

## ESBWR DCD Tier 2 Chapter 6

### 26A6642AT Revision 7 to Revision 8 Change List

Item	Location	Description of Change
1.	Entire Chapter	Header changed from Rev 7 to Rev 8.
2.	T6.1-1, PCCS, Condenser and associated piping that are part of the containment pressure boundary	Modified PCCS Condenser Material Specification from “SA-182 Gr F304L” to “SA-182 Gr F304L, SA-182 Gr FXM-19, SA-336 F316” per response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
3.	T6.1-1, PCCS, Nuts and Bolts (new)	Added material specification per response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
4.	S6.2.1.1.2, 15 <sup>th</sup> paragraph, 1 <sup>st</sup> sentence	Reference 6.2-15 added per RAI 6.2-148 Supplement 3 response. Reference MFN 08-344 Supplement 5.
5.	S6.2.1.1.10.2, item “(1) ICS”, 1 <sup>st</sup> paragraph, new 2 <sup>nd</sup> to last and last sentences	Added sentences in response to RAI 6.2-202 S01: “The lower header vent line is also automatically opened post six hours ICS initiation. This mitigates accumulation of noncondensables during long term use of ICS (e.g, station blackout for 72 hours).” Reference MFN 10-044 Supplement 3.
6.	S6.2.1.1.10.2, item “(8) PCCS”, new 2 <sup>nd</sup> paragraph	Added paragraph to describe igniters (glow plugs) in the lower drums of the PCCS condensers in response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
7.	S6.2.2.1, subheader “Performance Requirements”, 1 <sup>st</sup> paragraph, 2 <sup>nd</sup> sentence	Changed PCC unit heat removal capacity from 11 MWt to 7.8 MWt (minimum) per response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
8.	S6.2.2.2.2, 2 <sup>nd</sup> paragraph, 2 <sup>nd</sup> sentence	Changed PCC unit heat removal capacity from 11 MWt to 7.8 MWt per response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
9.	S6.2.2.2.2, 4 <sup>th</sup> paragraph	Deleted sentence in response to RAI 6.2-202 S01: “Each PCCS condenser is configured as follows (Figures 3G.1-71a and 3G.1-71b).” Reference MFN 10-044 Supplement 3.

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10.	S6.2.2.2.2, former 8 <sup>th</sup> paragraph (new 7 <sup>th</sup> paragraph), last sentence	<p>Changed sentence in response to RAI 6.2-202 S01 from:</p> <p>“Reference 6.2-14 provides details regarding the stress analysis of the condenser and supports.”</p> <p>To:</p> <p>“Reference 6.2-14 provides details regarding hydrogen accumulation in the PCCS and their design to withstand deflagrations and detonations.”</p> <p>Reference MFN 10-044 Supplement 3.</p>
11.	S6.2.2.2.2, new 8 <sup>th</sup> paragraph	<p>Added paragraph to describe PCCS vent line catalyst modules per response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.</p>
12.	S6.2.2.2.2, 9 <sup>th</sup> paragraph, 8 <sup>th</sup> sentence	<p>Modified sentence per response to RAI 6.2-202 S01 from:</p> <p>“To further prevent reverse flow through an idle fan, a check valve is installed downstream of the fan.”</p> <p>To (also creating new 9th sentence):</p> <p>“To further prevent reverse flow through an idle fan, a normally closed isolation valve is installed upstream of the fan. The valve is opened by operator action and relies on the same power source as the fan.”</p> <p>Reference MFN 10-044 Supplement 3.</p>
13.	S6.2.2.2.3, subheader “Passive Containment Cooling Operation”, 1 <sup>st</sup> paragraph, new last sentence	<p>Added sentence in response to RAI 6.2-202 S01:</p> <p>“The PCCS vent catalyst recombines radiolytic hydrogen and oxygen entering the vent line.”</p> <p>Reference MFN 10-044 Supplement 3.</p>
14.	S6.2.2.4, new 2 <sup>nd</sup> paragraph	<p>Added sentence in response to RAI 6.2-202 S01:</p> <p>“The performance of a representative sample of PCCS vent catalyst is tested on a staggered basis at a frequency of 24 months.”</p> <p>Reference MFN 10-044 Supplement 3.</p>

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15.	S6.2.3.2, 5 <sup>th</sup> paragraph, 1 <sup>st</sup> sentence	Clarified that Reactor Building passively acting pressure relief devices are safety-related in supplemental response to RAI 9.1-8 S01. Reference MFN 08-273, Supplement 1.
16.	S6.2.4.3.1.1, subheader “Isolation Condenser Condensate and Venting Lines”, 1 <sup>st</sup> paragraph, 2 <sup>nd</sup> sentence	Deleted sentence in response to RAI 6.2-202 S01: “Instead of one isolation valve outside the containment and one isolation valve inside the containment, the ICS influent lines rely upon two valves inside containment as well as a closed system outside the containment.” Reference MFN 10-044 Supplement 3.
17.	S6.2.4.3.1.1, subheader “Isolation Condenser Condensate and Venting Lines”, 2 <sup>nd</sup> paragraph	Paragraph extensively modified to describe ICS containment isolation and vent configuration in response to RAI 6.2-202 S01.  Reference MFN 10-044 Supplement 3.
18.	S6.2.4.3.1.1, subheader “Isolation Condenser Condensate and Venting Lines”, new 3 <sup>rd</sup> paragraph, 1 <sup>st</sup> sentence	Changed sentence per response to RAI 6.2-202 S01 from: “The venting line terminates below the minimum drawdown level in the suppression pool.” To: “The venting lines described above connect together downstream of these containment isolation provisions and terminate below the minimum drawdown level in the suppression pool.” Reference MFN 10-044 Supplement 3.
19.	S6.2.4.3.1.1, subheader “Isolation Condenser Condensate and Venting Lines”, 4 <sup>th</sup> paragraph, former 4 <sup>th</sup> and 5 <sup>th</sup> sentences	Deleted sentences in response to RAI 6.2-202 S01: “The containment isolation for the vent lines is very similar in design to the condensate lines. Instead of automatic isolation valves inside containment the vent lines utilize two normally closed fail closed valves in series.” Reference MFN 10-044 Supplement 3.

