PMSTPCOL PEmails

From: Stacy Joseph
Sent: Friday, April 03, 2009 8:10 AM
To: Edmund Kleeh
Cc: STPCOL
Subject: FW: STPNOC Letter Responding to COLA Part 9 RAIs
Attachments: U7-C-STP-NRC-090028_signedletter.pdf

Ed,

Attached is the STP letter responding to your ITAAC RAI's. Please review and let me know if their response addressed your questions by May 3.

Thank you,
Stacy

Stacy Joseph
Project Manager
NRO/DNRL
Office Telephone: 301-415-2849

From: Cook, James W [mailto:jwcook@STPEGS.COM]
Sent: Thursday, April 02, 2009 4:29 PM
To: Adrian Muniz; Belkys Sosa; George Wunder; Loren Plisco; Raj Anand; Rocky Foster; Stacy Joseph; Tekia Govan; Tom Tai
Cc: Mookhoek, William
Subject: STPNOC Letter Responding to COLA Part 9 RAIs

Attached is an information only copy of an official letter sent to the NRC which responds to an 06Mar RAI pertaining to COLA Part 9.

The official paper copies will be sent tomorrow according to the letter addressee list.

If you have any questions on this subject please contact me.

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Email Number: 1172

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Nuclear Operating Company

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

April 2, 2009
U7-C-STP-NRC-090028

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
Response to Requests for Additional Information

Attached are responses to NRC staff questions included in Request for Additional Information (RAI) letter number 83 related to Combined License Application (COLA) Part 9. This submittal completes the response to this RAI letter.

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 response.

There are no commitments in this letter.

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

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

Executed on 4/2/09

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

jwc

STI 32452656

Attachments:

1. Question 14.03.05-1
2. Question 14.03.05-2
3. Question 14.03.05-3
4. Question 14.03.06-1
5. Question 14.03.06-2
6. Question 14.03.06-3
7. Question 14.03.06-4
8. Question 14.03.07-1
9. Question 14.03.07-2
10. Question 14.03.07-3

cc: w/o attachment except*
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CPS Energy

RAI 14.03.05-1

QUESTION:

RCOLA Part 9, ITAAC Item 4 in Table 2.7.5

This ITAAC appears to have two design commitments. The first one addresses redundancy in the instrumentation circuits, and the second one addresses self diagnostics and alarming in the main control room for a fault. Please explain how the acceptance criterion as written addresses both of those design commitments.

RESPONSE:

ITAAC Item 1 in Table 2.7.5 provides the activities to confirm the as-built design including redundant transmission paths and communication modules. As a result, the redundancy statement in the Design Commitment for Item 4 will be deleted. The attached markup of COLA Rev. 2, Table 2.7.5 incorporates this change, and aligns the acceptance criterion with the design requirement.

This change will also be made to COLA Part 2, Tier 1, Section 2.7, Table 2.7.5.

Table 2.7.5 Data Communication, ITAAC Item 4

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
4. *~~The EMS~~* **Equipment implementing the ECFs** *~~features automatic self-test and automatically reconfigures after detecting~~* **accommodates single** *~~failure of one channel (either a cable break or device failure) within a division. The system returns to~~* **ECFs continue** *normal operation* **function** *~~after reconfiguration~~* **the error is detected** *~~with no interruption of data communication.~~*~~The ECFs for remote units within a division are implemented with redundant transmission paths and communication modules.~~ The ECFs utilize self-diagnostics to detect a transmission path or communication module failure. The ECFs for remote units within a division accommodate a single failutre (either a cable break or communication module failure), and will continue to function with no interruption in data communication.	4. *~~Tests will be conducted on each as-built EMS division~~* **of equipment implementing the ECFs** *~~by individually simulating the following, while simultaneously transmitting and monitoring test data streams:~~* *~~a. Single cable break.~~* *~~b. Loss of one RMU~~* **local area cabinet implementing the ECFs.** *~~c. Loss of one CMU~~* **control area cabinet implementing the ECFs.** Tests will be conducted on all as built ECFs for remote units within a division simulating the following while transmitting and monitoring test data streams. a. Single cable break b. Loss of a communication module, such as fiber optic modem	4. *There is* **a valid system response generated for each test with** *no loss of ~~EMS~~* **essential** *data communication as a result of the fault. Fault occurrence is* **identified by the system self-diagnostics and** *displayed in the main control room.*

