Nuclear Operating Company

South Texas Project Electric Generating Station 4000 Avenue F – Suite A Bay City, Texas 77414

December 28, 2009
U7-C-STP-NRC-090224

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville MD 20852-2738

South Texas Project
Units 3 and 4
Docket Nos. 52-012 and 52-013
Revised Responses to Requests for Additional Information

Attached are revised responses to previously submitted NRC staff questions included in Request for Additional Information (RAI) letters related to Combined License Application (COLA) Part 2, Tier 2, Chapters 9 and 14. The attachments contain the revised responses for the following RAI questions.

09.03.03-5
09.02.04-6
09.02.04-7
14.03.02-1
14.03.02-2

When a change to the COLA is indicated, the change will be incorporated into the next routine revision of the COLA following NRC acceptance of the RAI response.

There are no new commitments in this letter.

If you have any questions, please contact me at (361) 972-7136, or Bill Mookhoek at (361) 972-7274.

STI 32588554

D091
NRO

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 12/28/09

Scott Head
Manager, Regulatory Affairs
South Texas Project Units 3 & 4

jaa

Attachments:

1. RAI 09.03.03-5, Revision 1
2. RAI 09.02.04-6, Revision 1
3. RAI 09.02.04-7, Revision 1
4. RAI 14.03.02-1, Revision 1
5. RAI 14.03.02-2, Revision 1

cc: w/o attachment except*
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RAI 09.03.03-5, Revision 1

QUESTION:

9.3.3.2.3 states, "The non-radioactive drain system collects waste water from plant buildings (Reactor, Turbine, Control, Service, and other buildings). A system composed of collection piping, curbs, and pumps is provided. Non-radioactive waste water from the Turbine Building, Reactor Building, hot machine shop and the Control Building is routed to a dedicated oil/water separator where oil and settled solids are removed for off-site disposal. The non-oily, nonradioactive effluent is sent to dual settling basins. Nonradioactive waste water from the Service Building and other buildings is sent directly to the dual settling basins. Means are provided to perform any required tests or analyses required by the discharge permit. The non-radioactive liquid effluent is discharged to the Main Cooling Reservoir through permitted outfall(s). If radioactivity levels exceed the limits for discharge, the flow from the nonradioactive drains has the capability to be diverted to the radioactive effluent portion of the radwaste system. Normally, if low levels of radioactivity are detected, it is quantified and discharged via the normal outfall. Higher levels of radioactivity may require a permitted "batch" discharge via the radwaste effluent radiation monitor. The non-radioactive drainage system is illustrated in Figure 9.3-12."

This drain system has the potential to carry radioactive contamination to the environment. Please describe in detail how the applicant intends to comply with 10 CFR 20.1501, 10 CFR 50.34a, 10 CFR 50.36a, and GDC 60, 64 and 10 CFR 50 Appendix I for this system. This description should include:

a.) How will radioactive effluent release quantities and criteria be determined?
b.) How will non-radioactive waste water and radioactive waste water be segregated in these potentially contaminated areas, e.g., Hot Machine Shop, Reactor Building, etc., listed in the FSAR?
c.) How is the discharge permit related to the Offsite Dose Calculation Manual (ODCM) when any levels of radioactivity are detected? How is the associated dose and quantities of radioactive material accounted for in accordance with 10 CFR 20 and 10 CFR 50 Appendix I?
d.) How is the radiation monitor, shown on drawing 9.3-12, calibrated, and set points established? Is this a required radiation monitor?
e.) What are the means to collect samples to perform any required tests or analyses for the discharge permit? How will samples for radioactive analyses be obtained for any effluent releases?
f.) Please describe the analyses to be performed prior to releasing any radioactive materials to the environment. Are these analyses required?
g.) How will radioactive "batch" discharges to the environment be performed?
h.) What are the radioactivity levels that exceed the "limits for discharge"? What are the limits for discharge that are needed to divert the radioactivity levels to the radwaste system for treatment?

REVISED RESPONSE:

Reference: Letter from Scott Head to NRC dated August 28, 2009, U7-C-STP-NRC-090127 (ML092450154)

The original response to RAI 09.03.03-5 (reference) is revised. Changed portions from the original response are identified with revision bars in the margins.

a) If an off-normal event occurs as identified by the radiation monitor alarm and is a confirmed activity (verified above a 95% confidence level) then the effluent release quantities will be determined by radio-analysis of a representative sample from the basin. The volume discharged will be determined using the equipment provided to monitor and report for the Texas Pollutant Discharge Elimination System (TPDES) discharge permit.

b) The plumbing and drainage (P&D) system provides a method of collecting radioactive and non-radioactive waste water from plant equipment, building floor drains, process fluids, and system flushing wastes prior to processing and subsequent discharge to the environment. This system is segregated according to the type of waste. Liquid wastes are classified and segregated for collection as either radioactive, non-radioactive or chemical and detergent liquid waste.

