1A Response to TMI Related Matters

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

STD DEP T1 2.3-1

STD DEP T1 2.4-3

STD DEP T1 2.14-1

STD DEP 6.2-1

1A.2.7 Post-Accident Sampling [II.B.3]

~~The information in this subsection of the reference ABWR DCD is incorporated by reference with the following standard departure.~~

STD DEP T1 2.14-1

(2) ~~(1)~~ *There shall be onsite capability to perform the following within the 3 hour time period:*

(a) Determine the presence and amount of certain radionuclides in the reactor coolant and containment atmosphere that may be indicators of the degree of core damage. Meets the requirements of NUREG-0737.

(b) Hydrogen in containment atmosphere. Hydrogen in containment atmosphere is measured by the Containment Atmospheric Monitoring System. Meets the requirements of NUREG-0737 with the exception that the design follows the guidance of RG 1.7 Rev. 3, which permits the hydrogen monitor to be classified as ~~*non-safety related*~~ nonsafety-related.

(c) Dissolved gases, chloride and boron in liquids. Dissolved gases are discussed in item 4 below. Meets the requirements concerning chloride and boron of NUREG-0737.

(d) Inline monitoring capability is acceptable. No inline monitors are provided in PASS.

1A.2.13 Containment Design – Dedicated Penetration [II.E.4.1]

~~The information in this subsection of the reference ABWR DCD is incorporated by reference with the following standard departure.~~

STD DEP T1 2.14-1

Response

~~*A Flammability Control System is provided to control the concentration of oxygen in the primary containment. The FCS utilizes two permanently installed recombiners located in the secondary containment. The FCS is operable in the event of a single active failure. The FCS is described in Subsection 6.2.5.*~~

The Flammability Control System, including the recombiners, has been deleted from the ABWR design as described in Subsection 6.2.5. Accordingly, no penetrations are required for the recombiners.

1A.2.14 Containment Design—Isolation Dependability [II.E.4.2]

~~The information in this subsection of the reference ABWR DCD is incorporated by reference with the following standard departure.~~

STD DEP 6.2-1

Response

(6) *All ABWR containment purge valves meet the criteria provided in BTP CSB 6-4. The main ~~550A~~ 500 mm purge valves are fail-closed and are maintained closed through power operation as defined in the plant technical specifications. All purge and vent valves are remote pneumatically-operated, fail closed and receive containment isolation signals. Certain vent valves can be opened manually in the presence of an isolation signal, to permit venting through the SGTS.*

1A.2.17 Instruments for Monitoring Accident Conditions [II.F-3]

~~The information in this subsection of the reference ABWR DCD is incorporated by reference with the following standard departure.~~

STD DEP T1 2.14-1

Response

The ABWR Standard Plant is designed in accordance with Regulatory Guide 1.97, Rev. 3. A detailed assessment of the Regulatory Guide, including the list of instruments, is found in Section 7.5. The hydrogen and oxygen monitors are declassified to ~~non-safety-related~~ nonsafety-related, as permitted by Regulatory Guide 1.7, Rev. 3.

1A.2.23 Modify Break-Detection Logic to Prevent Spurious Isolation of HPCI and RCIC Systems [II.K.3(15)]

~~The information in this subsection of the reference ABWR DCD is replaced in its entirety with the following standard departure.~~

STD DEP T1 2.4-3

Response

The ABWR design utilizes the motor-driven HPCF System rather than the turbine-driven HPCI System for high pressure inventory maintenance. Therefore, this position is only applicable to the turbine-driven RCIC System.

The STP ABWR design for the RCIC System utilizes a flow control system that is an integral part of the pump and turbine. Pump discharge passes through a venturi. The pressure differential between the venturi inlet and throat work together with a balance piston and spring to control the steam flow to the turbine, which in turn adjusts the pump speed and flow.

This is an improvement relative to existing BWR plant designs in which flow control is performed external to the pump and turbine, where flow is measured in a flow element and evaluated in a flow controller to generate an electrical signal to an electro-hydraulic flow control valve to signal a servo to adjust the position of the control valve.

See Subsection 1A.3.8 for COL license information requirements.

1A.2.34 Primary Coolant Sources Outside Containment Structure [III.D.1.1(1)]

~~The information in this subsection of the reference ABWR DCD is incorporated by reference with the following standard departures.~~

~~STD DEP T1 2.3-1~~

STD DEP T1 ~~2.14-1~~ 2.14-1 ~~(Below in Response)~~

Response

Leak reduction measures of the ABWR Standard Plant include a number of barriers to containment leakage in the closed systems outside the containment. These closed systems include:

(1) Residual Heat Removal
(2) High Pressure Core Flooder Monitoring
(3) Low Pressure Core Flooder
(4) Reactor Core Isolation Cooling
(5) Suppression Pool Cleanup
(6) Reactor Water Cleanup
(7) Fuel Pool Cooling and Cleanup
(8) Post-Accident Sampling
(9) Process Sampling
(10) Containment Atmospheric Monitoring
(11) Fission Product Monitor (Part of LDS)
~~*(12) Hydrogen Recombiner*~~
(12) Standby Gas Treatment

STD DEP T1 2.3-1

Leakage within and outside the primary containment are continuously monitored by the Leak Detection and Isolation System (LDS) for breach in the integrity of the containment. Upon detection of a leakage parameter, the LDS will automatically initiate the necessary control functions to isolate the source of the break and alerts the

operator for corrective action. The MSL tunnel area is monitored for ~~high radiation levels and for~~ high ambient temperatures that are indicative of steam leakage. The Turbine Building is also monitored for high area ambient temperatures for MSL leakage. The resulting action causes isolation of the MSIVs and subsequent shutdown of the reactor.