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20.	S6.2.4.3.1.1, subheader “Isolation Condenser Condensate and Venting Lines”, 4 <sup>th</sup> paragraph, new 4 <sup>th</sup> sentence	<p>Changed sentence per response to RAI 6.2-202 S01 from:</p> <p>“The vent lines are 20 mm (0.75 inch) in diameter, and their inboard isolation valves are designed to ASME Code Section III, Class 2 Quality Group B, Seismic Category I.”</p> <p>To:</p> <p>“The vent lines are 20 mm (0.75 inch) in diameter, and their inboard isolation valves (and restricting orifice) are designed to ASME Code Section III, Class 2 Quality Group B, Seismic Category I.”</p> <p>Reference MFN 10-044 Supplement 3.</p>
21.	S6.2.5.5.1, 2 <sup>nd</sup> paragraph, former last sentence	<p>Changed sentence per response to RAI 6.2-202 S01 from:</p> <p>“Although the process of steam condensation has the effect of concentrating the radiolytically generated hydrogen and oxygen within the ICS and PCCS condensers these components have been designed to accommodate the loads resulting from combustion.”</p> <p>To:</p> <p>“Although the process of steam condensation has the effect of concentrating the radiolytically generated hydrogen and oxygen within the PCCS condensers these components have been designed to accommodate the loads resulting from combustion.”</p> <p>Reference MFN 10-044 Supplement 3.</p>
22.	S6.2.5.5.1, 2 <sup>nd</sup> paragraph, new last sentence	<p>Added sentence in response to RAI 6.2-202 S01:</p> <p>“The accumulation of hydrogen and oxygen in the ICS is mitigated by continuously venting the lower header during non-LOCA scenarios and closing the isolation valves once the ICS inventory has drained into the RPV during LOCA scenarios with the DPVs opening.”</p> <p>Reference MFN 10-044 Supplement 3.</p>

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23.	S6.2.9, Reference 6.2-1	Updated revision level of approved version of NEDC-33083P-A and NEDO-33083-A to reflect NRC FSER. Reference MFN 10-299.
24.	S6.2.9, Reference 6.2-14	Updated title and revision level of NEDE-33572P and NEDO-33572 in response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
25.	S6.2.9, Reference 6.2-15	Reference 6.2-15 added per RAI 6.2-148 Supplement 3 response. Reference MFN 08-344 Supplement 5.
26.	T6.2-6a, Item #7	Changed PCC unit heat removal capacity from 11 MW to 7.8 MW per response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
27.	T6.2-10, "Heat Removal Capacity for Each Condenser"	Changed PCC unit heat removal capacity from 11 MWt to 7.8 MWt (minimum) per response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
28.	T6.2-10, "PCCS Vent Line Catalyst Modules"	Added PCCS Vent Line Catalyst Modules and associated design parameters per response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
29.	T6.2-24	Deleted Valves F009A and F010A in response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
30.	T6.2-26	Deleted Valves F009B and F010B in response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
31.	T6.2-28	Deleted Valves F009C and F010C in response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
32.	T6.2-30	Deleted Valves F009D and F010D in response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
33.	F6.2-15	Updated figure to show revised PCCS venting in response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
34.	F6.2-16	Updated figure to show revised PCCS venting in response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.

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35.	S6.3.2.7.2, Detailed System Description, 4 <sup>th</sup> paragraph, 3 <sup>rd</sup> sentence	Clarified that the dedicated instruments providing power permissives to the deluge system squib initiators are temperature switches, not thermocouples. Reference MFN 10-033.
36.	S6.3.2.7.2, System Operation, 5 <sup>th</sup> paragraph, 4 <sup>th</sup> sentence	Clarified that the dedicated instruments providing power permissives to the deluge system squib initiators are temperature switches, not thermocouples. Reference MFN 10-033.
37.	S6.3.2.7.4, 7 <sup>th</sup> paragraph, 2 <sup>nd</sup> sentence	Corrected spelling of igniters.
38.	S6.3.7, Reference 6.3-2	Updated revision level of approved version of NEDC-33083P-A and NEDO-33083-A to reflect NRC FSER. Reference MFN 10-299.
39.	T6.3-1, Item B.3, Sub-item "Heat Removal Capacity per Unit"	Deleted entire row since ICS heat removal is not credited in ECCS-LOCA performance analysis. Change transmitted with response to RAI 6.2-202 S01. Reference MFN 10-044 Supplement 3.
40.	S6.6.7, 4 <sup>th</sup> paragraph	Deleted paragraph per revised response (revision 2) to RAI 10.2-18 S03. Reference MFN 10-089, Rev 2.
41.	S6.6.11, COL Item 6.6-1-A, 2 <sup>nd</sup> sentence	Deleted reference to equipment requiring special maintenance and inspections as being covered by the augmented in-service inspection program per revised response (revision 2) to RAI 10.2-18 S03. Reference MFN 10-089, Rev 2.
42.	S6A.1, Reference 6A.1-1	Updated revision level of approved version of NEDC-33083P-A and NEDO-33083-A to reflect NRC FSER. Reference MFN 10-299.
43.	S6B.1, Reference 6B.1-1	Updated revision level of approved version of NEDC-33083P-A and NEDO-33083-A to reflect NRC FSER. Reference MFN 10-299.