Segregation of radioactive and non-radioactive waste is accomplished by physical arrangement of the drain systems. The non-radioactive drain lines are configured and located to preclude mixing with water in a radiation controlled area. The radioactive drain lines are generally not located in a non-radiation controlled area. However, in the event that it is not possible to provide such separation, a leak tight structure such as a double-walled pipe is provided for the drain line. In the event that a leak from the inner piping occurs, provisions are made to drain any radioactive fluid to liquid radwaste or other controlled area for handling radioactive fluids. High radioactivity drain lines are connected to designated sumps or tanks directly without connecting to other piping, including piping containing non-radioactive fluids. Drain lines which contain radioactive fluids are not located in an area whose radiation level is less than 0.6 mrem/hr.

The water which falls into the floor inside a radioactive controlled area is normally collected at the floor drain funnel of the High Conductivity Water (HCW) drainage system. This water is collected at the floor drain funnel of the radioactive storm drain (SD) drainage system in an area with little possibility of flowing into a non-radioactive controlled area. The water which flows into the floor inside a non-radioactive controlled area is normally collected at the floor drain funnel of the non-radioactive storm drain (NSD) drainage system. The floor drain inside the service water heat exchange area is collected by the Service Water Storm Drain (SWSD) drainage system.

In summary, drainage from the radioactive and non-radioactive water systems is collected separately by independent systems, and radioactive drainage system water is not mixed with nonradioactive drainage system water.

c) The additional discussion after Item h below provides more detail regarding discharge permits and how associated dose and radioactive quantities are tracked. In addition, the radioactive quantities and associated dose are accounted for by the Offsite Dose Calculation Manual and Regulatory Guide 1.21 implementing procedures. The Units 3&4 procedures will mirror the procedures presently used for a similar system (Non Radioactive Chemical Waste) in Units 1&2.

d) The radiation monitor on the non-radioactive drainage system as shown on Figure 9.3-12 is utilized to ensure that this system, which does not normally contain radioactive water, can be easily monitored in accordance with the site Inspection and Enforcement (IE) Information Notice 80-10 program. As noted in the response to Item b in this response, provisions are made in the design to preclude mixing of radioactive and non-radioactive drain water. As also noted in the response to Item e, grab samples can also be taken of the non-radioactive drain system water and analyzed for radioactivity. The monitor will be calibrated and setpoints established to alarm at a level above background level and sufficiently low enough to establish the presence of radioactivity.

e) Non-radioactive waste water from the non-radioactive drain transfer system is routed to the in-service "receiving" basin of the dual settling basins. A grab sample is collected from the other full, but input isolated, basin and analyzed for those parameters specified in the TPDES discharge permit (typically pH, oil and grease, and total suspended solids (TSS), etc.) The non-radioactive liquid effluent is discharged to the Main Cooling Reservoir.

f) See the response to Question a above.

g) If the very unlikely off–normal event occurred in which this non radioactive system contains higher levels of confirmed radioactivity, for instance above the high alarm of the radiation monitor, then the liquid may be batch released via the radwaste effluent monitor using the same batch release controls, sampling, procedures and approvals as are utilized for a batch release from the radwaste system sample tanks.

h) The limits for discharge that determine whether the non-radioactive drain effluent needs to be diverted through the radioactive effluent system are based on the need to achieve the same dilution factors as achieved at the radioactive waste processing system effluent discharge point.

Based on a phone call with the NRC on September 30, 2009 following their review of the information provided above, the following additional information concerning the operational aspects of the non-radioactive drain system is provided:

Water from the non-radioactive waste system is collected and either drains or is pumped to the dual settling basins as shown in FSAR Figure 9.3-12. Under normal conditions, this non-radioactive water is pumped to the Main Cooling Reservoir (MCR) without sampling each batch

for gamma isotopic activity, because it normally contains only naturally occurring radioactive materials and/or low levels of tritium. In the unlikely event that the dual settling basin water contains other gamma isotopic contamination, the plant staff will be alerted by a continuous gamma radiation monitor that is provided downstream of the dual settling basins. The radiation monitor setpoint is set to detect gamma isotopic activity above background levels which will ensure that limits for batch release discharges from the non-radioactive waste system are no greater than those for the discharge from the radwaste system sample tanks. Upon detection of high radiation or an instrument failure, a signal automatically secures the discharge to the MCR. After sampling and analyzing the basin contents for gamma isotopic activity, flow may be diverted to the effluent discharge line of the appropriate unit or discharged directly to the MCR in accordance with the ODCM implementing procedures and controls utilized for liquid radwaste. Note that the control of effluent release from the liquid radwaste system is included as an Operational Program as described in FSAR Table 13.4S-1, Item 9.

