD08-CPREP-DROPON, /CASK-DROP, SHIELD-CASK-DROP	7.25E-06	7.21E-06	9.76E-07	DE-SHIELD-DEGRADE

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD08-CSNF	3-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD08-CPREP-DROPON, CASK-DROP, /CONFINEMENT, /MODERATOR	7.25E-06	7.21E-06	9.76E-07	RR-FILTERED
WHF-ESD08-CSNF	3-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD08-CPREP-DROPON, CASK-DROP, /CONFINEMENT, MODERATOR	7.66E-10	5.00E-10	8.96E-10	RR-FILTERED-ITC
WHF-ESD08-CSNF	3-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD08-CPREP-DROPON, CASK-DROP, CONFINEMENT, /MODERATOR	2.55E-07	1.17E-07	4.37E-07	RR-UNFILTERED
WHF-ESD08-CSNF	3-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD08-CPREP-DROPON, CASK-DROP, CONFINEMENT, MODERATOR	2.72E-11	8.38E-12	7.89E-11	RR-UNFILTERED-ITC
WHF-ESD08-CSNF	4-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD08-CPREP-DROP, /CASK-DROP, SHIELD-CASK-DROP	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-DEGRADE
WHF-ESD08-CSNF	4-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD08-CPREP-DROP, CASK-DROP, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD08-CSNF	4-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD08-CPREP-DROP, CASK-DROP, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD08-CSNF	4-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD08-CPREP-DROP, CASK-DROP, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD08-CSNF	4-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD08-CPREP-DROP, CASK-DROP, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD08-CSNF	5-2	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD08-CPREP-TIP, /CASK-DROP, SHIELD-CASK-DROP	3.65E-06	1.41E-06	7.60E-06	DE-SHIELD-DEGRADE
WHF-ESD08-CSNF	5-3	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD08-CPREP-TIP, CASK-DROP, /CONFINEMENT, /MODERATOR	3.65E-06	1.41E-06	7.60E-06	RR-FILTERED
WHF-ESD08-CSNF	5-4	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD08-CPREP-TIP, CASK-DROP, /CONFINEMENT, MODERATOR	3.89E-10	1.04E-10	1.32E-09	RR-FILTERED-ITC
WHF-ESD08-CSNF	5-5	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD08-CPREP-TIP, CASK-DROP, CONFINEMENT, /MODERATOR	1.27E-07	2.37E-08	5.10E-07	RR-UNFILTERED
WHF-ESD08-CSNF	5-6	This sequence represents a structural challenge to a CSNF inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD08-CPREP-TIP, CASK-DROP, CONFINEMENT, MODERATOR	1.32E-11	1.68E-12	6.98E-11	RR-UNFILTERED-ITC
WHF-ESD09-DPC	2-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the transportation cask remains intact, and the shielding fails.	ESD09-DPREP-CASKDROP, /CASK-DROP, SHIELD-CASK-DROP	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD09-DPC	2-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD09-DPREP-CASKDROP, CASK-DROP, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD09-DPC	2-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD09-DPREP-CASKDROP, CASK-DROP, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD09-DPC	2-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD09-DPREP-CASKDROP, CASK-DROP, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD09-DPC	2-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD09-DPREP-CASKDROP, CASK-DROP, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD09-DPC	3-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact to a TC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD09-DPREP-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	2.17E-08	1.65E-08	1.86E-08	DE-SHIELD-LOSS
WHF-ESD09-DPC	3-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD09-DPREP-IMPACT, CASK-IMPACT, /CONFINEMENT, /MODERATOR	2.17E-08	1.65E-08	1.86E-08	RR-FILTERED
WHF-ESD09-DPC	3-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD09-DPREP-IMPACT, CASK-IMPACT, /CONFINEMENT, MODERATOR	2.21E-12	1.19E-12	3.45E-12	RR-FILTERED-ITC
WHF-ESD09-DPC	3-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD09-DPREP-IMPACT, CASK-IMPACT, CONFINEMENT, /MODERATOR	7.21E-10	2.70E-10	1.57E-09	RR-UNFILTERED
WHF-ESD09-DPC	3-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD09-DPREP-IMPACT, CASK-IMPACT, CONFINEMENT, MODERATOR	6.69E-14	0.00E+00	2.75E-13	RR-UNFILTERED-ITC
WHF-ESD09-DPC	4-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto the cask. In this sequence the transportation cask remains intact, and the shielding fails.	ESD09-DPREP-DROPON, /CASK-DROP, SHIELD-CASK-DROP	6.64E-07	6.61E-07	8.95E-08	DE-SHIELD-LOSS
WHF-ESD09-DPC	4-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD09-DPREP-DROPON, CASK-DROP, /CONFINEMENT, /MODERATOR	6.64E-07	6.61E-07	8.95E-08	RR-FILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD09-DPC	4-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD09-DPREP-DROPON, CASK-DROP, /CONFINEMENT, MODERATOR	7.02E-11	4.58E-11	8.21E-11	RR-FILTERED-ITC
