19.9 COL License Information

The information in this section of the reference ABWR DCD is incorporated by reference with following departures and supplements.

STD DEP T1 2.4-3

STD DEP T1 3.4-1

STP DEP T1 5.0-1

STD DEP 10.4-5

STP DEP 9.2-5

STP DEP 19R-1

19.9.1 Post Accident Recovery Procedure for Unisolated CUW Line Break

The following standard supplement addresses COL License Information Item 19.1.

An operating procedure for post accident recovery from a CUW line break will be developed and implemented. This procedure will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-1) The procedure will include the following provisions:

(1) After RPV depressurization, attempt to close the CUW isolation valves and the CUW remote manual shutoff valve. If at least one of the three CUW valves can be closed, control RPV water level in the normal range and initiate shutdown cooling operation.

(2) If the CUW remote manual shutoff valve can not be closed and at least one of the two CUW isolation valves can not be closed, control RPV water level between the top of the active fuel and 38 cm above the top of the active fuel. (The RPV drain line connects to the CUW suction line at this elevation). When practical, enter the CUW room and/or the containment and affect the necessary repairs. When at least one of the two CUW isolation valves can be closed, control water level in the normal range and initiate shutdown cooling.

(3) When practical, enter the CUW room and/or the containment and affect the necessary repairs. When at least one of the two CUW isolation valves can be closed, control water level in the normal range and initiate shutdown cooling.

19.9.2 Confirmation of CUW Operation Beyond Design Basis

The following standard supplement addresses COL License Information Item 19.2.

An evaluation of CUW operation in the heat removal mode will be completed prior to fuel load (COM 19.9-28) and the FSAR updated in accordance with 10 CFR 50.71(e) based on the results of this evaluation. This evaluation will confirm that the following

areas will remain functional while operating outside their design basis temperature values:

(1) The CUW nonregenerative heat exchanger

(2) The CUW piping downstream of the regenerative heat exchanger

(3) The RCW piping downstream of the nonregenerative heat exchanger

(4) The feedwater piping downstream of CUW injection

(5) Piping supports for the above piping

The emergency operating procedure to operate the CUW in heat exchanger bypass mode will be developed and implemented. This procedure will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-2) This procedure will include the following steps:

(1) Terminate RBCCW flow to the RHR heat exchangers.

(2) Bypass the hot water heat exchanger in the RBCCW line.

(3) Bypass the flow control valve which controls RBCCW flow through the NRHX.

19.9.3 Event Specific Procedures for Severe External Flooding

STP DEP T1 5.0-1

Internal and external *flooding is addressed in Appendix 19R. ~~The site selection process will take into account the worst case predicted flood. Then grade level and flood control methods (e.g., site grading) will be determined based on this predicted flood level. The grade level floor will be 0.3 meters above this predicted flood level. Therefore, external flooding should not be a major concern for the ABWR.~~ To further reduce the susceptibility of external floods, plant and site specific procedures will be developed ~~by the COL applicant~~ for severe external flooding using the following guidelines:*

(1) *Check that the door between the turbine ~~building~~ and service buildings is closed.*

(2) ~~Sandbag~~As an additional protection, consider placing sandbags at *the external doors* above the design flood level *to the*

(a) *Reactor building,*

(b) *Control building,*

(c) *Service building,*

~~(d) Pump house at the ultimate heat sink,~~

(d) ~~(e)~~ *Diesel generator fuel oil transfer pits, and*

(e) ~~(f)~~ *Radwaste building.*

(3) ~~Close and dog~~Check that *all external water tight doors in the reactor and control buildings* are closed and dogged.

(4) *Shut the plant down.*

(5) *Use power from the diesel generators or CTG if offsite power is lost.*

Underground passages between buildings would not be affected because they are required to be watertight.

The following site-specific supplement addresses departure STP DEP T1 5.0-1.