Sampling and analysis for the non-radioactive waste system, including quantity of sample and gamma isotopic radionuclides measured will meet the same ODCM requirements as the liquid radwaste system. In addition, if required, the radioactive release permit will include a determination of tritium levels based on composite samples. Non-radioactive waste water from the non-radioactive drain transfer system is routed to the in-service "receiving" basin of the dual settling basins. Samples are taken directly from the other full, but input-isolated basin and analyzed as noted above.

The program for monitoring and sampling of the non-radioactive waste system, including the determination of batch discharge limits, is in accordance with the Offsite Dose Calculation Manual (ODCM), IEN 80-10, and Regulatory Guide 1.21.

As noted in FSAR Subsection 13.5.3.4.3, procedures will be developed for handling discharge of effluents for STP 3&4. These procedures will include the non-radioactive waste system. As noted in FSAR Subsection 13.5.3.3.2, these procedures will be issued six months prior to the commencement of the Preoperational Test Program.

There is no change to the COLA as a result of this response.

RAI 09.02.04-6, Revision 1

QUESTION:

In order to demonstrate that the interface requirements specified in Tier 1 of the design control document (DCD), Section 4.3 are met, a site-specific inspection, test, analysis and acceptance criterion (ITAAC) was established for the MWPS in Part 9 of the combined license (COL) application, Section 3, "Site-Specific ITAAC." The description in Section 3 indicates that ITAAC for the MWPS are necessary due to its "safety-related, safety-significant, or risk significant function." This appears inconsistent with the description provided in Section 9.2.8 of the FSAR, stating that the MWPS does not perform a safety-significant or risk significant function. Please explain the discrepancy and revise the FSAR as necessary.

REVISED RESPONSE:

As discussed in a telephone conference (telecon) with the NRC on December 2, 2009, STPNOC hereby revises its original response to NRC RAI 09.02.04-6 (STPNOC Letter U7-C-STP-NRC-090104 dated August 20, 2009; ML092360771) regarding the site-specific ITAAC established for the Makeup Water Preparation (MWP) System. This revised response supersedes in its entirety STPNOC's original response to NRC RAI 09.02.04-6.

The site-specific ITAAC established in Part 9 of the COLA for the MWP System was intended to demonstrate that the interface requirements specified in ABWR DCD (Tier 1) Section 4.3 are met. Thus, although the MWP System function to provide plant makeup water is not safety-related, important to safety, or risk significant, an ITAAC is retained for the MWP System since ABWR DCD (Tier 1) Section 4.3 explicitly discusses the MWP System function as an interface requirement. However, as discussed with the NRC in the December 2, 2009 telecon, STPNOC is revising the ITAAC established for the MWP System in Table 3.0-3 of Part 9 of the STP Units 3 and 4 COLA, Revision 3. The revised ITAAC is intended to more closely align the ITAAC wording with the MWP System interface requirement wording in DCD (Tier 1) Section 4.3.

The MWP System ITAAC change and conforming changes to the STP Units 3 and 4 COLA are reflected in the markups below. The markup of FSAR (Tier 2) Section 9.2.8.8 also includes an editorial correction to change "Subsection 14.2.12.1.79" to "Subsection 14.2S.12.1.79."

FSAR (Tier 2), Section 9.2.8.8

> A preoperational test program and test of the MWP system have been established as described in Chapter 14, Subsection 14.2S.12.1.79. In addition, performance of the site-specific ITAAC provided in COLA Part 9, Section 9.3 demonstrate that the interface requirements provided in Tier 1, Section 4.3 of the reference ABWR DCD for the MWP System are met.

COLA Part 9, Inspections, Tests, Analyses, Acceptance Criteria, Section 3.0

The STP 3 & 4 site-specific systems that require ITAAC, because they have a safety-related, safety-significant, or risk significant function, and/or have interface requirements stated in ABWR DCD (Tier 1), Section 4.0, are listed below:

COLA Part 9, Inspections, Tests, Analyses, Acceptance Criteria, Table 3.0-3

STPNOC proposes that the ITAAC item in Table 3.0-3 would be revised as follows:

Table 3.0-3 Makeup Water Preparation (MWP) System ~~(MWP)~~

Design Requirement	Inspections, Tests, Analyses	Acceptance Criteria
1. The MWP System supplies makeup water to the Makeup Water (Purified) (MUWP) System. ~~The Makeup Water Preparation (MWP) System provides sufficient flow rate, temperature, and demineralized water storage capacity to meet plant demands during normal operations.~~	1. Inspections of the as-built portion of the MWP system that supplies makeup water to the MUWP System will be performed.	1. The as-built MWP System has features to supply makeup water to the MUWP System. ~~The MWP System provides sufficient quantity and quality to meet plant demands during normal operation.~~ ~~a. The MWP has two divisions capable of producing at least 90 m3/h of demineralized water each. (In two-pass series configuration, the divisions are rated at 45m3/h each to satisfy the demands for each unit.)~~ ~~b. Storage of demineralized water shall be at least 5320 m3.~~ ~~c. Demineralized water shall be provided at a minimum flow rate of approximately 135 m3/h per unit at a temperature between 10°C to 38°C for short durations.~~

RAI 09.02.04-7, Revision 1

QUESTION:

The ITAAC specified in Part 9 of the COL application, Table 3.0-3, "Makeup Water Preparation System (MWP)," establishes a design requirement that the MWPS provide sufficient quantity and quality of makeup water to meet plant demands during normal operation. Because the MWPS is not safety-related and it does not perform any functions that are important to safety, the reason for establishing an ITAAC to demonstrate the functional capability of the MWPS is not clear. The functional capability of non-safety-related systems is typically confirmed by the initial test program specified in Chapter 14 of the FSAR. However, in accordance with the requirements specified by 10 CFR 52.47(a)(26) and 10 CFR 52.80(a), ITAAC should be established to demonstrate that MWPS arrangement and design features necessary to ensure that MWPS failures will not impact safety-related SSCs have been properly implemented (related to RAI 9.2.8-01). Please explain why an ITAAC was established for the MWP system.

REVISED RESPONSE:

As discussed in a telephone conference (telecon) with the NRC on December 2, 2009, STPNOC hereby revises its original response to NRC RAI 09.02.04-7 (STPNOC Letter U7-C-STP-NRC-090104 dated August 20, 2009; ML092360771) regarding the site-specific ITAAC established for the Makeup Water Preparation (MWP) System. This revised response supersedes in its entirety STPNOC's original response to NRC RAI 09.02.04-7.

The site-specific ITAAC established in Part 9 of the COLA for the MWP System was intended to demonstrate that the interface requirements specified in ABWR DCD (Tier 1) Section 4.3 are met. Thus, although the MWP System function to provide plant makeup water is not safety-related, important to safety, or risk significant, an ITAAC is retained for the MWP System since ABWR DCD (Tier 1) Section 4.3 explicitly discusses the MWP System function as an interface requirement. However, as discussed with the NRC in the December 2, 2009 telecon, STPNOC is revising the ITAAC established for the MWP System in Table 3.0-3 of Part 9 of the STP Units 3 and 4 COLA, Revision 3. The revised ITAAC is intended to more closely align the ITAAC wording with the MWP System interface requirement wording in DCD (Tier 1) Section 4.3.

The MWP System ITAAC change and conforming changes to the STP Units 3 and 4 COLA are reflected in the markups provided concurrently in Revision 1 of STPNOC's response to RAI No. 09.02.04-6.

RAI 14.03.02-1, Revision 1

QUESTION:

STP Unit 3 & 4 FSAR 14.3S - Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) stated that "The selection criteria and methodology provided in Section 14.3 of the reference ABWR DCD for the certified ABWR design were utilized as the site-specific selection criteria and methodology for inspections, tests, analyses, and acceptance criteria including those applicable to the emergency planning and physical security hardware. In general, the ITAAC for site-specific systems were developed to correspond to the interface criteria in Tier 1 of the reference ABWR DCD." The applicant is requested (a) to explain the basis for the use of the phrase "in general," (e.g., Are there any exceptions taken?) and (2) to provide a screening summary table relating pertinent ABWR DCD interface requirements vs. STP 3 and 4 FSAR ITAAC actions taken in addressing the interface requirements for site-specific structures.

REVISED RESPONSE:

References:

(1) STPNOC Letter U7-C-STP-NRC-090150 dated September 21, 2009 (ML092660093)

(2) STPNOC Letter U7-C-STP-NRC-090104 dated August 20, 2009 (ML092360771)

The original STPNOC response to NRC RAI 14.03.02-1 (Reference 1) is revised to reflect STPNOC's revised response (Revision 1) to NRC RAI 09.02.04-6, submitted concurrently with this revised response, which proposes to retain the Makeup Water Preparation (MWP) System ITAAC with specific wording changes to more closely align with the Tier 1 interface requirement. Accordingly, references in STPNOC's original response to RAI 14.03.02-1 to the MWP System ITAAC are also deleted or revised.

The portions of the original response to RAI 14.03.02-1 specifically affected by this revision are limited to the final bulleted item in the main body of the response, and a note accompanying the entry for the MWP System in Table 1 of the response. The changes to STPNOC's original response are indicated by margin revision bars.