1A.3 COL License Information

1A.3.1 Emergency Procedures and Emergency Procedures Training Program

The information in this subsection of the reference ABWR DCD is replaced in its entirety with the following site-specific supplemental information, which addresses COL License Information Item 1.5.

Emergency procedures based on the emergency procedures guidelines will be developed and implemented prior to fuel loading (Subsection 1A.2.1). The Emergency procedures will be developed consistent with ABWR Licensing Topical Report NEDO-33297, "Advanced Boiling Water Reactor (ABWR) Procedures Development Plan," dated January ~~19,~~ 2007. (COM 1A-1)

Emergency Procedures Training is included in the operations training program discussed in Section 13.2.

1A.3.2 Review and Modify Procedures for Removing Safety-Related Systems from Service

The information in this subsection of the reference ABWR DCD is incorporated by reference with the following site-specific supplement, which addresses COL License Information Item 1.6.

Administrative procedures will be developed by the licensee prior to fuel load directing that approval be required for the performance of surveillance tests and maintenance for safety- related systems, including equipment removal from service and return to service to assure the operability status is known. These procedures will be developed consistent with the plant operating procedure development plan which was provided to the NRC in ABWR Licensing Topical Report NEDO-33297, "Advanced Boiling Water Reactor (ABWR) Procedures Development Plan," dated January ~~19,~~ 2007. (COM 1A-2)

1A.3.3 In-Plant Radiation Monitoring

The information in this subsection of the reference ABWR DCD is incorporated by reference with the following site-specific supplement, which addresses COL License Information Item 1.7.

Equipment, training, and procedures necessary to accurately determine the presence of airborne radioiodine in areas within the plant where plant personnel may be present during an accident will be developed prior to fuel loading, consistent with ~~ABWR Licensing Topical Report~~ NEDO-33297 ~~"Advanced Boiling Water Reactor Procedures Development Plan," dated January 19, 2007~~. The equipment will be specified and the

training and procedures developed consistent with FSAR Section 12.3, Radiation Protection Design Features. (COM 1A-3)

1A.3.4 Reporting Failures of Reactor System Relief Valves

The information in this subsection of the reference ABWR DCD is incorporated by reference with the following site-specific supplement, which addresses COL License Information Item 1.8.

Administrative procedures will be developed by the licensee prior to fuel load directing that failures of reactor system relief valves be reported in the licensee's annual report to the NRC. These procedures will be developed consistent with the plant operating procedure development plan which was provided to the NRC in ~~ABWR Licensing Topical Report~~ NEDO-33297~~, "Advanced Boiling Water Reactor (ABWR) Procedures Development Plan," dated January 19, 2007~~. (COM 1A-4)

1A.3.5 Report on ECCS Outages

The information in this subsection of the reference ABWR DCD is incorporated by reference with the following site-specific supplement, which addresses COL License Information Item 1.9.

Administrative procedures will be developed by the licensee prior to fuel load directing that instances of ECCS unavailability because of component failure, maintenance outage (both forced or planned), or testing, shall be collected and be reported to the NRC annually. Such reports may consist of the performance indicator report for mitigating systems periodically provided to the NRC as part of the Reactor Oversight Process. These procedures will be developed consistent with the plant operating procedure development plan which was provided to the NRC in ~~ABWR Licensing Topical Report~~ NEDO-33297~~, "Advanced Boiling Water Reactor (ABWR) Procedures Development Plan," dated January 19, 2007~~. (COM 1A-5)

1A.3.6 Procedure for Reactor Venting

The information in this subsection of the reference ABWR DCD is incorporated by reference with the following site-specific supplement, which addresses COL License Information Item 1.10.

Emergency Procedure Guidelines (EPGs) have been written for the ABWR which are applicable to STP 3 & 4. The ABWR EPGs are contained in Appendix 18A. These EPGs are developed based upon the U.S. BWR Owner's Group Emergency Procedure Guidelines, Revision 4, which have been approved by the NRC.

The ABWR EPGs contain RPV Control Guidelines, which contain operator guidance for use of the reactor vents that implement the resolution to TMI Action Plan Item II.B.1. The resolution of II.B.1 is located in subsection 1A.2.5. The RPV Control Guidelines contain a description of the system-based entry conditions and operator actions.

The operator procedures required by COL License Information Item 1.10 will be developed using the ABWR EPGs prior to fuel loading. These procedures will be

developed consistent with ~~ABWR Licensing Topical Report~~ NEDO-33297~~, "Advanced Boiling Water Reactor (ABWR) Procedures Development Plan," submitted to the NRC January 19, 2007~~. (COM 1A-6)

1A.3.7 Testing of SRV and Discharge Piping

The information in this subsection of the reference ABWR DCD is incorporated by reference with the following site-specific supplement, which addresses COL License Information Item 1.11.

STP 3 & 4 will utilize SRVs and discharge piping that are similar to those that have been tested and utilized in operating BWRs. Testing of the SRVs and discharge piping is included in the Initial Test Program described in ~~FSAR~~ Section 14.2.

1A.3.8 RCIC Bypass Start System Test

The information in this subsection of the reference ABWR DCD is replaced in its entirety with the following site-specific supplemental information, which addresses COL License Information Item 1.12.

STD DEP T1 2.4-3

As discussed in ~~s~~Subsection 1A.2.23, the new design RCIC has superior speed regulation than previous designs, so the bypass line and valve are no longer required. As part of the Initial Test Program, an RCIC start test will be performed to confirm system startup characteristics.

The RCIC start test is included in the Initial Test Program described in ~~FSAR~~ Section 14.2.