WHF-ESD09-DPC	4-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD09-DPREP-DROPON, CASK-DROP, CONFINEMENT, /MODERATOR	2.34E-08	1.08E-08	4.01E-08	RR-UNFILTERED
WHF-ESD09-DPC	4-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the cask. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD09-DPREP-DROPON, CASK-DROP, CONFINEMENT, MODERATOR	2.49E-12	7.68E-13	7.23E-12	RR-UNFILTERED-ITC
WHF-ESD10-DPC	2-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact to a TC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD10-CTT-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD10-DPC	2-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD10-CTT-IMPACT, CASK-IMPACT, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD10-DPC	2-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD10-CTT-IMPACT, CASK-IMPACT, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD10-DPC	2-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD10-CTT-IMPACT, CASK-IMPACT, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD10-DPC	2-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact to a TC. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD10-CTT-IMPACT, CASK-IMPACT, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD10-DPC	3-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a CTT collision with structures or equipment. In this sequence the transportation cask remains intact, and the shielding fails.	ESD10-CTT-COLLIDE, /CASK-IMPACT, SHIELD-CASK-IMPACT	3.47E-09	2.11E-09	4.32E-09	DE-SHIELD-LOSS

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD10-DPC	3-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a CTT collision with structures or equipment. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD10-CTT-COLLIDE, CASK-IMPACT, /CONFINEMENT, /MODERATOR	3.47E-09	2.11E-09	4.32E-09	RR-FILTERED
WHF-ESD10-DPC	3-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a CTT collision with structures or equipment. In this sequence the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD10-CTT-COLLIDE, CASK-IMPACT, /CONFINEMENT, MODERATOR	3.63E-13	1.54E-13	8.03E-13	RR-FILTERED-ITC
WHF-ESD10-DPC	3-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a CTT collision with structures or equipment. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD10-CTT-COLLIDE, CASK-IMPACT, CONFINEMENT, /MODERATOR	1.18E-10	3.46E-11	3.24E-10	RR-UNFILTERED
WHF-ESD10-DPC	3-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to a CTT collision with structures or equipment. In this sequence the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD10-CTT-COLLIDE, CASK-IMPACT, CONFINEMENT, MODERATOR	9.02E-15	0.00E+00	4.99E-14	RR-UNFILTERED-ITC
WHF-ESD11-AODPC	2-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a ST collision with structures or equipment. In this sequence the canister remains intact, and the shielding fails.	ESD11-DPC-COLLIDE, /CANISTER-AO-IMPACT, AO-SHIELD-IMPACT	1.59E-05	8.17E-06	5.53E-05	DE-SHIELD-LOSS
WHF-ESD11-AODPC	2-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD11-DPC-COLLIDE, CANISTER-AO-IMPACT, /CONFINEMENT, /MODERATOR	1.59E-08	8.17E-09	5.53E-08	RR-FILTERED
WHF-ESD11-AODPC	2-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD11-DPC-COLLIDE, CANISTER-AO-IMPACT, /CONFINEMENT, MODERATOR	1.59E-12	5.76E-13	7.29E-12	RR-FILTERED-ITC
WHF-ESD11-AODPC	2-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD11-DPC-COLLIDE, CANISTER-AO-IMPACT, CONFINEMENT, /MODERATOR	6.01E-10	1.33E-10	6.90E-09	RR-UNFILTERED
WHF-ESD11-AODPC	2-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD11-DPC-COLLIDE, CANISTER-AO-IMPACT, CONFINEMENT, MODERATOR	5.04E-14	0.00E+00	4.21E-13	RR-UNFILTERED-ITC

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD11-AODPC	3-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD11-DPC-DROP, /CANISTER-AO-DROP, AO-SHIELD-DROP	1.11E-07	1.10E-07	1.49E-08	DE-SHIELD-LOSS
WHF-ESD11-AODPC	3-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD11-DPC-DROP, CANISTER-AO-DROP, /CONFINEMENT, /MODERATOR	2.22E-07	2.20E-07	2.98E-08	RR-FILTERED
WHF-ESD11-AODPC	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 cask at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD11-DPC-DROP, CANISTER-AO-DROP, /CONFINEMENT, MODERATOR	2.34E-11	1.53E-11	2.74E-11	RR-FILTERED-ITC
WHF-ESD11-AODPC	3-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD11-DPC-DROP, CANISTER-AO-DROP, CONFINEMENT, /MODERATOR	7.80E-09	3.58E-09	1.34E-08	RR-UNFILTERED
WHF-ESD11-AODPC	3-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD11-DPC-DROP, CANISTER-AO-DROP, CONFINEMENT, MODERATOR	8.27E-13	2.69E-13	2.41E-12	RR-UNFILTERED-ITC
WHF-ESD11-AODPC	4-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the canister remains intact, and the shielding fails.	ESD11-DPC-TIP, /CANISTER-AO-DROP, AO-SHIELD-DROP	4.03E-09	3.08E-09	3.34E-09	DE-SHIELD-LOSS
WHF-ESD11-AODPC	4-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a cask tipover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD11-DPC-TIP, CANISTER-AO-DROP, /CONFINEMENT, /MODERATOR	8.05E-09	6.15E-09	6.68E-09	RR-FILTERED