COLA Part 9, Section 3.0, "Site-Specific ITAAC," includes Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) tables corresponding to each of the ten (10) systems identified in DCD (Tier 1), Section 4.0, "Interface Requirements." The phrase "in general" is appropriate since Part 9 of the COLA also includes ITAAC for systems, structures, or components which are not addressed in DCD (Tier 1), Section 4.0 (i.e., Table 3.0-11, "Backfill under Category 1 Structures," and Table 3.0-12, "Breathing Air System (BAS)"). The site-specific ITAAC also reflect standard departures discussed in the COLA as noted in Table 1 below.

Table 1 provides the requested summary comparison. The table presents the specific interface requirements identified in DCD (Tier 1), Section 4.0 (either directly or by reference to other DCD Tier 1 sections) and the corresponding entries from the Design Requirements column of the ITAAC tables contained in COLA Part 9, Section 3.0. Additional detail relative to the specific tests and acceptance criteria associated with these design requirements is contained in the referenced tables in COLA Part 9, Section 3.0. Exceptions noted in this comparison table include:

- DCD (Tier 1), Section 4.0 identifies an interface requirement for the Reactor Service Water (RSW) System related to anti-siphon capability to prevent Control Building flooding after an RSW System pipe break and after the RSW System pumps have been stopped. Vacuum breaker valves have been removed from the STP Units 3 and 4 design as discussed in departure STP DEP 19R-1. Due to this departure, this interface requirement is not applicable to STP Units 3 and 4 and no corresponding ITAAC are provided in COLA Part 9, Section 3.0.
- DCD (Tier 1), Section 4.0 identifies interface requirements for the Heating, Ventilating and Air Conditioning System relative to toxic gas monitors. Toxic gas monitors are not included in the STP Units 3 and 4 design as discussed in departure STP DEP 9.4-1. Due to this departure, this interface requirement is not applicable to STP Units 3 and 4 and no corresponding ITAAC are provided in COLA Part 9 Section 3.0.
- (deleted)

No additional COLA change is required for this response.

Table 1 – Comparison of DCD Tier 1 Interface Requirements and Site-Specific ITAAC Design Requirements[1]

Ultimate Heat Sink	
DCD Tier 1 Interface Requirement(s) – Section 4.1	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-1**
"(1) Provide cooling water to the RSW System for normal plant operation and to permit safe shutdown and cooldown of the plant and maintain the plant in a safe shutdown condition for design basis events."	"1. The basic configuration of the UHS is as shown on Figure 3.0-1."
"(2) Makeup water for the UHS shall not be required for at least 30 days following a design basis accident."	"2.(a) The UHS has sufficient cooling water to supply the RSW system for normal plant operation and to permit safe shutdown and cooldown of the plant and maintain the plant in a safe shutdown condition for design-basis events. 2.(b) Makeup water to the UHS shall not be required for at least 30 days following a design-basis accident."
"(3) Any active safety-related system, structure, or components within the UHS shall have three divisions powered by their respective Class 1E divisions. Each division shall be physically separated and electrically independent of the other divisions."	"3.(a) Active safety-related SSCs within the UHS shall have three divisions powered by their respective Class 1E divisions. 3.(b) Each division shall be physically separated. 3.(c) Each division shall be electrically independent of the other divisions."
"(4) UHS System Divisions A and B components shall have control interfaces with the Remote Shutdown System (RSS) as required to support UHS operation during RSS design basis conditions."	"4. Displays and controls in the main control room and remote shutdown system (RSS) are provided for required functions of the UHS system."
"(5) Be classified as Seismic Category I."	"5. The UHS is able to withstand the structural design-basis loads."

[1] ITAAC Design Requirements are taken from COLA Revision 2

Table 1 – Comparison of DCD Tier 1 Interface Requirements and Site-Specific ITAAC Design Requirements (cont.)

Offsite Power System	
DCD Tier 1 Interface Requirement(s) – Section 4.2 and reference Section 2.12.1	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-2**
"The offsite system shall consist of a minimum of two independent offsite transmission circuits from the TN."	"1. There is redundancy and independence in the offsite power system."
"Voltage variations of the offsite TN during steady state operation shall not cause voltage variations at the loads of more than plus or minus 10% of the loads nominal ratings."	"2. Site loads are protected from offsite voltage variations during steady-state operation."
"The normal steady state frequency of the offsite TN shall be within plus or minus 2 hertz of 60 hertz during recoverable periods of system instability."	"3. Site loads are protected from offsite frequency variations."
"The offsite transmission circuits from the TN through and including the main step-up power transformers and RAT(s) shall be sized to supply their load requirements, during all design operating modes, of their respective Class 1E divisions and non-Class 1E load groups."	"4. The offsite power system is adequately sized to supply necessary load requirements, during all design operating modes."
"The impedances of the main step-up power transformers and RAT(s) shall be compatible with the interrupting capability of the plant's circuit interrupting devices."	"5. The impedance of the offsite power system shall be compatible with the interrupting capability of the plants circuit interrupting devices."
"The independence of offsite transmission power, instrumentation, and control circuits shall be compatible with the portion of the offsite transmission power, instrumentation, and control circuits within GE's design scope."	"6. The offsite transmission power, instrumentation and control circuits are independent."
"Instrumentation and control system loads shall be compatible with the capacity and capability design requirements of DC systems within GE's design scope."	"7. Instrumentation and control system loads shall be compatible with the capacity and capability design requirements of the DC systems."

