15.6 Decrease in Reactor Coolant Inventory

The information in this section of the reference ABWR DCD, including all subsections, tables, and figures, is incorporated by reference with the following supplements.

15.6.5S Site-Specific Design Basis Accident Doses

The following site-specific supplement addresses the differences between the reference ABWR DCD and plant specific χ/Q values.

Table 15.6.5S-1 provides a comparison between the site-specific short-term release (accident) χ/Q values and the reference ABWR DCD accident χ/Q values. The reference ABWR DCD EAB accident χ/Q values are in:

- Table 15.6-3 (Instrument Line Break Accident)
- Table 15.6-7 (Main Steamline Break Accident)
- Table 15.6-13 (Loss of Coolant Accident)
- Table 15.6-18 (Clean Up Water Line Break Accident)

The reference ABWR DCD LPZ accident χ/Q values are in Table 15.6-13. The reference ABWR DCD Control Room χ/Q values are in Table 15.6-14. The most conservative site-specific Control Room χ/Q values were taken from FSAR Section 2.3S.4, which correspond to a release from the Reactor Building plant stack at the Control Room air intake “B”. The EAB χ/Q values are for the most conservative time period (0-2 hours).

For all offsite values at all time intervals, the STP site-specific offsite χ/Q values are bounded by the reference ABWR DCD χ/Q values. Since the accident analysis source term is unchanged, the STP site-specific accident doses are bounded by the reference ABWR DCD accident doses for all the accidents in this FSAR section:

- Instrument Line Break Accident (Subsection 15.6.2.5.3)
- Main Steamline Break Accident (Subsection 15.6.4.5.1.3)
- Loss of Coolant Accident (Subsection 15.6.5.5.4)
- Clean Up Water Line Break Accident (Subsection 15.6.6.5.2.3)

For the onsite Control Room χ/Q values, the STP site-specific χ/Q values exceed the reference ABWR DCD χ/Q values for a Turbine Building release for two time intervals. At 0-8 hours, the reference ABWR DCD χ/Q value is exceeded by 0.19%, and for the 4-30 day time interval, the reference ABWR DCD χ/Q value is exceeded by 7.03%. Since the dose value is directly proportional to χ/Q, and the source term has not changed, this increase is conservatively applied to the doses in ABWR DCD Table 15.6-14 at each of the two time intervals. The doses from 0-8 hours are increased by 0.19%, and the doses from 4-30 days are increased by 7.03%. This is an extremely conservative approach, as it assumes that all of the radionuclide release to the Control

Room is from the Turbine Building. The results for doses are shown in Table 15.6.5S-2. The Control Room doses remain well within the regulatory limits.

15.6.7 COL License Information

15.6.7.1 Iodine Removal Credit

The following site-specific supplement addresses COL License Information Item 15.7.

The design characteristics of the main steamlines, drain lines, and main condenser are the same as specified in the reference ABWR DCD. As a result, the parameters in Table 15.6-8, Items II.D (MSIV leakage) and II.E (condenser data) remain unchanged. Since the iodine credit is a function of these parameters, the STP 3 & 4 iodine removal credit does not deviate from the reference ABWR DCD.

Table 15.6.5S-1 Site-Specific χ/Q

Receptor Location	STP Site-Specific χ/Q (s/m^3)	ABWR DCD χ/Q (s/m^3)
EAB	1.96E-04	1.37E-03
LPZ		
0-8 hours	2.34E-05	1.56E-04
8-24 hours	1.64E-05	9.61E-05
1-4 days	7.61E-06	3.36E-05
4-30 days	2.52E-06	7.42E-06
Control Room (Reactor Building Release)		
0-8 hours	7.49E-04	3.10E-03
8-24 hours	2.46E-04	1.83E-03
1-4 days	2.49E-04	1.16E-03
4-30 days	2.15E-04	5.12E-04
Control Room (Turbine Building Release)		
0-8 hours	5.18E-04	5.17E-04
8-24 hours	1.79E-04	3.05E-04
1-4 days	1.19E-04	1.93E-04
4-30 days	9.13E-05	8.53E-05

Table 15.6.5S-2 Site Specific Control Room Dose from the Turbine Building

Time	Thyroid* (Sv)	Whole Body* (Sv)	Beta* (Sv)
0-8 h	3.61E-02	3.51E-03	4.21E-02
8-24 h	7.21E-02	9.02E-03	1.33E-01
1-4 days	1.66E-01	1.96E-02	3.21E-01
4-30 days	2.84E-01	2.72E-02	4.56E-01

* These values are cumulative from the beginning (time zero) to the end of the period.