WHF-ESD11-AODPC	4-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD11-DPC-TIP, CANISTER-AO-DROP, /CONFINEMENT, MODERATOR	8.41E-13	4.61E-13	1.74E-12	RR-FILTERED-ITC
WHF-ESD11-AODPC	4-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD11-DPC-TIP, CANISTER-AO-DROP, CONFINEMENT, /MODERATOR	2.77E-10	1.01E-10	6.01E-10	RR-UNFILTERED
WHF-ESD11-AODPC	4-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD11-DPC-TIP, CANISTER-AO-DROP, CONFINEMENT, MODERATOR	1.70E-14	0.00E+00	9.54E-14	RR-UNFILTERED-ITC

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD11-AODPC	5-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to an impact to a TC. In this sequence the canister remains intact, and the shielding fails.	ESD11-DPC-IMPACT, /CANISTER-AO-IMPACT, AO-SHIELD-IMPACT	2.10E-05	1.60E-05	1.78E-05	DE-SHIELD-LOSS
WHF-ESD11-AODPC	5-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to an impact to a TC. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD11-DPC-IMPACT, CANISTER-AO-IMPACT, /CONFINEMENT, /MODERATOR	2.10E-08	1.60E-08	1.78E-08	RR-FILTERED
WHF-ESD11-AODPC	5-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an impact to a TC. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD11-DPC-IMPACT, CANISTER-AO-IMPACT, /CONFINEMENT, MODERATOR	2.20E-12	1.11E-12	3.71E-12	RR-FILTERED-ITC
WHF-ESD11-AODPC	5-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to an impact to a TC. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD11-DPC-IMPACT, CANISTER-AO-IMPACT, CONFINEMENT, /MODERATOR	7.58E-10	2.60E-10	1.83E-09	RR-UNFILTERED
WHF-ESD11-AODPC	5-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to an impact to a TC. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD11-DPC-IMPACT, CANISTER-AO-IMPACT, CONFINEMENT, MODERATOR	7.18E-14	0.00E+00	3.65E-13	RR-UNFILTERED-ITC
WHF-ESD11-AOTAD	2-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a ST collision with structures or equipment. In this sequence the canister remains intact, and the shielding fails.	ESD11-TAD-COLLIDE, /CANISTER-AO-IMPACT, AO-SHIELD-IMPACT	5.34E-05	2.75E-05	1.86E-04	DE-SHIELD-LOSS
WHF-ESD11-AOTAD	2-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD11-TAD-COLLIDE, CANISTER-AO-IMPACT, /CONFINEMENT, /MODERATOR	5.34E-08	2.75E-08	1.86E-07	RR-FILTERED
WHF-ESD11-AOTAD	2-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD11-TAD-COLLIDE, CANISTER-AO-IMPACT, /CONFINEMENT, MODERATOR	5.36E-12	1.94E-12	2.45E-11	RR-FILTERED-ITC
WHF-ESD11-AOTAD	2-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD11-TAD-COLLIDE, CANISTER-AO-IMPACT, CONFINEMENT, /MODERATOR	2.02E-09	4.49E-10	2.32E-08	RR-UNFILTERED
WHF-ESD11-AOTAD	2-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a ST collision with structures or equipment. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD11-TAD-COLLIDE, CANISTER-AO-IMPACT, CONFINEMENT, MODERATOR	1.70E-13	0.00E+00	1.42E-12	RR-UNFILTERED-ITC

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD11-AOTAD	3-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a drop of the cask at the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD11-TAD-DROP, /CANISTER-AO-DROP, AO-SHIELD-DROP	3.73E-07	3.71E-07	5.02E-08	DE-SHIELD-LOSS
WHF-ESD11-AOTAD	3-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a drop of the cask at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD11-TAD-DROP, CANISTER-AO-DROP, /CONFINEMENT, /MODERATOR	7.46E-07	7.42E-07	1.00E-07	RR-FILTERED
WHF-ESD11-AOTAD	3-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD11-TAD-DROP, CANISTER-AO-DROP, /CONFINEMENT, MODERATOR	7.88E-11	5.15E-11	9.22E-11	RR-FILTERED-ITC
WHF-ESD11-AOTAD	3-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a drop of the cask at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD11-TAD-DROP, CANISTER-AO-DROP, CONFINEMENT, /MODERATOR	2.63E-08	1.21E-08	4.50E-08	RR-UNFILTERED
WHF-ESD11-AOTAD	3-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a drop of the cask at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD11-TAD-DROP, CANISTER-AO-DROP, CONFINEMENT, MODERATOR	2.78E-12	9.05E-13	8.12E-12	RR-UNFILTERED-ITC
WHF-ESD11-AOTAD	4-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the canister remains intact, and the shielding fails.	ESD11-TAD-TIP, /CANISTER-AO-DROP, AO-SHIELD-DROP	1.36E-08	1.04E-08	1.12E-08	DE-SHIELD-LOSS
WHF-ESD11-AOTAD	4-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a cask tipover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD11-TAD-TIP, CANISTER-AO-DROP, /CONFINEMENT, /MODERATOR	2.71E-08	2.07E-08	2.25E-08	RR-FILTERED
WHF-ESD11-AOTAD	4-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD11-TAD-TIP, CANISTER-AO-DROP, /CONFINEMENT, MODERATOR	2.83E-12	1.55E-12	5.85E-12	RR-FILTERED-ITC