Table 1 – Comparison of DCD Tier 1 Interface Requirements and Site-Specific ITAAC Design Requirements (cont.)

Makeup Water Preparation System	
DCD Tier 1 Interface Requirement(s) – Section 4.3	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-3**
"A site-specific MWP System will be designed for any facility which has adopted the Certified Design to provide demineralized water to the MUWP System."	"1. The Makeup Water Preparation (MWP) System provides sufficient quantity and quality to meet plant demands during normal operations." NOTE: Revision 1 of the response to RAI 09.02.04-6 (provided concurrently with this response) proposes to revise this ITAAC with specific wording changes to more closely align with the Tier 1 interface requirement wording.

Potable and Sanitary Water System	
DCD Tier 1 Interface Requirement(s) – Section 4.4 and reference to Section 2.11.23)	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-4**
"None for this system."	"No entry for this system"

Table 1 – Comparison of DCD Tier 1 Interface Requirements and Site-Specific ITAAC Design Requirements (cont.)

Reactor Service Water System	
DCD Tier 1 Interface Requirement(s) – Section 4.5 and reference to Section 2.11.9	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-5[2]**
"(1) Design features shall be provided to limit the maximum flood height to 5.0 meters in each RCW heat exchanger room."	"1. The basic configuration of the site-specific RSW is as shown on Figure 3.0-1. 2. Each division is sized to prevent flooding greater than 5 meters above the floor level in each RCW heat exchanger room."
"(2) The design shall have three divisions which are physically separated. For any structure(s) housing RSW System components, there shall be inter-divisional boundaries (including walls, floors, doors and penetrations) that have three-hour fire rating. In addition, there shall be inter-divisional flood control features which preclude flooding from occurring in more than one division. Each division shall be powered by its respective Class 1E division. Each division shall be capable of removing the design heat capacity (as specified in Section 2.11.3) of the RCW heat exchangers in its division."	"3.(a) Active safety-related SSCs within the RSW shall have three divisions powered by their respective Class 1E divisions. 3.(b) Each division shall be physically separated. 3.(c) Each division shall be electrically independent of the other divisions. 3.(d) Each division shall be capable of removing the design basis heat load of the RSW heat exchangers in that division. 3.(e) Interdivisional flood control shall be provided to preclude flooding in more than one division"
"(3) Upon receipt of a loss-of-coolant (LOCA) signal, components in standby mode shall start and/or align to the operating mode."	"4. On a LOCA and/or LOPP signal, any closed valves for standby heat exchangers are automatically opened and the standby pumps automatically start."

[2] The response to RAI 09.02.01-6 (see letter U7-C-STP-NRC-090133 dated September 8, 2009) incorporates a new ITAAC to verify sufficient RSW pump net positive suction head.

Table 1 – Comparison of DCD Tier 1 Interface Requirements and Site-Specific ITAAC Design Requirements (cont.)

Reactor Service Water System (cont.)	
DCD Tier 1 Interface Requirement(s) – Section 4.5 and reference to Section 2.11.9	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-5[3]**
"(4) RSW System Divisions A and B shall have control interfaces with the Remote Shutdown System (RSS) as required to support RSW operation during RSS design basis conditions."	"5. Displays and controls in the main control room and RSS are provided for required functions of the RSW system." NOTE: The response to RAI 14.03.05-2 (see letter U7-C-STP-NRC-090028 dated April 2, 2009) deletes the ITAAC due to redundancy with ITAAC Items 7 and 8 in Tier 1, ITAAC Table 2.11.9.
"(5) If required by the elevation relationships between the UHS and the RSW System components in the Control Building (C/B), the RSW System shall have antisiphon capability to prevent a C/B flood after an RSW System break and after the RSW System pumps have been stopped."	"6. Not Used" NOTE: Departure STP DEP 19R-1 discusses the removal of RSW vacuum breaker valves from the Units 3 and 4 design. Therefore, there are no site-specific ITAAC corresponding to the associated DCD interface requirement.
"(6) RSW System pumps in any division shall be tripped on receipt of a signal indicating flooding in that division of the C/B basement area."	"7. For each division of RSW the heat exchanger inlet and outlet valves close, the pumps trip, and the isolation valves close upon receipt of a signal indicating Control Building flooding in that division."
"(7) Any tunnel structures used to route RSW System piping to the Control Building shall be classified as Seismic Category I. Tunnel flooding due to site flood conditions shall be precluded."	"8. Tunnel structures used to route piping are designed for design basis seismic loads and are protected against site flooding."

