

WBN2Public Resource

From: Poole, Justin
Sent: Tuesday, October 19, 2010 5:13 PM
To: Garg, Hukam; Carte, Norbert; Marcus, Barry; Darbali, Samir; Singh, Gursharan
Cc: WBN2HearingFile Resource
Subject: FW: NRC FSAR Chapter 7 Master RAI List Update
Attachments: FSAR 7 1 2 1 9 Setpoint Methodology Revised Final 10-12-2010.docx; 20101015 Open Items List Master TVA Update 10-19.docx; 10-19-10 Chapter 7 RAI status.xlsx

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From: Crouch, William D [\[mailto:wdcrouch@tva.gov\]](mailto:wdcrouch@tva.gov)
Sent: Tuesday, October 19, 2010 5:08 PM
To: Poole, Justin; Wiebe, Joel; Milano, Patrick
Subject: FW: NRC FSAR Chapter 7 Master RAI List Update

William D. (Bill) Crouch
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From: Clark, Mark Steven
Sent: Tuesday, October 19, 2010 1:54 PM
To: Crouch, William D
Cc: Freeman, Edwin E; Hilmes, Steven A; Knuettel, Edward Terry; Smith, Roger Edward; Raley, Thomas R
Subject: NRC FSAR Chapter 7 Master RAI List Update

Bill:

Attached is the updated matrix, revised FSAR Setpoint Methodology section and today's status report for transmittal to the NRC. With the exception of the Westinghouse Eagle 21 Rack 2 issue, we anticipate completing all remaining items tomorrow morning. I anticipate that we will start the October 29 letter review and approval cycle tomorrow afternoon.

Regards,

Steve

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Control Systems
Watts Bar 2 Completion Project
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Hearing Identifier: Watts_Bar_2_Operating_LA_Public
Email Number: 184

Mail Envelope Properties (19D990B45D535548840D1118C451C74D6FD36BC8A7)

Subject: FW: NRC FSAR Chapter 7 Master RAI List Update
Sent Date: 10/19/2010 5:13:08 PM
Received Date: 10/19/2010 5:13:14 PM
From: Poole, Justin

Created By: Justin.Poole@nrc.gov

Recipients:

"WBN2HearingFile Resource" <WBN2HearingFile.Resource@nrc.gov>

Tracking Status: None

"Garg, Hukam" <Hukam.Garg@nrc.gov>

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Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	Size	Date & Time
MESSAGE	1313	10/19/2010 5:13:14 PM
FSAR 7 1 2 1 9 Setpoint Methodology Revised Final 10-12-2010.docx		23229
20101015 Open Items List Master TVA Update 10-19.docx		322704
10-19-10 Chapter 7 RAI status.xlsx	10731	

Options

Priority: Standard

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Reply Requested: No

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Expiration Date:

Recipients Received:

7.1.2.1.9 Trip Setpoints

The reactor protection system (RPS) trip setpoints have been selected to ensure that core damage and loss of integrity of the reactor coolant system are prevented during anticipated operational events. These setpoints were analytically determined in accordance with the methodology described in References 3 and 5. The TVA instrument setpoint methodology is based on ISA standard 67.04 (Reference 3) and is incorporated into TVA technical instructions. The Westinghouse setpoint methodology is described in Reference 5. Both the nominal (trip setpoint) and limiting (allowable value) settings have been incorporated into the Technical Specifications. Nominal settings are more conservative than the limiting setpoints. This allows for measurement and calibration uncertainties and instrument channel drift which may occur between periodic tests without exceeding the limiting setpoints. Trip setpoint values are monitored by periodic performance of surveillance tests in accordance with Technical Specification requirements.

The setpoint calculations include the effects of both measurable and unmeasurable uncertainties to ensure the associated protective actions are performed before analytical limits are exceeded. Incorporating these uncertainties provides assurance that the analytical limit will not be exceeded under accident conditions if the Allowable Value is satisfied under normal conditions.

The square root sum of the squares (SRSS) method is used for combining uncertainty terms to meet the following three criteria: random, independent, and approximately normal distribution. The probability that all of the independent processes would simultaneously be at their maximum value (i.e., + or -) is very small. The SRSS method provides a means to combine individual random uncertainty terms to establish a net random uncertainty term. All other uncertainties that do not meet any of the three criteria are arithmetically summed. Single-sided correction factors are not used in RPS setpoint calculations.

The following describes the methodology used for the RPS setpoint calculations within the scope of TSTF-493 revision 4 as incorporated into the WBN Unit 2 Technical Specifications.

Safety Limit (SL) - A safety limit is specified to protect the integrity of physical barriers that guard against the uncontrolled release of radioactivity. The safety limit for a parameter is typically provided in the plant safety analyses in accordance with 10 CFR 50.36(c).1.ii.A.

Analytical Limit (AL) - The analytical limit represents the parameter value at which a safety action is assumed to be initiated to ensure that the safety limits are not exceeded during either accidents or anticipated operational occurrences.

Nominal Trip Setpoint (NTSP) - The NTSP is the nominal value at which the instrument is set when it is calibrated. Since most instruments cannot be set to an exact value, the instrument is set to the nominal setpoint within an allowed tolerance band defined as Acceptable As Left (AAL).

Operational Limit (OL) - The operational limit is a value which the operating parameter is not expected to exceed during normal operation. The NTSP is set beyond the OL so that spurious trips of the instrument do not occur.

Acceptable As Found Tolerance (AAF) - A tolerance band on either side of the NTSP which defines the limits of acceptable instrument performance, beyond which the channel may be considered degraded and must be evaluated for operability prior to returning it to service. Channels which exceed the AAF will be entered into the Corrective Action Program for further evaluation and trending. The Acceptable As Found tolerance is the SRSS combination of drift, maintenance and test equipment (M&TE) accuracy and readability, calibration accuracy, bistable setting accuracy, and other measurable uncertainties which are present during the surveillance test. Other uncertainties may be included in the AAF if applicable.