WHF-ESD11-AOTAD	4-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD11-TAD-TIP, CANISTER-AO-DROP, CONFINEMENT, /MODERATOR	9.32E-10	3.38E-10	2.02E-09	RR-UNFILTERED
WHF-ESD11-AOTAD	4-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a cask tipover. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD11-TAD-TIP, CANISTER-AO-DROP, CONFINEMENT, MODERATOR	5.73E-14	0.00E+00	3.21E-13	RR-UNFILTERED-ITC

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD11-AOTAD	5-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to an impact to a TC. In this sequence the canister remains intact, and the shielding fails.	ESD11-TAD-IMPACT, /CANISTER-AO-IMPACT, AO-SHIELD-IMPACT	7.07E-05	5.38E-05	6.00E-05	DE-SHIELD-LOSS
WHF-ESD11-AOTAD	5-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to an impact to a TC. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD11-TAD-IMPACT, CANISTER-AO-IMPACT, /CONFINEMENT, /MODERATOR	7.07E-08	5.38E-08	6.00E-08	RR-FILTERED
WHF-ESD11-AOTAD	5-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to an impact to a TC. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD11-TAD-IMPACT, CANISTER-AO-IMPACT, /CONFINEMENT, MODERATOR	7.41E-12	3.75E-12	1.25E-11	RR-FILTERED-ITC
WHF-ESD11-AOTAD	5-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to an impact to a TC. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD11-TAD-IMPACT, CANISTER-AO-IMPACT, CONFINEMENT, /MODERATOR	2.55E-09	8.74E-10	6.17E-09	RR-UNFILTERED
WHF-ESD11-AOTAD	5-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to an impact to a TC. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD11-TAD-IMPACT, CANISTER-AO-IMPACT, CONFINEMENT, MODERATOR	2.42E-13	0.00E+00	1.23E-12	RR-UNFILTERED-ITC
WHF-ESD12-DPC	03	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the transportation cask remains intact, and the shielding fails.	ESD12-DPC-DOOR, /CELL-DOOR, /CASK-IMPACT, SHIELD-CASK-IMPACT	4.18E-12	1.35E-12	8.58E-12	DE-SHIELD-LOSS
WHF-ESD12-DPC	04	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-DPC-DOOR, /CELL-DOOR, CASK-IMPACT, /CONFINEMENT, /MODERATOR	4.18E-12	1.35E-12	8.58E-12	RR-FILTERED
WHF-ESD12-DPC	05	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-DPC-DOOR, /CELL-DOOR, CASK-IMPACT, /CONFINEMENT, MODERATOR	7.68E-18	0.00E+00	5.43E-16	RR-FILTERED-ITC
WHF-ESD12-DPC	06	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-DPC-DOOR, /CELL-DOOR, CASK-IMPACT, CONFINEMENT, /MODERATOR	1.34E-13	0.00E+00	5.73E-13	RR-UNFILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD12-DPC	07	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD12-DPC-DOOR, /CELL-DOOR, CASK-IMPACT, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD12-DPC	09	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the transportation cask remains intact, and the shielding fails.	ESD12-DPC-DOOR, CELL-DOOR, /CASK-IMPACT, SHIELD-CASK-IMPACT	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD12-DPC	10	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the transportation cask fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-DPC-DOOR, CELL-DOOR, CASK-IMPACT, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD12-DPC	11	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the transportation cask fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-DPC-DOOR, CELL-DOOR, CASK-IMPACT, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD12-DPC	12	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the transportation cask fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-DPC-DOOR, CELL-DOOR, CASK-IMPACT, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD12-DPC	13	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the transportation cask fails, the confinement boundary fails, and a moderator enters canister.	ESD12-DPC-DOOR, CELL-DOOR, CASK-IMPACT, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD12-TAD	03	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the STC remains intact, and the shielding fails.	ESD12-TAD-DOOR, /CELL-DOOR, /CASK-IMPACT, SHIELD-CASK-IMPACT	1.41E-11	4.53E-12	2.89E-11	DE-SHIELD-LOSS
WHF-ESD12-TAD	04	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the STC fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-TAD-DOOR, /CELL-DOOR, CASK-IMPACT, /CONFINEMENT, /MODERATOR	1.41E-11	4.53E-12	2.89E-11	RR-FILTERED

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD12-TAD	05	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the STC fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-TAD-DOOR, /CELL-DOOR, CASK-IMPACT, /CONFINEMENT, MODERATOR	2.59E-17	0.00E+00	1.83E-15	RR-FILTERED-ITC
WHF-ESD12-TAD	06	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the STC fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-TAD-DOOR, /CELL-DOOR, CASK-IMPACT, CONFINEMENT, /MODERATOR	4.51E-13	0.00E+00	1.93E-12	RR-UNFILTERED