The operating procedure for severe external flooding will be developed and implemented. This procedure will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-3) The procedure will include the above guidelines and the following:

(1) Procedures and training will be developed to ensure that observation of the main cooling reservoir is conducted such that main control room personnel will be alerted on indications of a main cooling reservoir breach. These procedures will also direct that ~~the~~ all watertight doors will be verified closed immediately on receipt of such notification.

(2) The site layout will be such that unobstructed views of the area between the main cooling reservoir and U~~u~~nits 3&4 are available to the personnel assigned responsibility to alert the main control room staff of a potential main cooling reservoir breach. If necessary, lighting will be provided to ensure such views at night.

(3) Procedures will be developed to ensure that flood barriers and external watertight doors are verified closed on notification of Colorado River dam failures upstream of the site or upon notification of severe storms with a potential for significant rainfall.

(4) Frequent, periodic inspections of the main cooling reservoir will be performed to detect any indications of potential main cooling reservoir failure.

19.9.4 Confirmation of Seismic Capacities Beyond the Plant Design Basis

The following standard supplement addresses COL License Information Item 19.4.

The High-Confidence Low Probability of Failure (HCLPF) values for site-specific SSCs (UHS/Pump House/Cooling Tower structure, RSW Piping Tunnel, Diesel Generator Oil Storage Vault and Cooling Tower fans) whose failure may affect the plant response to seismic events and which are not included in the analyses described in Appendix 19H have been established, see Table 19H-1a.

In accordance with the DC/COL-ISG-20 (Interim Staff Guidance on Implementation of a Probabilistic Risk Assessment-Based Seismic Margin Analysis for New Reactors), HCLPF values were determined using the Conservative Deterministic Failure Margin (CDFM) approach used for seismic margin studies.

The CDFM approach is summarized in the EPRI NP-6041-SL report (A methodology for Assessment of Nuclear Power Plant Seismic Margin, Revision 1, August 1991). The approach taken for deriving the HCLPF values is consistent with the methods described in EPRI NP-6041-SL.

The requirement specified in ISG-20 that the HCLPF value be equal to or greater than 1.67 times the site-specific Ground Motion Response Spectrum (GMRS) Peak Ground Acceleration (PGA=.098g, see Table 2.5S.2-21) is met for all the listed site-specific SSCs.

The following additional actions will be taken (COM 19.9-4) and the FSAR updated in accordance with 10 CFR 50.71(e) based upon the results of these analyses:

(1) The High-Confidence Low Probability of Failure (HCLPF) values for the important plant-specific/as-built components corresponding to the generic components defined in Subsection 19H.4.3 shall be determined. The values will be compared to the assumed HCLPF values given in Tables 19H-1 or 19I-1. This will be completed prior to fuel load.

(2) ~~HCLPF values for site-specific SSCs (UHS/Pump House structure, Cooling Tower, and RSW Piping Tunnel, and Diesel Generator Oil Storage Vault) whose failure may affect the plant response to seismic events and which are not included in the analyses described in Appendix 19H will be established. This will be completed by September 2010 and included in the COLA at the next scheduled update to incorporate these HCLPF values into Appendix 19H.~~

(2) ~~[3]~~ The investigation for the potential for seismic induced soil failure at 1.67 times the ~~site-specific SSE~~PGA of the GMRS will be completed prior to fuel load.

(3) ~~[4]~~ The system model (seismic accident sequences) developed in the DCD will be updated to incorporate capacity reductions due to site-specific effects (soil liquefaction) and site-specific SSCs (Ultimate Heat Sink (UHS), including Reactor Service Water (RSW) Pumphouse, Cooling Tower, RSW Piping Tunnel, and Diesel Generator Oil Storage Vault). Then, it will be determined whether site-specific soil failures control the seismic HCLPF capacities of SSCs associated with the seismic accident sequences. Based on the result of the update, the sequence- and plant-level seismic HCLPF capacity will be determined. This activity will be completed prior to the fuel load.