RAI 14.03.05-2

QUESTION:

RCOLA Part 9, ITAAC Item 4 in Table 3.0-1

Please explain why the acceptance criterion as written does not address the 'required functions of the UHS system' stated in the design commitment and how the figure referenced provides sufficient information to allow the implementation of this ITAAC given that the figure lacks the required details.

This is also true for the following ITAAC:

ITAAC Item 5 in Table 3.0-5

RESPONSE:

Information for UHS and RSW systems instrumentation and alarms is contained in COLA Part 2, Tier 1, Sections 2.2, 2.11.9, and 4.1. Supplemental information is shown in COLA Part 2, Tier 2, Subsections 9.2.5 and 9.2.15. COLA Rev. 2 Table 3.0-1 will be revised as shown in the attached markup.

ITAAC Item 5 in COLA Rev. 2, Table 3.0-5 is a duplicate of ITAAC Items 7 and 8 in Tier 1, ITAAC Table 2.11.9. Accordingly, ITAAC Item 5 will be deleted from Table 3.0-5, as shown in the attached markup.

Table 3.0-1 Ultimate Heat Sink (UHS), ITAAC Item 4

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
4. Displays, alarms, and controls in the main control room and remote shutdown system (RSS) are provided for ~~required functions of~~ water level and temperature of the UHS system.	4. Inspections will be performed on the main control room and RSS displays, alarms, and controls for the UHS system.	4. Displays, alarms, and controls exist in the main control room and RSS ~~as shown on Figure 9.3-1 3.0-1~~ for water level and temperature monitoring, with controls in the RSS for components required for UHS operation.

Table 3.0-5 Reactor Service Water System (RSW), ITAAC Item 5

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
~~5. Displays and controls in the main control room and RSS are provided for required functions of the RSW system.~~	~~5. Inspections will be performed on the main control room and RSS displays and controls for the RSW system.~~	~~5. Displays and controls exist in the main control room and RSS as shown on Figure 9.3-1 3.0-1.~~

RAI 14.03.05-3

QUESTION:

RCOLA Part 9, ITAAC Item 7 in Table 3.0-2

Please explain which DC systems are referred to in this ITAAC - onsite or offsite DC systems local to switchyard. Please also explain why an inspection would not also be required for this ITAAC to verify the as-built installation.

RESPONSE:

Table 3.0-2 uses the template provided in Table C.III.7-3 of RG 1.206 for Offsite Power System ITAAC for an ABWR. A number of the Design Requirements in this table are verified by analyses. The Design Requirement for the instrumentation and control system loads for the switchyard DC system to be compatible with the capacity and capability design requirements is similarly best verified by analyses, without an explicit inspection to verify the as-built installation.

COLA Rev. 2, ITAAC Table 3.0-2, Item 7 will be revised as shown in the attached markup to clarify that the analyses apply to the switchyard DC systems.

Table 3.0-2 Offsite Power System

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
7. Instrumentation and control system loads shall be compatible with the capacity and capability design requirements of the switchyard DC systems.	7. Analyses of offsite power control system and instrumentation loads shall be conducted.	7. A report exists which concludes that the offsite power control system and instrumentation loads are compatible with the capacity and capability of the switchyard DC systems.

