Chapter 8 From Revision 1 to Revision 2 Change List

Item	Location	Description of Change
1.	S8, entire section	Change Containment System Event Trees (CSET) and Containment Phenomenology System Event Trees (CPET) to Containment Event Trees (CET)
2.	S8.0, 1st para	Technical clarification: containment isolation is not passive, neither is suppression pool cooling (a form of "heat removal")
3.	S8.0, 2nd para	Added sentence in response to RAI 19.2-69 and 19.2-70
4.	S8.0, 4th para	Revised containment fragility analysis is now in DCD S19B and 19C
5.	T8.0-1, 4th row	The rev 2 Level 2 model no longer uses separate Containment Phenomenology Event Trees (CPET) and Containment System Event Trees (CET), instead there is one integrated Containment Event Tree (CET) for each class
6.	T8.0-1, last row	These release categories were not discussed in section 8 previously
7.	S8.1.3	for clarification, because the referred to analysis is only valid for inerted operation
8.	S8.1.4	In response to RAI 19.2-69 and RAI 19.2-70 – the potential effect of a severe accident during de-inerted operation has been considered and assigned to the BYP release category
9.	S8.2, 1st para	Technical clarification regarding the completely revised Level 2 model
10	S8.2, 2nd para and bullet lists	New explanation of the phenomenological release categories. In NEDO-33201 Revision 2, Section 8 extends from just a containment systems discussion to an analysis of containment response to severe accident conditions
11	S8.2.1, 1st para	Technical clarification because the Section 21 analysis still uses separate CPET/CSET pairs – however, the two methods are logically equivalent
12	S8.2.1, table	New frequencies for each accident subclass from the Level 1 analysis
13	S8.2.1, 3rd para	Technical clarity – removal of CPET discussion because of model change
14	S8.2.1. bullet list	Sentence removed because Class II accident sequences are no longer ignored
15	S8.2.1, 5th and 6th para	Technical clarification to be consistent with the new CETs

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Item	Location	Description of Change
		versus the old CPETs/CSETs model
16	S8.2.1.1, 1st para	Containment failure due to phenomenology is approximately 65% of the non-TSL release frequency, plus CPET/CSET quantification is no longer used
17	S8.2.1.1, 2nd para	Technical explanation and basis of the new Level 1 sequence binning process
18	S8.2.1.1, 3rd para	New technical explanation of ATWS severe accident assumptions regarding low RPV pressure at vessel rupture
19	S8.2.1.2, 3rd para	Technical clarification regarding why ICS is not credited
20	S8.2.1.2, 4th para	Technical design change – the temperature sensors in the DW airspace are new additions to the design to help prevent spurious actuation
21	S8.2.1.2, 6th para	Technical clarification – only PCCS is credited in the deterministic analysis, but both PCCS and suppression pool cooling are credited in the probabilistic analysis
22	S8.2.1.2, 7th para	Technical clarification – PCCS does not have any support systems in the traditional sense, but it DOES require leak-tight vacuum breakers
23	S8.2.1.2, 8th para	New technical explanation of the Drywell Spray system, which is not used as a mitigating system in ESBWR
24	S8.2.1.2, 9th para	Technical clarification on the vacuum breaker success criteria
25	S8.2.1.2, 10th para	Venting is not used as a mitigating system in core-concrete interaction sequences because scrubbing is negligible for source term reduction
26	S8.2.1.3, 1st para	Revised technical discussion to reflect updated integrated CETs
27	S8.2.1.3, 2nd para	Technical clarification – explanation of implicit initiator impact as a result of the integrated Level 1 / Level 2 model
28	S8.2.1.3.2, (1)	Deleted. The new vacuum breaker back-up valves no longer require manual actuation upon leak detection – the isolation logic is completely automatic
29	S8.2.1.3.3	New discussion on EVE
30	S8.2.1.3.3, 2nd para	Technical clarification of the postulated RPV failure mode to indicate the high level of conservatism utilized in the current analysis