(4) ~~[5]~~ The remainder of the actions specified in Appendix 19H.5 will be completed prior to fuel load.

19.9.5 Plant Walkdowns

The following standard supplement addresses COL License Information Item 19.5.

Procedures for plant walkdowns to identify seismic, fire, and internal flooding vulnerabilities will be developed and implemented. These procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-5)

19.9.6 Confirmation of Loss of AC Power Event

The following site-specific supplement addresses COL License Information Item 19.6.

The site-specific frequency estimate for the loss of AC power event (Subsection 19D.3.1.2.4) is complete. The assessment addressed site-specific parameters such as specific causes (e.g., a severe storm) of the loss of power, and their impact on a timely recovery of AC power using data from NUREG/CR-6890 for the Electric Reliability Council of Texas (ERCOT). This evaluation verified that the overall risk impact of grid events at STP is bounded by the original Subsection 19D analysis.

19.9.7 Procedures and Training for Use of AC-Independent Water Addition

The following standard supplement addresses COL License Information Item 19.7.

Operating procedures and training for AC-Independent Water Addition will be developed and implemented. These procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. Training on these procedures will be developed and implemented as described in Section 13.2.The procedures will identify system valve actuations, which provide ACIWA via the RHR System as a water source to the RPV or Containment. (COM 19.9-6) The procedures will address operation of the ACIWA for vessel injection or drywell spray operation. Operation of the ACIWA System in the vessel injection mode requires valves F005, F101, and F102 to be opened and valve F592 to be closed. Reactor depressurization to below ACIWA System operating pressure is required prior to ACIWA operation in the vessel injection mode. Operation of the ACIWA in the drywell spray mode requires valves F017, F018, F101, and F102 to be opened and valve F592 to be closed. These

valves are shown on Figure 5.4-10. The diesel fire pump will start automatically when the ACIWA is properly aligned for vessel injection or drywell spray. If the normal firewater system water supply is unavailable, the alternate water supply can be made available by opening the manual valve between the diesel driven fire pump and the alternate water supply. This valve is shown in Figure 9.5-4. If it is necessary to use a fire truck for vessel injection or drywell spray, valve F103 must be opened in addition to operation of the valves discussed above for ACIWA operation. The valve for operation of the ACIWA using the fire truck is also shown on Figure 5.4-10. All of the valves required for ACIWA operation are manually operable.

STP 3 & 4 will make dose rate calculations for the specific configuration being constructed. These calculations will include the specific piping layout, shielding considerations, the potential for systems within the room to have recently been operated and thus contain radioactive coolant, and any other factors that significantly affect the dose rates. These dose rate calculations will be considered in the development of the specific plant procedures for ACIWA operation.

19.9.8 Actions to Avoid Common-Cause Failures in the Essential ~~*Multiplexing System (EMUX)*~~ Communications Function (ECF) and Other Common Cause Failures

STD DEP T1 3.4-1

To reduce the potential for significant ~~EMUX~~ ECF common cause failures, (Subsection 19N.4.12), the COL applicant will take the following actions:

(1) To eliminate remote ~~multiplexing unit (RMU)~~ interface function (RIF) miscalibration as a credible source of ~~EMUX~~ ECF common cause failure, administrative procedures will be established to perform cross-channel checking of ~~RMU~~ RIF outputs at the main control room safety system logic and control instrumentation, as a final check point of ~~RMU~~ RIF calibration work.

(2) To prevent any unidentified ~~*EMUX*~~ ECF faults/failure modes (e.g., an undetected software fault) from propagating to other ~~*EMUX*~~ ECF divisions, the plant operating procedures will include the appropriate detailed procedures necessary to assure that the ABWR plant operations are maintained in compliance with the governing Technical Specifications during the periods of divisional ~~*EMUX*~~ ECF failure. This will assure that such unidentified faults are effectively eliminated as a credible source of ~~*EMUX*~~ ECF common cause failure. These procedures will also include the appropriate symptom-based operator actions to assure that adequate core cooling is maintained in the hypothetical event of an entire ~~*EMUX*~~ ECF system failure.