[3] The response to RAI 09.02.01-6 (see letter U7-C-STP-NRC-090133 dated September 8, 2009) incorporates a new ITAAC to verify sufficient RSW pump net positive suction head.

Table 1 – Comparison of DCD Tier 1 Interface Requirements and Site-Specific ITAAC Design Requirements (cont.)

Turbine Service Water System	
DCD Tier 1 Interface Requirement(s) – Section 4.6 and reference to Section 2.11.10	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-6**
"None identified for this system."	"No entry for this system."

Communication System	
DCD Tier 1 Interface Requirement(s) – Section 4.7 and reference to Section 2.12.16	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-7**
"An emergency communication system for off-site communication shall be provided."	"No entry for this system." NOTE: ITAAC for the emergency communication system are included in COLA Part 9, Section 4.0, "Emergency Planning ITAAC." The response to RAI 14.03.02-2 replaces "No entry for this system" with a reference to COLA Part 9, Section 4.0.

Site Security	
DCD Tier 1 Interface Requirement(s) – Section 4.8	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-8**
"Provisions for site security are not within the Certified Design and will be provided by each licensee on a site-specific basis."	"No entry for this system." NOTE: ITAAC for the site security system are included in COLA Part 9, Section 5.0, "Physical Security ITAAC." The response to RAI 14.03.02-2 proposes to replace "No entry for this system" with a reference to COLA Part 9, Section 5.0.

Table 1 – Comparison of DCD Tier 1 Interface Requirements and Site-Specific ITAAC Design Requirements (cont.)

Circulating Water System	
DCD Tier 1 Interface Requirement(s) – Section 4.9 and reference to Section 2.10.23	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-9**
"(1) Design features shall be provided to limit flooding in the Turbine Building."	"1. The circulating water condenser valves are closed in the event of a system isolation signal from the condenser area flood level switches."

Heating, Ventilating and Air Conditioning	
DCD Tier 1 Interface Requirement(s) – Section 4.10 and reference to Section 2.15.5	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-10**
"Toxic gas monitors will be located in the outside air intakes of the CRHA HVAC System, if the site is adjacent to toxic gas sources with the potential for releases of significance to plant operating personnel in the MCAE. These monitors should have the following requirements: (1) Be located in the outside air intakes of each division of the CRHA HVAC System. (2) Be capable of detecting toxic gas concentrations at which personnel protective actions must be initiated."	"No entry for this system." NOTE: Interface requirements related to toxic gas monitors are not applicable to Units 3 and 4 due to a departure. As described in departure STP DEP 9.4-1, instrumentation to detect and alarm a hazardous chemical release in the Units 3 and 4 vicinity and to isolate the main control area envelope from such releases is not required.

Table 1 – Comparison of DCD Tier 1 Interface Requirements and Site-Specific ITAAC Design Requirements (cont.)

Backfill under Category 1 Structures	
N/A	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-11**
None	"1.Backfill under Category 1 structures is compacted to not less than 95% of maximum dry density and within plus or minus 3% of the optimum moisture content." NOTE: The response to RAI 14.03.02-6 revises the ITAAC to provide additional detail requested by the RAI.

Breathing Air System	
N/A	**COLA Part 9 Section 3.0 Design Requirement - Table 3.0-12**
None NOTE: The DCD does not include specific interface requirements for the Breathing Air System (BAS). In the certified design (DCD (Tier 2) Section 9.3.7), the Service Air System (SAS) provides the breathing air function. DCD (Tier 1), Section 2.11.11 provides ITAAC for the certified design SAS. Departure STD DEP 9.3-2, as revised in COLA Revision 2, moves the design basis function of providing plant breathing air from the SAS to a new standalone system – the BAS. This departure included new Table 3.0-12 in Part 9 of COLA Revision 2 that contains two ITAAC items for the new standalone BAS.	"1. The Basic BA System containment penetration has one locked closed isolation valve inside and one locked closed isolation valve outside containment. 2. The ASME Code components of the BA System retain their pressure boundary integrity under internal pressures that will be experienced during service." NOTE: The response to RAI 03.02.01-3 (see letter U7-C-STP-NRC-090096 dated August 6, 2009) revises the first of these two ITAAC items to ensure that the as-built BAS containment isolation components will operate in conformity with the combined license and NRC regulations. With this revision, the scope and content of the two BAS ITAAC items are substantively the same as the applicable ITAAC items previously approved by the NRC in ABWR DCD Tier 1 for the SAS.