RAI 14.03.06-1

QUESTION:

RCOLA Part 9, ITAAC Item 11 in Table 2.2.1

The intent of this ITAAC is to place a test signal from a power supply and then verify that the signal only exists in the channel powered by that power supply. This assumed that each channel was supplied only by a power supply associated with the same channel. However, based on Revision 2 of Part 7 of the application on Page 2.1-6, each of the two channels of the Rod Control and Information System (RCIS) can be supplied from one power supply when the other power supply is in test mode. Page 2.1-6 seems to state that both RCIS channels can be supplied from either power supply. If verification of the independence of power supplies in that only one power supply can supply one RCIS channel is not required, then what is the intent of the ITAAC? If the purpose of the change is to verify that the signal in one RCIS is independent of the signal in the other redundant channel of the RCIS, then the design commitment and Inspections, Tests, and Analysis (ITA) should be changed to accommodate that verification. Clarify the purpose of the ITAAC and explain how the Acceptance Criteria can meet that purpose?

RESPONSE:

STD DEP T1 2.2-1 documented a change to the RCIS uninterruptible power supply (UPS) design from each of the dual-redundant controller channels receiving power from only one associated UPS, so that both channels of the RCIS remain operational if either one of the two associated UPS is operational. The purpose of the ITAAC is to confirm operability of the RCIS channels when one power supply is inoperable in an alarmed condition.

ITAAC Item 11 in COLA Rev. 2, Table 2.2.1 will be revised, as shown in the attached markup. The Design Requirement, the Inspections, Tests, Analyses, and the Acceptance Criteria meet the purpose of the ITAAC as revised.

This change will also be made to COLA Part 2, Tier 1, Section 2.2, Table 2.2.1.

Table 2.2.1 Rod Control and Information System, ITAAC Item 11

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
11. *The RCIS is powered by two non-Class 1E uninterruptible* **power** *supplies,* **such that both channels of the RCIS remain operational if either supply is operational with the non-operational supply in an alarmed condition**.	11. *Tests will be performed on the as-built RCIS by* **removing each power supply from service one at a time** *~~providing a test signal in only one non-Class 1E uninterruptible power supply at a time~~*.	11. *~~The test signal exists~~ ~~in only one control channel at a time~~* **~~in only the one power supply.~~ An alarm is activated by the inoperable power supply, and both channels of the RCIS remain operational.**

RAI 14.03.06-2

QUESTION:

RCOLA Part 9, ITAAC Item 3 in Table 2.3.3

The design commitment refers to 'each CAMs division of radiation channels' is powered. The first Inspections, Tests, and Analyses (ITA) just refers to 'tests will be performed on each of the CAMs radiation channels'. The second ITA refers to the 'as-built Class 1E radiation channels' with the words 'divisions in the CAMs' crossed out. Both of the acceptance criteria refer to 'Class 1E divisions' not the radiation channels. Please clarify the difference in wording between the design commitment and ITAs with the acceptance criteria.

RESPONSE:

ITAAC Item 3 in COLA Rev. 2 will be revised as shown in the attached markup.

This change will also be made to COLA Part 2, Tier 1, Section 2.3, Table 2.3.3.

Table 2.3.3 Containment Atmospheric Monitoring System, ITAAC Item 3

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
3.a *Each CAMS division* **of radiation channels** *is powered* **only** *from its respective divisional Class 1E power source* **with electrical independence between divisions**.	3. a. *Tests will be performed on* **each division of** *the CAMS* **radiation channels** *by providing a test signal to only one Class 1E division at a time.*	3. a. *The test signal exists only in the Class 1E division under test in the CAMS.*
3.b *In the CAMS, independence is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E equipment.*	b. *Inspection of the as-built Class 1E* **radiation channels** ~~*divisions in the CAMs*~~ *will be performed*.	b. *In the CAMS, physical separation or electrical isolation exists between Class 1E divisions. Physical separation or electrical isolation exists between these Class 1E divisions and non-Class 1E equipment.*

RAI 14.03.06-3

QUESTION:

RCOLA Part 9, ITAAC Item 3.(c) in Table 3.0-1

The design commitment does not include any reference to the non-class 1E equipment, and the present Acceptance Criterion (AC) only addresses the independence between the Class 1E divisions and non-Class 1E equipment. Why does the acceptance criterion not indicate that electrical independence is achieved between each of the Class 1E divisions, and also between the Class 1E divisions and non-Class 1E equipment?