(3) To eliminate maintenance/test errors as a credible source of ~~*EMUX*~~ ECF common cause failure, administrative procedures will be established which will not permit the same technician to work on multiple divisions of the ~~*EMUX*~~ ECF. As noted in Subsection 19D.7, a maintenance procedure must be

established so that if a sensor is found out of tolerance, before it is recalibrated, the calibration instrument is first checked. In addition, the same technician will not be allowed to calibrate sensors in different divisions.

The following standard supplement addresses COL License Information Item 19.8.

Test, maintenance, surveillance and administrative procedures will be developed and implemented. These procedures will be developed consistent with the plant operating procedure development plan in Section 13.5 to ensure credible common mode failures cannot occur. (COM 19.9-7) These procedures shall include the above actions 1 through 3.

19.9.9 Actions to Mitigate Station Blackout Events

The following standard supplement addresses COL License Information Item 19.9.

The analyses and procedures to confirm the assumptions modeled in PRA will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. The PRA will be updated in accordance with 10 CFR 50.71(h)(1). (COM 19.9-8) The following actions will be performed to confirm these assumptions:

(1) Confirm that the minimum condensate storage tank volume is 570 cubic meters.

(2) Develop battery loading profiles to define appropriate load shedding during station blackout to ensure that the RCIC System can be operated for approximately 8 hours (See Subsection 8.3.2.1.3.1). (COM 5.4-1)

(3) Perform analyses to confirm that RCIC room temperature will not exceed equipment design temperature without room cooling for at least 8 hours. (COM 5.4-2)

(4) Perform analyses to confirm that control room temperature will not exceed equipment design temperature for at least 8 hours without room cooling.

(5) Develop procedures for the emergency replenishment of gas supply for safety-related, pneumatically operated components. A discussion of the types of actions which could be taken is in Subsection 19E.2.1.2.2.2(2)(b).

(6) Develop procedures to provide backup DC power to ADS valves to keep the valves open as long as possible to keep the reactor vessel depressurized if such action was necessary during a Station Blackout. See the discussion in Subsection 19E.2.1.2.2.2(a).

The detailed procedures that supplement the Emergency Procedure Guidelines will include the manual valve operation that is noted in Subsection 19.7.3(3a).

19.9.10 Actions to Reduce Risk of Internal Flooding

STP DEP 19R-1

~~*(8) Ensure that the design of the RSW System includes anti-siphon capability on both the supply and return lines to the UHS.*~~

The following site-specific supplement addresses COL License Information Item 19.10.

Training, design, site-specific PRA based analysis, and procedures to reduce risk of internal flooding in the turbine, control, and reactor buildings, and the RSW pump house will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. The site specific PRA will be updated in accordance with 10 CFR 50.71(h)(1). Training on these procedures will be developed and implemented as described in Section 13.2. (COM 19.9-9) These will include the following:

(1) Training on isolation of potential flooding sources.

(2) Maintenance of pump trip and valve isolation capability of potential unlimited flood sources will be controlled to assure that flood mitigation capability exists at all times. If pump trip and valve isolation capability is unavailable, procedures to monitor applicable piping lines for leakage must be implemented and replacement/repair of failed components must be completed as soon as possible or other mitigative features must be implemented.

(3) Sizing of floor drains must be adequate to accommodate all potential flood rates. In sizing the floor drains, the following considerations must be addressed:

(a) The maximum volume and flow rate of potential flood sources on each floor must be calculated based on ANSI/ANS 58.2, “Design Basis For Protection Of Light Water Nuclear Power Plants Against The Effects Of Postulated Pipe Rupture.”

(b) The floor drain sizing must be able to drain the highest flow rate in that area without allowing flood buildup to reach installed equipment in another area containing equipment from a different train or division (i.e. less than 200mm).