RAI 14.03.02-2, Revision 1

QUESTION:

ITAAC tables in COLA Part 9 Section 3.0 have been established in two different ways: some of the non-safety related systems have entries (e.g., Table 3.0-3 makeup Water Preparation System (MWP) and Table 3.0-9 Circulating Water System (CW)), while others are designated with "No entry for this system". Explain the reasons for using two different approaches.

REVISED RESPONSE:

References:

(1) STPNOC Letter U7-C-STP-NRC-090150 dated September 21, 2009 (ML092660093)

(2) STPNOC Letter U7-C-STP-NRC-090104 dated August 20, 2009 (ML092360771)

The original STPNOC response to NRC RAI 14.03.02-2 (Reference 1) is revised to reflect STPNOC's revised response (Revision 1) to NRC RAI 09.02.04-6, submitted concurrently with this revised response. These changes modify the existing Makeup Water Preparation (MWP) System ITAAC with specific wording changes to more closely align with the Tier 1 interface requirement. Accordingly, the original STPNOC response to RAI No. 14.03.02-2 is updated by deleting Footnote 4 in its entirety as indicated by margin revision bars.

Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) tables in COLA Part 9, Section 3.0, "Site-Specific ITAAC," were established corresponding to specific interface requirements identified in DCD (Tier 1), Section 4.0, "Interface Requirements," regardless of the safety classification of the system. The systems addressed in DCD (Tier 1), Section 4.0 are those systems identified in DCD (Tier 2), Section 1.1.2, "ABWR Standard Plant Scope," as outside of the scope of the certified design, either in whole or in part. COLA Part 9, Section 3.0 includes a table corresponding to each system identified in DCD (Tier 1), Section 4.0. Table 1 of the response to NRC RAI 14.03.02-1 demonstrates the correlation between DCD (Tier 1), Section 4.0 interface requirements and the site-specific ITAAC tables in COLA Part 9, Section 3.0.

With the exceptions discussed below, the designation of "No entry for this system" is used in instances when the DCD (Tier 1) explicitly states that there are no interface requirements associated with a system. For example, DCD (Tier 1), Section 4.0 specifies that the Turbine Service Water System and the Potable and Sanitary Water System have no interface requirements. Accordingly, COLA Part 9, Section 3.0 includes tables for these systems with the notation "No entry for this system," and the introductory text in COLA Part 9, Section 3.0 does not include these systems in the list of site-specific systems that require ITAAC. This convention is in accordance with the guidance in Regulatory Guide (RG) 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," Section C.III.7.2.

In the two examples cited in this RAI (i.e., Makeup Water Preparation and Circulating Water), DCD (Tier 1), Section 4.0 does not explicitly state that there are no interface requirements (e.g., DCD (Tier 1), Section 4.0 contains interface requirements, either directly or by reference to other DCD sections), and the corresponding tables in COLA Part 9, Section 3.0 currently contain ITAAC requirements for these systems.

There are three exceptions to the convention described above. First, although DCD (Tier 1), Section 4.0 identifies interface requirements for the HVAC System, COLA Part 9, Section 3.0, Table 3.0-10, "Heating, Ventilating, and Air Conditioning (HVAC)," indicates "No entry for this system." These DCD interface requirements address toxic gas monitors, but toxic gas monitors are not included in the Units 3 and 4 design as discussed in departure STP DEP 9.4-1. Therefore, the HVAC interface requirements specified in the DCD are not applicable to Units 3 and 4 and no corresponding site-specific ITAAC are needed.

Two additional exceptions involve Table 3.0-7, "Communication System," and Table 3.0-8, "Site Security," which also contain the notation of "No entry for this system." Although not included in Section 3.0, ITAAC for these systems are provided in COLA Part 9, Section 4.0, "Emergency Planning ITAAC," and Section 5.0, "Physical Security ITAAC," respectively. To provide consistency within COLA Part 9, Section 3.0, the entries for Table 3.0-7 and Table 3.0-8 are changed as shown below:

Table 3.0-7 Communication System

Design Requirement	Inspections, Tests, Analyses	Acceptance Criteria
~~No entry for this system.~~ See COLA Part 9, Section 4.0, Table 4.0-1, Emergency Planning ITAAC		

Table 3.0-8 Site Security

Design Requirement	Inspections, Tests, Analyses	Acceptance Criteria
~~No entry for this system.~~ See COLA Part 9, Section 5.0, Table 5.0-1, Physical Security ITAAC		