RESPONSE:

The Design Requirement and Acceptance Criteria for ITAAC Item 3.(c) in COLA Rev.2, Table 3.0-1 will be revised as shown on the attached markup.

Table 3.0-1, Ultimate Heat Sink (UHS), ITAAC Item 3

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
3.(a) Active safety-related SSCs within the UHS shall have three divisions powered by their respective Class 1E divisions.	3.(a) Tests will be performed on the UHS system by providing a test signal to only one Class 1E division at a time.	3.(a) The test signal exists in only the Class 1E division under test in the UHS system.
3.(b) Each division shall be physically separated.	3.(b) Inspections of the as-built UHS mechanical configuration shall be performed.	3.(b) Each mechanical division of the UHS is physically separated from other mechanical divisions of the UHS system by structural and/or fire barriers.
3.(c) Each division shall be electrically independent of the other divisions and independent of non-Class 1E.	3.(c) Inspections of the as-built UHS electrical system components shall be performed.	3.(c) Electrical isolation exists between Class 1E divisions, and between Class 1E divisions and non-Class 1E ~~equipment~~.

RAI 14.03.06-4

QUESTION:

RCOLA Part 9, ITAAC Item 6 in Table 3.0-2

It seems that the power circuits were tested in ITAAC Item 1 in this Table. The intent of this ITAAC is confusing because there is no indication between what circuits independence is necessary. Please clarify between which circuits independence is required.

RESPONSE:

ITAAC Item 1 in this table specifies the redundancy and independence; that is, preferred power and alternate power. Item 6 in this table specifies the independence of power, instrumentation, and control circuits.

The Design Requirement for ITAAC Item 6 in COLA Rev.2, Table 3.0-2 will be revised as shown on the attached markup.

Table 3.0-2 Offsite Power System, ITAAC Item 6

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
6. The offsite transmission power, instrumentation and control circuits for the preferred power are independent from the alternate power.	6. Tests of the as-built offsite power, instrumentation, and control system will be conducted by providing a test signal in only one offsite power circuit/system at a time.	6. A test signal exists in only the circuit under test.

RAI 14.03.07-1

QUESTION:

RCOLA Part 9, ITAAC Item 2.(a) in Table 3.0-1

The Inspections, Tests, and Analysis (ITA) for this ITAAC should include both inspection and analysis because pump head requirements and cooling demands of a system are determined by analysis. Explain why an analysis is not required for this ITAAC? Also explain how the acceptance criterion really addresses the design requirement given that the acceptance criterion states only where the suction is located in the Ultimate Heat Sink (UHS) basin wall for the Reactor Service Water (RSW) pumps and not all the other conditions stated in the design requirement?

RESPONSE:

This ITAAC requires an analysis to demonstrate that the UHS has sufficient capacity to meet the design requirement. ITAAC Item 2 in Table 3.0-1 of Rev 2 of the COLA will be revised to add analysis to the Inspection, Tests and Analyses column as shown in the attached markup. In that markup, the Design Requirements for Items 2(a) and 2(b) have been combined because they both deal with the same UHS capacity requirement. In addition, the Inspections, Test, Analyses and Acceptance Criteria columns have been reordered for Items 2(a) and 2(b) to correspond with each other.