(c) The size and number of floor drains will account for the probability of some drains becoming clogged with debris.

(4) Procedures for maintenance of watertight integrity of buildings and rooms especially during shutdown conditions.

(5) Procedure to ensure that if flooding occurs in an ECCS divisional room that the watertight door to the affected room will not be opened until watertight integrity of the remaining ECCS rooms is assured.

(6) Complete a site-specific PRA-based analysis for potential flood sources, the potential for flooding in the UHS pump house, and required mitigation features.

(7) Procedure to open doors or hatches to divert water from safety-related equipment following postulated floods.

(8) Ensure that seals on radwaste tunnels between buildings are adequate to prevent interbuilding flooding.

(9) Ensure that the RSW pump house is designed to prevent interdivisional flooding ~~and water in excess of 4000 meters of RSW piping cannot gravity drain to the control building~~.

(10) Ensure that the redundant RSW supply side isolation valves shut on receipt of a high-high level indication in the RCW heat exchanger room.

19.9.11 Actions to Avoid Loss of Decay Heat Removal and Minimize Shutdown Risk

The following standard supplement addresses COL License Information Item 19.11.

Operating procedures to avoid loss of decay heat removal during shutdown condition will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-10) Procedures will include the following:

(1) Recovery of failed operating RHR System.

(2) Rapid implementation of standby RHR Systems if the initially operating RHR system cannot be restored.

(3) Ensuring that instrumentation associated with the following functions is kept available if the system is not in maintenance:

–RPV isolation valves,

–ADS,

–HPCF,

–LPFL,

–RPV water level, pressure, and temperature,

–RHR System alarms,

–EDG,

–Refueling interlock,

–Flood detection and valve/pump trip circuits.

(4) Use of alternate means of decay heat removal using non-safety grade equipment such as reactor water cleanup, fuel pool cooling, or the main condenser.

(5) Use of alternate means for inventory control using non-safety grade equipment such as AC-independent water addition, CRD pump (i.e., increasing CRD flow), and main feedwater and condensate.

(6) Recovery from loss of offsite power.

(7) Boiling as a means of decay heat removal in Mode 5 with the RPV head removed including available makeup sources.

(8) Conducting suppression pool maintenance, especially as it relates to reduced availability of ECCS suction sources.

(9) Fire/flood watches during periods of degraded safety division physical integrity.

(10) Ensuring that at least one division of safety equipment is not in maintenance and its physical barriers are intact at all times.

(11) Fire fighting during shutdown.

(12) Use of remote shutdown panel while the plant is shutdown.

To reduce other risks during shutdown, procedures will include the following:

(1) Firefighting with part of the fire protection system in maintenance,

(2) Outage planning using guidance from NUMARC-91-06,

(3) Use of freeze seals and RIP and CRD replacement.

(4) Verification of correct fuel loading during refueling.

(5) Maintenance of secondary containment during Modes 3 and 4, when necessary.

19.9.12 Procedures for Operation of RCIC from Outside the Control Room

STD DEP T1 2.4-3

In the PRA fire analysis (Subsection 19M.6.2), credit is taken for operation of RCIC from outside the control room. The COL applicant will develop procedures and conduct training for such RCIC operation.

The procedure should be developed along the following lines:

(1) Station operation personnel and provide communication at areas for manual operation of the RCIC suction valves (CST suction and suppression pool suction), RCIC turbine trip and throttle valve, RCIC turbine steam admission valve, outboard steam isolation valve, RPV injection valve, turbine speed control panel, and the Remote Shutdown Panel.

(2) ~~*If the RCIC steam isolation valves are closed, open these valves from their MCCs. If necessary, disconnect power to the outboard steamline isolation valve and open it using the valve's manual handwheel.*~~ Manually open the RPV Injection Valve at the local motor control center or by the hand-wheel at the valve if the electrical power is not available.