WHF-ESD12-TAD	07	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to an impact with a WHF shield door. In this sequence the cell door structure remains intact, the STC fails, the confinement boundary fails, and a moderator enters canister.	ESD12-TAD-DOOR, /CELL-DOOR, CASK-IMPACT, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD12-TAD	09	This sequence represents a structural challenge to a TAD inside a STC resulting in a direct exposure from loss of shielding due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the STC remains intact, and the shielding fails.	ESD12-TAD-DOOR, CELL-DOOR, /CASK-IMPACT, SHIELD-CASK-IMPACT	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD12-TAD	10	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the STC fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD12-TAD-DOOR, CELL-DOOR, CASK-IMPACT, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD12-TAD	11	This sequence represents a structural challenge to a TAD inside a STC resulting in a filtered radionuclide release also important to criticality due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the STC fails, the confinement boundary remains intact, and a moderator enters canister.	ESD12-TAD-DOOR, CELL-DOOR, CASK-IMPACT, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD12-TAD	12	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the STC fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD12-TAD-DOOR, CELL-DOOR, CASK-IMPACT, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD12-TAD	13	This sequence represents a structural challenge to a TAD inside a STC resulting in an unfiltered radionuclide release also important to criticality due to an impact with a WHF shield door. In this sequence the cell door fails and impacts the waste form, the STC fails, the confinement boundary fails, and a moderator enters canister.	ESD12-TAD-DOOR, CELL-DOOR, CASK-IMPACT, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD13-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 the canister at the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD13-DPC-DROP, /CANISTER-DROP, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD13-DPC	2-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD13-DPC-DROP, CANISTER-DROP, /CONFINEMENT, /MODERATOR	4.87E-08	4.01E-08	3.52E-08	RR-FILTERED
WHF-ESD13-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 the canister at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-DPC-DROP, CANISTER-DROP, /CONFINEMENT, MODERATOR	4.96E-12	2.80E-12	7.31E-12	RR-FILTERED-ITC
WHF-ESD13-DPC	2-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD13-DPC-DROP, CANISTER-DROP, CONFINEMENT, /MODERATOR	1.71E-09	6.61E-10	3.58E-09	RR-UNFILTERED
WHF-ESD13-DPC	2-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-DPC-DROP, CANISTER-DROP, CONFINEMENT, MODERATOR	1.48E-13	0.00E+00	5.94E-13	RR-UNFILTERED-ITC
WHF-ESD13-DPC	3-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a drop of the canister above the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD13-DPC-TWOBLOCK, /CANISTER-TWOBLOCK, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD13-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 above the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD13-DPC-TWOBLOCK, CANISTER-TWOBLOCK, /CONFINEMENT, /MODERATOR	9.72E-11	7.38E-12	5.64E-10	RR-FILTERED
WHF-ESD13-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 above the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-DPC-TWOBLOCK, CANISTER-TWOBLOCK, /CONFINEMENT, MODERATOR	8.58E-15	0.00E+00	8.93E-14	RR-FILTERED-ITC
WHF-ESD13-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 above the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD13-DPC-TWOBLOCK, CANISTER-TWOBLOCK, CONFINEMENT, /MODERATOR	2.99E-12	1.15E-13	2.32E-11	RR-UNFILTERED
WHF-ESD13-DPC	3-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-DPC-TWOBLOCK, CANISTER-TWOBLOCK, CONFINEMENT, MODERATOR	1.88E-16	0.00E+00	4.99E-15	RR-UNFILTERED-ITC
WHF-ESD13-DPC	4-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a collision involving a side impact to a canister. In this sequence the canister remains intact, and the shielding fails.	ESD13-DPC-SIDEIMPACT, /CANISTER-IMPACT, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD13-DPC	4-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a collision involving a side impact to a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD13-DPC-SIDEIMPACT, CANISTER-IMPACT, /CONFINEMENT, /MODERATOR	1.35E-11	1.35E-11	9.40E-13	RR-FILTERED
WHF-ESD13-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 collision involving a side impact to a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-DPC-SIDEIMPACT, CANISTER-IMPACT, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD13-DPC	4-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a collision involving a side impact to a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD13-DPC-SIDEIMPACT, CANISTER-IMPACT, CONFINEMENT, /MODERATOR	4.84E-13	2.31E-13	8.49E-13	RR-UNFILTERED