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Item	Location	Description of Change
31	S8.2.1.3.4	New discussion of top event DCH
32	S8.2.1.3.5	New discussion of top event BI_SP, which is represented by a new fault tree analysis
33	S8.2.1.3.6	New discussion of top event BI_FN
34	S8.2.1.3.7	Revised technical discussion of the containment isolation function – DCD R3 contained more detailed information regarding containment penetrations
35	S8.2.1.3.8	Revised technical discussion of top event VB – clarified to confirm that event VB represents the vapor suppression function, not the leak tight function necessary for PCCS operation
36	S8.2.1.3.9, 1st para, 6th sent	Revised thermal-hydraulic analyses indicate that PCCS pool make-up is not necessary until beyond 72 hours when the ICS is not functioning
37	S8.2.1.3.9, 1st para, 8th sent	Technical clarification
38	S8.2.1.4, 1st para 4th sent	Revised technical results based on updated R2 results
39	S8.2.1.4, 2nd – 5th para	New technical discussion regarding the phenomenological release categories / containment failure modes
40	S8.2.1.4, 6th –11th para	Updated technical discussion based on new R2 results
41	S8.2.1.5, 1st para	Updated technical discussion to reflect new quantification method and R2 results
42	S8.2.1.5, 2nd para	New calculation of containment effectiveness based on R2 results and a new truncation of 1E-15 versus 1E-12 from R1
43	T8.2-1	Table updated to reflect new sequence bins and their respective frequencies out of the Level 1 results
44	T8.2-2	Table updated to include ALL release categories, not just the systemic releases as in R1. New results for all release categories included
45		
46	F8.2-1	Deleted. With the integration of the CPET/CSET structures there is no longer a standard CET architecture.

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Item	Location	Description of Change
47	F8.2-2	Figure updated with revised data from MAAP run
48	F8.2-3	Figure updated with revised data from MAAP run
49	F8.2-4	Figure updated with revised data from MAAP run
50	S8.3, 1st para	Technical clarification because phenomenological failure modes are discussed two sentences later
51	S8.3, 3rd para, 3rd sent	Revised to refer to the DCD sections instead of Appendix 8B because the analysis is in the DCD and 8B has been deleted
52	S8.3.2	Technical clarification, since class V sequences are not analyzed
53	S8.3.2, 2nd para	Technical clarification to update the Level 1 PRA results and incorporate the Level 1 accident sequence binning definitions
54	S8.3.2.1	Update with new results from the Level 1, R2 analysis
55	S8.3.2.1.1, 3rd para –5th para	Updated timing from the thermal-hydraulic analysis
56	S8.3.2.1.2, 2nd para	Updated timing from revised MAAP runs
57	S8.3.2.2	Technical justification and explanation for removing the Class II frequency from the offsite dose calculation
58	S8.3.2.2, last para	Deleted. Level 1 PRA results changed
59	S8.3.2.2.1, 3rd para	Technical clarification that class II sequences are NOT included in the offsite dose analysis, but ARE included in the total release frequency
60	S8.3.2.2.1, 5th para	Technical clarification regarding the release categories to which the Class II sequence are assigned
61	S8.3.2.3	New Level 1 PRA results
62	S8.3.2.3.1	New Level 1 PRA results
63	S8.3.2.4	New Level 1 PRA results
64	S8.3.2.4.1	New Level 1 PRA results
65	T8.3-2	Table is updated with the phenomenological release categories and updated frequencies for all release categories
66	T8.3-3	Table is updated with new results from the thermal-

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Item	Location	Description of Change
		hydraulic analyses of each representative sequence
67	F8.3-1 through F8.3-7	Updated figures with new MAAP results
68	S8.4, 1st bullet	Section 8 has been updated to include technical discussion of phenomenology in R2
69	S8.4, 2nd bullet	Technical clarification because the combustible gas generation analysis assumes the accident begins when containment is inerted
70	S8.4, 3rd bullet	New, detailed design of containment penetrations in DCD R3 allowed more detailed analysis of the containment isolation function – results updated with Level 2 R2 results
71	S8.4, 4th – 7th bullet	Updated R2 results for the various overpressure release categories
72	S8.4, 8th bullet	New discussion of the filtered release category – the only results come from class II-a sequences, which may eventually be discounted
73	S8.4, 9th para – 13th para	New discussion of the phenomenological releases
74	S8.4, 10th para, 3rd sent	Recalculated containment effectiveness based on R2 results