(3) ~~*Disconnect or de-energize all control signals to and from the turbine.*~~ Manually close the drain valves from the steam supply to RCIC turbine and turbine drains to the drain tank.

(4) ~~*Close the turbine trip and throttle valve.*~~ Manually open the turbine steam supply valve at the motor control center or by the hand-wheel at the valve if the electrical power is not available.

(5) ~~*Disconnect power to the motor-operated suction valve (CST or suppression pool, as required), steam admission valve, and manually open these valves using their handwheels.*~~ If power supply is available, manually start the RCIC room air-handling unit from the motor control center.

(6) ~~*Use a portable speed sensing instrument to monitor turbine speed.*~~ Start RHR A or B Loop in Suppression Pool Cooling mode from the Remote Shutdown Panel.

(7) ~~*Manually manipulate the trip and throttle valve and manually open the RPV injection valve using their handwheels. Control injection flow by manipulating the trip and throttle valve and operate the turbine below the overspeed trip value. If the turbine trips on overspeed, reset the trip and throttle valve, and manipulate this valve to operate the turbine.*~~ Monitor RCIC operation at the Remote Shutdown Panel.

(8) ~~*Monitor RPV water level at the Remote Shutdown System. Maintain RPV water level between Level 3 (low level) and Level 8 (high level).*~~ Manually switch the pump suction valve from CST to the Suppression Pool when CST water level drops below the low level setpoint.

(9) Control reactor water level by switching RCIC into partial flow ON/OFF at the local control panel.

(10) Monitor RPV water level at the Remote Shutdown System. Maintain RPV water level between Level 3 (low level) and Level 8 (high level).

The following standard supplement addresses COL License Information Item 19.12.

The operating procedures for the operation of RCIC from outside the control room will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. Training on these procedures will be developed and implemented as described in Section 13.2. (COM 19.9-11) The procedures will include the 10 provisions listed above.

19.9.13 ECCS Test and Surveillance Intervals

The following standard supplement addresses COL License Information Item 19.13.

A plan and procedures to identify departures of the test and surveillance intervals assumed in Tables 19D.6-1 through 19D.6-12 will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM.19.9-12)

19.9.14 Accident Management

The following standard supplement addresses COL License Information Item 19.14.

The important operator actions will be included in the operating procedures that will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. Training on these procedures will be developed and implemented as described in Section 13.2. (COM 19.9-13) These procedures will include the following:

(1) Directions and guidance for operation of the Containment Overpressure System (COPS) shutoff valves should be developed. Appropriate care will be taken in the development of these procedures to ensure that the recovery of containment heat removal or containment sprays do not induce late containment structural failure. If a suppression pool water level of at least one meter above the top of the top horizontal connecting vent can be maintained following COPS operation, the Licensee may leave the shutoff valves open until after recovery of Containment Heat Removal since the fission product release will be dominated by the initial noble gas release. In addition, the procedure for closure of the shutoff valves will include steps for the re-introduction of nitrogen into the containment. In developing accident mitigation strategies, the licensee will examine the potential benefits of drywell spray operation if the containment fails in the drywell.

(2) For human actions that are taken that rely on instrumentation that may be operating outside of the qualification range, the expected performance of the instrumentation will be determined and additional guidance provided to the operator if needed.

(3) Accident management strategies will consider the potential for recriticality during the recovery. A possible strategy could be a caution for the operators and/or technical support staff to monitor the power level (perhaps indirectly via the rate of containment pressurization) and enter ATWS procedures as necessary.

The following supplement addresses the lower drywell flooder (LDF) operation in the event of a severe accident scenario that involves a core melt and vessel failure.