WHF-ESD13-DPC	4-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a collision involving a side impact to a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-DPC-SIDEIMPACT, CANISTER-IMPACT, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD13-DPC	5-2	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 the canister. In this sequence the canister remains intact, and the shielding fails.	ESD13-DPC-DROPON, /CANISTER-DROP, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD13-DPC	5-3	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.	ESD13-DPC-DROPON, CANISTER-DROP, /CONFINEMENT, /MODERATOR	4.92E-08	3.98E-08	3.74E-08	RR-FILTERED
WHF-ESD13-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 drop of a heavy object onto the canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-DPC-DROPON, CANISTER-DROP, /CONFINEMENT, MODERATOR	5.08E-12	2.77E-12	8.74E-12	RR-FILTERED-ITC
WHF-ESD13-DPC	5-5	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.	ESD13-DPC-DROPON, CANISTER-DROP, CONFINEMENT, /MODERATOR	1.69E-09	6.51E-10	3.79E-09	RR-UNFILTERED
WHF-ESD13-DPC	5-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-DPC-DROPON, CANISTER-DROP, CONFINEMENT, MODERATOR	1.38E-13	0.00E+00	5.18E-13	RR-UNFILTERED-ITC
WHF-ESD13-DPC	6-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to an impact from unplanned carrier movement. In this sequence the canister remains intact, and the shielding fails.	ESD13-DPC-SPURMOVE, /CANISTER-SHEAR, SHIELD-LOSS	2.47E-06	1.11E-06	6.31E-06	DE-SHIELD-LOSS

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD13-DPC	6-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to an impact from unplanned carrier movement. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD13-DPC-SPURMOVE, CANISTER-SHEAR, /CONFINEMENT, /MODERATOR	2.47E-06	1.11E-06	6.31E-06	RR-FILTERED
WHF-ESD13-DPC	6-4	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release also important to criticality due to an impact from unplanned carrier movement. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-DPC-SPURMOVE, CANISTER-SHEAR, /CONFINEMENT, MODERATOR	2.48E-10	7.87E-11	6.30E-10	RR-FILTERED-ITC
WHF-ESD13-DPC	6-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to an impact from unplanned carrier movement. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD13-DPC-SPURMOVE, CANISTER-SHEAR, CONFINEMENT, /MODERATOR	8.57E-08	1.81E-08	4.49E-07	RR-UNFILTERED
WHF-ESD13-DPC	6-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to an impact from unplanned carrier movement. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-DPC-SPURMOVE, CANISTER-SHEAR, CONFINEMENT, MODERATOR	8.99E-12	1.31E-12	5.09E-11	RR-UNFILTERED-ITC
WHF-ESD13-DPC	7-2	This sequence represents a structural challenge to a DPC resulting in a direct exposure from loss of shielding due to a drop of the canister at the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD13-DPC-DROPBELL, /CANISTER-DROP, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD13-DPC	7-3	This sequence represents a structural challenge to a DPC resulting in a filtered radionuclide release due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD13-DPC-DROPBELL, CANISTER-DROP, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD13-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 drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-DPC-DROPBELL, CANISTER-DROP, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD13-DPC	7-5	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD13-DPC-DROPBELL, CANISTER-DROP, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD13-DPC	7-6	This sequence represents a structural challenge to a DPC resulting in an unfiltered radionuclide release also important to criticality due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-DPC-DROPBELL, CANISTER-DROP, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD13-TAD	2-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a drop of the canister at the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD13-TAD-DROP, /CANISTER-DROP, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD13-TAD	2-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD13-TAD-DROP, CANISTER-DROP, /CONFINEMENT, /MODERATOR	1.64E-07	1.35E-07	1.18E-07	RR-FILTERED
WHF-ESD13-TAD	2-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-TAD-DROP, CANISTER-DROP, /CONFINEMENT, MODERATOR	1.67E-11	9.44E-12	2.46E-11	RR-FILTERED-ITC
WHF-ESD13-TAD	2-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD13-TAD-DROP, CANISTER-DROP, CONFINEMENT, /MODERATOR	5.77E-09	2.22E-09	1.21E-08	RR-UNFILTERED
WHF-ESD13-TAD	2-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-TAD-DROP, CANISTER-DROP, CONFINEMENT, MODERATOR	5.00E-13	0.00E+00	2.00E-12	RR-UNFILTERED-ITC
