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 departure and supplements.

STD DEP 15.6-1 (Table 15.6-18)

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 one time interval and for the Reactor Building release for one time interval. For the turbine building at the 4-30 day time interval, the reference ABWR DCD χ/Q value is exceeded by 7.27%. For the Reactor Building at the 4-30 day time interval, the reference ABWR DCD χ/Q value is exceeded by 9.18%. Because the DCD χ/Qs in these instances are not

bounded by site-specific values, the Control Room site specific radiological consequence analysis is performed.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	2.74E-04	1.37E-03
LPZ		
0-8 hours	2.45E-05	1.56E-04
8-24 hours	1.67E-05	9.61E-05
1-4 days	7.57E-06	3.36E-05
4-30 days	2.59E-06	7.42E-06
Control Room (Reactor Building Release)		
0-8 hours	2.03E-03*	3.10E-03
8-24 hours	5.88E-04	1.83E-03
1-4 days	6.29E-04	1.16E-03
4-30 days	5.59E-04	5.12E-04
Control Room (Turbine Building Release)		
0-8 hours	4.44E-04**	5.17E-04
8-24 hours	1.84E-04	3.05E-04
1-4 days	1.18E-04	1.93E-04
4-30 days	9.15E-05	8.53E-05

Notes:

* The ABWR DCD provides 0-8 hour χ/Q values. This STP site-specific value is the ARCON96 calculated 0-2 hour χ/Q value.

** This STP site-specific value is the 0-8 hour χ/Q value determined from the 0-2 and 2-8 hour ARCON96 calculated values per NUREG/CR-6331, Section 3.7.

Table 15.6.5S-2 Site Specific Control Room Dose for the LOCA

Time	Thyroid (Sv)	Whole Body (Sv)	Beta (Sv)
0-8 h	2.37E-02	3.63E-03	3.43E-02
0-24 h	3.64E-02	5.54E-03	6.46E-02
0-4 days	8.65E-02	1.09E-02	1.63E-01
0-30 days	2.04E-01	1.80E-02	3.02E-01

Table 15.6-18

Meteorology(s/m^3)	Thyroid Dose (Sv)	Whole Body Dose (Sv)
2.29E-02	3.0E-1	2.8E-3
1.37E-03	~~1.7E-4~~ 1.8E-2	1.7E-4
1.18E-03	~~1.5E-4~~ 1.5E-3	1.5E-4
2.19E-04	~~2.7E-5~~ 2.8E-3	2.7E-5