Strategies for primary containment flooding in the emergency procedure guidelines will incorporate generic industry guidance as necessary and use existing site specific design features to the extent possible to provide indication of and address flooding in the lower drywell when the lower drywell flooder (1) does not operate, (2) does not operate as designed, (3) prematurely operates resulting in an inadvertent pool of water in the lower drywell, and (4) operates as designed during a severe accident scenario that involves a core melt and vessel failure. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5, and training on the procedures will be developed and implemented as described in Section 13.2. (COM 19.9-30)

19.9.15 Manual Operation of MOVs

The following standard supplement addresses COL License Information Item 19.15.

A procedure to operate motor operated valves manually will be developed and implemented. The procedure will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-14)

19.9.16 High Pressure Core Flooder Discharge Valve

The following standard supplement addresses COL License Information Item 19.16.

A procedure to verify that the HPCF discharge valve is in the locked-open position will be developed and implemented. The procedure will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-15)

19.9.17 Capability of Containment Isolation Valves

The following standard supplement addresses COL License Information Item 19.17.

Containment isolation valves are qualified by testing and analysis and by satisfying the stress and deformation criteria at the critical locations within valves. Operability is assured by meeting the requirements of the programs defined in Subsection 3.9.3.2, Pump and Valve Operability Assurance, and Subsection 3.9.6, Testing of Pumps and Valves, as supplemented in RAI 03.09.06-1, and Sections 3.10 and 3.11.

For containment isolation valves, the ASME Code Certified Stress Report will demonstrate that the stresses of containment isolation valves, when subjected to the severe accident loadings of 0.77 MPa internal pressure and 260 °C (500 °F) in combination with dead loads, do not exceed ASME Section III Service Level C limits.

The individual parts of each valve will be verified not to exceed allowable structural capability limits under these severe accident conditions. In addition, the ASME Code Certified Stress Report will demonstrate the ultimate pressure capacity at 260 °C (500 °F) to be at least 1.03 MPa.

Acceptance Criteria for ITAAC 2.14.1.2 confirms the existence of an ASME Code Certified Stress Report for the containment pressure boundary components. The containment isolation valves are considered pressure boundary components, and are included in the separate ASME Code Certified Stress Reports. The Certified Stress Reports for the containment isolation valves will include the stress analysis for the severe accident conditions of 0.77 MPa and 260 °C (500 °F).

These actions will be completed prior to fuel loading. (COM 19.9-16) The FSAR will be updated in accordance with 10 CFR 50.71(e) based upon the results of this analysis.

19.9.18 Procedure to Insure Sample Lines and Drywell Purge Lines Remain Closed During Operation

The following standard supplement addresses COL License Information Item 19.18.

Operating procedures and administrative controls to ensure that drywell purge and sample line valves are normally sealed and that the purge valves have motive power to the valve operators removed will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-17)

19.9.19 Procedures for Combustion Turbine Generator to Supply Power to Condensate and Condensate Booster Pumps

STD DEP 10.4-5

The following standard supplement addresses COL License Information Item 19.19.

Operating procedures to manual transfer the Combustion Turbine Generator (CTG) power to the condensate and condensate booster pumps and its support systems will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-18)

19.9.20 Actions to Assure Reliability of Supporting RCW and RSW Systems

The following standard supplement addresses COL License Information Item 19.19a.

Operating procedures to swap RCW and RSW operating pumps and heat exchangers at least once every month will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-19)

19.9.21 Housing of ACIWA Equipment

The following standard supplement addresses COL License Information Item 19.19b.

The capability of the building housing the ACIWA equipment to withstand site-specific seismic events, flooding, and other site-specific external events will be confirmed and will be included in the plant-specific PRA prior to fuel loading in accordance with 10 CFR 50.71(e). (COM 19.9-20)

Prior to fuel loading, the building that houses the ACIWA equipment will be verified to have a seismic high confidence low probability of failure (HCLPF) acceleration value of at least 0.5g. The methodology for HCLPF acceleration calculations will be consistent with that described in DCD Section 19I.1 for the ABWR seismic margins analysis. The FSAR will be updated in accordance with 10 CFR 50.71(e) based on this assessment. (COM 19.9-29)

19.9.22 Procedures to Assure SRV Operability During Station Blackout

The following standard supplement addresses COL License Information Item 19.19c.