WHF-ESD13-TAD	3-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a drop of the canister above the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD13-TAD-TWOBLOCK, /CANISTER-TWOBLOCK, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD13-TAD	3-3	This sequence represents a structural challenge to a TAD 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.	ESD13-TAD-TWOBLOCK, CANISTER-TWOBLOCK, /CONFINEMENT, /MODERATOR	3.27E-10	2.48E-11	1.90E-09	RR-FILTERED
WHF-ESD13-TAD	3-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-TAD-TWOBLOCK, CANISTER-TWOBLOCK, /CONFINEMENT, MODERATOR	2.89E-14	0.00E+00	3.01E-13	RR-FILTERED-ITC
WHF-ESD13-TAD	3-5	This sequence represents a structural challenge to a TAD 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.	ESD13-TAD-TWOBLOCK, CANISTER-TWOBLOCK, CONFINEMENT, /MODERATOR	1.01E-11	3.88E-13	7.82E-11	RR-UNFILTERED
WHF-ESD13-TAD	3-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a drop of the canister above the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-TAD-TWOBLOCK, CANISTER-TWOBLOCK, CONFINEMENT, MODERATOR	6.34E-16	0.00E+00	1.68E-14	RR-UNFILTERED-ITC
WHF-ESD13-TAD	4-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a collision involving a side impact to a canister. In this sequence the canister remains intact, and the shielding fails.	ESD13-TAD-SIDEIMPACT, /CANISTER-IMPACT, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD13-TAD	4-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a collision involving a side impact to a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD13-TAD-SIDEIMPACT, CANISTER-IMPACT, /CONFINEMENT, /MODERATOR	4.55E-11	4.55E-11	3.17E-12	RR-FILTERED
WHF-ESD13-TAD	4-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a collision involving a side impact to a canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-TAD-SIDEIMPACT, CANISTER-IMPACT, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD13-TAD	4-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a collision involving a side impact to a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD13-TAD-SIDEIMPACT, CANISTER-IMPACT, CONFINEMENT, /MODERATOR	1.63E-12	7.76E-13	2.86E-12	RR-UNFILTERED
WHF-ESD13-TAD	4-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a collision involving a side impact to a canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-TAD-SIDEIMPACT, CANISTER-IMPACT, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD13-TAD	5-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a drop of a heavy object onto the canister. In this sequence the canister remains intact, and the shielding fails.	ESD13-TAD-DROPON, /CANISTER-DROP, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD13-TAD	5-3	This sequence represents a structural challenge to a TAD 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.	ESD13-TAD-DROPON, CANISTER-DROP, /CONFINEMENT, /MODERATOR	1.66E-07	1.34E-07	1.26E-07	RR-FILTERED
WHF-ESD13-TAD	5-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a drop of a heavy object onto the canister. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-TAD-DROPON, CANISTER-DROP, /CONFINEMENT, MODERATOR	1.71E-11	9.31E-12	2.94E-11	RR-FILTERED-ITC
WHF-ESD13-TAD	5-5	This sequence represents a structural challenge to a TAD 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.	ESD13-TAD-DROPON, CANISTER-DROP, CONFINEMENT, /MODERATOR	5.70-09	2.19E-09	1.28E-08	RR-UNFILTERED
WHF-ESD13-TAD	5-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a drop of a heavy object onto the canister. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-TAD-DROPON, CANISTER-DROP, CONFINEMENT, MODERATOR	4.63E-13	0.00E+00	1.74E-12	RR-UNFILTERED-ITC
WHF-ESD13-TAD	6-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to an impact from unplanned carrier movement. In this sequence the canister remains intact, and the shielding fails.	ESD13-TAD-SPURMOVE, /CANISTER-SHEAR, SHIELD-LOSS	8.31E-06	3.73E-06	2.12E-05	DE-SHIELD-LOSS

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD13-TAD	6-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to an impact from unplanned carrier movement. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD13-TAD-SPURMOVE, CANISTER-SHEAR, /CONFINEMENT, /MODERATOR	8.31E-06	3.73E-06	2.12E-05	RR-FILTERED
WHF-ESD13-TAD	6-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to an impact from unplanned carrier movement. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-TAD-SPURMOVE, CANISTER-SHEAR, /CONFINEMENT, MODERATOR	8.18E-10	2.65E-10	2.12E-09	RR-FILTERED-ITC
WHF-ESD13-TAD	6-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to an impact from unplanned carrier movement. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD13-TAD-SPURMOVE, CANISTER-SHEAR, CONFINEMENT, /MODERATOR	2.89E-07	6.11E-08	1.51E-06	RR-UNFILTERED