Table 3.0-1 Ultimate Heat Sink (UHS), ITAAC Item 2

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
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 at least 30 days following a design-basis events without makeup water to the UHS. The water level at the end of the 30-day period must still be adequate to provide the required suction head to the RSW pumps when operating at their design flow rate. ~~2.(b) Makeup water to the UHS shall not be required for at least 30 days following a design-basis accident.~~	2.(a) ~~Inspections of the configuration of the UHS will be performed~~. An analysis will be performed which shows that the UHS has sufficient volume and surface area to meet the cooling requirements to permit cooldown and maintain the plant in a safe shutdown condition for at least 30 days following design basis accidents without any makeup water to the UHS. The analysis will also show that there is sufficient water level in the basin at the end of 30 days to provide adequate suction head to the RSW pumps when operating at their design flow rate. 2.(b) ~~An analysis will be performed of the need for makeup water for the UHS~~. Inspections will be performed of the UHS configuration.	2.(a) ~~The RSW pump suction lines are at Elev. 3.35 m MSL at the UHS basin wall.~~ A report exists which concludes that the UHS is capable of supplying the RSW system for normal plant operation and permit safe shutdown and cooldown of the plant and maintain the plant in a safe shutdown condition without makeup water for 30 days following a design basis accident. 2.(b)(i) The minimum surface area and capacity of the UHS above the suction lines are 34,240 square feet and 2,165,500 cubic feet, respectively at the UHS basin low-low level. 2.(b)(ii) ~~A report exists that concludes the UHS is able to perform its safety-related function without makeup water for 30 days following a design basis accident.~~The RSW pump suction lines are at Elev. 3.35 m MSL at the UHS basin wall.

RAI 14.03.07-2

QUESTION:

RCOLA Part 9, ITAAC Item 2.(b) in Table 3.0-1

The Inspection, Tests, and Analysis (ITA) for this ITAAC should include both an inspection and an analysis. Please explain why an inspection is not required to verify that the dimensions of the UHS agree with the analysis.

RESPONSE:

As noted in the response to RAI 14.03.07-1, the Inspections, Test, Analyses and Acceptance Criteria columns for Items 2(a) and 2(b) of Table 3.0-1 have been realigned to correspond to the Design Requirement column. This updated table now shows that an inspection is required to verify that the dimensions of the UHS meet the design requirement. COLA changes are provided in the markups for RAI 14.03.07-1.

RAI 14.03.07-3

QUESTION:

RCOLA Part 9, ITAAC Item 1 in Table 3.0-3

Please explain why the design requirement and Inspections, Tests, and Analysis (ITA) do not address having sufficient flow, storage, and temperature of demineralized water for normal plant operations similar to the acceptance criteria (AC). The first AC appears to have omitted the words 'two-pass series configuration' based on page 9.2-18 in the FSAR. The third AC appears to have omitted the words 'for short durations' based on page 9.2-18 in the FSAR. Please explain why the first and third AC do not have better agreement with what is stated on page 9.2-18 of the FSAR.

RESPONSE:

ITAAC Item 1 in COLA Rev. 2, Table 3.0-3 will be revised to align the Design Requirement and Acceptance Criteria as well as add the two phrases which appear on Page 9.2-18 of the COLA. Attached is the proposed markup of COLA Rev 2, Part 9, Table 3.0-3.

Table 3.0-3 Makeup Water Preparation System (MWP), ITAAC Item 1

Inspections, Tests, Analyses and Acceptance Criteria		
Design Requirement	**Inspections, Tests, Analyses**	**Acceptance Criteria**
1. 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 MWP system will be performed.	~~1. (a) The MWP has two divisions capable of producing at least 90 m^3/h of demineralized water each.~~ ~~1. (b) Storage of demineralized water shall be at least 5320 m3.~~ ~~1. (c) Demineralized water shall be provided at a minimum flow rate of approximately 135 m^3/hr at a temperature between 10°C to 38°C.~~ 1. 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 m^3/h of demineralized water each. (In two-pass series configuration, the divisions are rated at 45 m^3/h each to satisfy the demands for each unit). b. Storage of demineralized water shall be at least 5320 m^3. c. Demineralized water shall be provided at a minimum flow rate of approximately 135 m^3/h per unit at a temperature between 10°C to 38°C for short durations.