Operating procedures to align stored nitrogen bottles for SRVs will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-21)

19.9.23 Procedures for Ensuring Integrity of Freeze Seals

The following standard supplement addresses COL License Information Item 19.19d.

The procedures to use and administratively control freeze seals will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-22) These procedures will ensure the integrity of the temporary boundary when freeze seals are used. Mitigative measures will be identified in advance, and appropriate back-up systems will be made available to minimize the effects of a loss of coolant inventory (See Subsection 19Q.8).

19.9.24 Procedures for Controlling Combustibles During Shutdown

The following standard supplement addresses COL License Information Item 19.19e.

Administrative procedures to control combustibles and ignition sources will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM 19.9-23)

19.9.25 Outage Planning and Control

The following standard supplement addresses COL License Information Item 19.19f.

An outage planning and control program that is consistent with NUMARC 91-06 requirements will be developed and implemented. The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM.19.9-24)

19.9.26 Reactor Service Water Systems Definition

The following site-specific supplement addresses COL License Information Item 19.19g and accounts for departure STP DEP 9.2-5.

The STP site-specific applicant review of RSW and UHS design configurations and performance capabilities against those assumed and modeled in Subsection 19D.6.4.2 have been completed and the impact of any differences on the ABWR PRA results has been assessed. The overall results of the evaluation are bounded by the conclusions of the standard ABWR SSAR.19.3.1.5 Results in Perspective. The net impact of the STP-specific design shows a net decrease in risk as compared to the standard ABWR PRA.

19.9.27 Capability of Vacuum Breaker

The following standard supplement addresses COL License Information Item 19.19h.

The capability of the vacuum breaker seating material will be demonstrated to withstand the temperature profiles associated with the equipment survivability requirements specified in Subsection 19E.2.1.2.3 prior to fuel loading. (COM 19.9-25) The FSAR will be updated in accordance with 10 CFR 50.71(e) to reflect the results of this demonstration.

19.9.28 Capability of the Containment Atmospheric Monitoring System

The following standard supplement addresses COL License Information Item 19.19i.

The CAM System that can be exposed to containment pressure will be demonstrated to withstand the loading associated with the equipment survivability requirements specified in Subsection 19E.2.1.2.3 prior to fuel loading. (COM 19.9-26) The FSAR will be updated in accordance with 10 CFR 50.71(e) to reflect the results of this demonstration.

19.9.29 Plant Specific Safety-Related Issues and Vendors Operating Guidance

The following standard supplement addresses COL License Information Item 19.19j.

Plant operating procedures to maintain the important safety functions during shutdown operations will be developed. The operating guidance from the vendors to perform control rod drives and reactor internal pump maintenance activities will also be implemented in these procedures. ~~These procedures will be developed and implemented.~~ The procedures will be developed consistent with the plant operating procedure development plan in Section 13.5. (COM.19.9-27)

19.9.30 PRA Update

The following site-specific supplement addresses COL License Information Item 19.30.

The design PRA was reviewed against site-specific design information (e.g. the ultimate heat sink) and interface requirements of the standard design and updated to ensure PRA results remain bounding. In addition, site characteristics such as external flooding, wind loadings, etc., were compared to those assumed in the design PRA to ensure the values used would remain bounding. A delta-PRA was performed for those site characteristics that were not bound by the design PRA results. In some cases (e.g., STP DEP T1 5.01), the departures have the effect of increasing the core damage

frequency. In other cases (e.g., STD T1 2.4-3), the departures have the effect of decreasing the core damage frequency. The overall results of the evaluation are bounded by the conclusions of the standard ABWR SSAR.19.3.1.5 Results in Perspective. The net impact of the STP-specific design shows a net decrease in risk as compared to the standard ABWR PRA.