WHF-ESD13-TAD	6-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to an impact from unplanned carrier movement. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-TAD-SPURMOVE, CANISTER-SHEAR, CONFINEMENT, MODERATOR	3.03E-11	4.40E-12	1.71E-10	RR-UNFILTERED-ITC
WHF-ESD13-TAD	7-2	This sequence represents a structural challenge to a TAD resulting in a direct exposure from loss of shielding due to a drop of the canister at the operational height. In this sequence the canister remains intact, and the shielding fails.	ESD13-TAD-DROPBELL, /CANISTER-DROP, SHIELD-CTM	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD13-TAD	7-3	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD13-TAD-DROPBELL, CANISTER-DROP, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD13-TAD	7-4	This sequence represents a structural challenge to a TAD resulting in a filtered radionuclide release also important to criticality due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD13-TAD-DROPBELL, CANISTER-DROP, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD13-TAD	7-5	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD13-TAD-DROPBELL, CANISTER-DROP, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED
WHF-ESD13-TAD	7-6	This sequence represents a structural challenge to a TAD resulting in an unfiltered radionuclide release also important to criticality due to a drop of the canister at the operational height. In this sequence the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD13-TAD-DROPBELL, CANISTER-DROP, CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED-ITC
WHF-ESD14-DPC	2-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to an impact to an STC. In this sequence the transportation cask remains intact, and the shielding fails.	ESD14-DPC-IMPACT, /CASK-IMPACT, SHIELD-CASK-IMPACT	3.47E-09	2.11E-09	4.32E-09	DE-SHIELD-DEGRADE

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

Event Tree	Sequence	Text Description of Sequence	Logic	Mean	Median	Standard Deviation	End State
WHF-ESD14-DPC	2-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to an impact to an STC. In this sequence the transportation cask fails, and the canister remains intact.	ESD14-DPC-IMPACT, CASK-IMPACT, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD14-DPC	2-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to an impact to an STC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD14-DPC-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	3.47E-09	2.11E-09	4.32E-09	RR-FILTERED
WHF-ESD14-DPC	2-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to an impact to an STC. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD14-DPC-IMPACT, CASK-IMPACT, CANISTER-FAIL, /CONFINEMENT, MODERATOR	3.63E-13	1.54E-13	8.03E-13	RR-FILTERED-ITC
WHF-ESD14-DPC	2-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to an impact to an STC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD14-DPC-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, /MODERATOR	1.18E-10	3.46E-11	3.24E-10	RR-UNFILTERED
WHF-ESD14-DPC	2-7	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release also important to criticality due to an impact to an STC. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator enters canister.	ESD14-DPC-IMPACT, CASK-IMPACT, CANISTER-FAIL, CONFINEMENT, MODERATOR	9.02E-15	0.00E+00	4.99E-14	RR-UNFILTERED-ITC
WHF-ESD14-DPC	3-2	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from degradation of shielding due to a cask tipover. In this sequence the transportation cask remains intact, and the shielding fails.	ESD14-DPC-TIP, /CASK-DROP, SHIELD-CASK-DROP	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-DEGRADE
WHF-ESD14-DPC	3-3	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a direct exposure from loss of shielding due to a cask tipover. In this sequence the transportation cask fails, and the canister remains intact.	ESD14-DPC-TIP, CASK-DROP, /CANISTER-FAIL	0.00E+00	0.00E+00	0.00E+00	DE-SHIELD-LOSS
WHF-ESD14-DPC	3-4	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator is excluded from entering canister.	ESD14-DPC-TIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED
WHF-ESD14-DPC	3-5	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in a filtered radionuclide release also important to criticality due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary remains intact, and a moderator enters canister.	ESD14-DPC-TIP, CASK-DROP, CANISTER-FAIL, /CONFINEMENT, MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-FILTERED-ITC
WHF-ESD14-DPC	3-6	This sequence represents a structural challenge to a DPC inside a transportation cask resulting in an unfiltered radionuclide release due to a cask tipover. In this sequence the transportation cask fails, the canister fails, the confinement boundary fails, and a moderator is excluded from entering canister.	ESD14-DPC-TIP, CASK-DROP, CANISTER-FAIL, CONFINEMENT, /MODERATOR	0.00E+00	0.00E+00	0.00E+00	RR-UNFILTERED