Acceptable As Left Tolerance (AAL) - A tolerance band on either side of the NTSP within which an instrument or instrument loop is left after calibration or setpoint verification. The Acceptable As Left tolerance is equal to or less than the SRSS combination of reference accuracy, M&TE accuracy and M&TE readability and other measurable uncertainties which are present during the surveillance test. Other uncertainties may be included in the AAL if applicable.

. The trip setpoint must be adjusted within the as-left tolerance prior to returning the channel to service.

Allowable Value (AV) - The limiting value of the as-found trip setting used during surveillance testing for the portion of the channel being tested, beyond which the channel is inoperable. The AV ensures that sufficient margin exists to the AL to account for unmeasurable uncertainties such as process effects to ensure that the protective action is performed under worst case conditions before the analytical limit is exceeded.

Calculation of the allowable value by the Westinghouse setpoint methodology is described in Reference 5. The TVA methodology for the allowable value calculation is described in TVA technical instructions based on Reference 3. The following discussion applies to a high setpoint with an upper Analytical Limit; the directions would be reversed for a low setpoint with a lower AL:

An upper limit of AV (AVmax) is determined by subtracting the unmeasurable uncertainties from the AL. A maximum NTSP can then be calculated by subtracting the normal measurable uncertainties plus any margin from AVmax. If margin exists between the maximum NTSP and the operational limit, a minimum NTSP can be calculated as the OL plus the normal uncertainties. A lower limit of AV (AVmin) can then be determined by adding the measurable uncertainties to the new NTSP. The actual AV is set within these limits.

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
001			☹ ☺	The Watts Bar Nuclear Plant FSAR red-line for Unit 2 (Agency wide Documents Access and Management	12/15/2009 Presentation Slides		Closed	Closed	ML093230343, Item No. 1	3/12/2010	NNC 11/19/09: The FSAR contains mostly description of
002			☹ ☺	Are there I&C components and systems that have changed to a new or different digital technology	12/15/2009 Presentation Slides		Closed	Closed	ML093230343, Item No. 2	3/12/2010	NNC 11/19/09: The FSAR contains mostly description of
003			☹ ☺	Because a digital I&C platform can be configured and programmed for different applications, the review	12/15/2009 Presentation Slides		Closed	Closed	ML093230343, Item No. 3	3/12/2010	NNC 11/19/09: The FSAR contains mostly description of
004			EICB (Carte)	<p>Please identify the information that will be submitted for each unreviewed digital I&C system and component and the associated docketing schedule.</p>	<p>Responder: Webb 1/13/10 Public Meeting</p> <p>TVA identified a schedule for docketing some Post Accident Monitoring System (PAMS) documentation, and the new setpoint methodology. No other documentation was discussed.</p> <p>Add: By letter dated June 30, 2010, TVA docketed WNA-LI-00058-WBT-P &-NP, "PAMS Licensing Technical Report." WNA-LI-00058-WBT-P Section 4.11 addressed CCF and BTP 7-19.</p> <p>TVA Letter Dated March 12, 2010 (Enclosure 1, Item No. 4 on Page 3 of 15): TVA responded to this request for additional Information</p> <p>Foxboro I/A Segmentation Analysis Calculation DCSSEGMENT, Rev. 0 submitted on TVA letter dated August 11, 2010.</p> <p>Data Storm Testing</p> <p>(a) Foxboro I/A Segmentation Analysis, Calculation DCSSEGMENT, Rev. 0 submitted on TVA letter to the NRC dated August 11, 2010 (Reference).</p> <p>(b) Attachment contains Foxboro proprietary drawings 08F802403-SC-2001 sheets 1 through 6. An affidavit for withholding and non-proprietary versions of the drawings will be submitted no later than _____.</p> <p>(c) Credible Mesh Network Failure Modes</p> <p>Attachment 42 contains the mesh network failure analysis.</p> <p>(d) Refer to the response to item (c) above.</p>		<p>Open</p> <p>Date: 3/15/2010 Responsibility: NRC (All) and TVA (Hilmes)</p> <p>TVA to address the question of how a Foxboro IA common mode or complete failure impacts the plant accident analysis as described in Chapter 15 of the FSAR. (Demonstrate segments are independent and how a common mode or complete failure is prevented by power supply design and segmentation.)</p> <p>NNC 8/19/10: The justification for not performing and D3 analysis contained in the CQ PAMS Licensing Technical Report is not acceptable. TVA to docket a D3 analysis for the CQ PAMS. This will be responded to in Item 64.</p> <p>NNC 8/25/10: The segmentation analysis has been read. Please explain why it is believed that failure will not propagate over the peer-to-peer network.</p> <p>Looking for an architectural description of the network interconnections similar to the ICS overview, identification of credible failure modes caused by the mesh network and what component(s) prevent mesh network failures from disabling the entire system. What prevents a segment failure from propagating across the mesh network and affecting other segments.</p>	<p>Open-NRC Review</p> <p>TVA to docket a D3 analysis for the Common Q PAMS.</p> <p>NNC 8/19/10: TVA segmentation analysis has been received - NRC to review.</p>	ML093230343, Item No. 4	<p>January 13, 2010</p> <p>March 12, 2010</p> <p>June 30, 2010</p> <p>August 11, 2010</p> <p>October 5, 2010</p>	<p>NNC 11/19/09: LIC-110 Rev. 1 Section 6.2.2 states: "Design features and administrative programs that are unique to Unit 2 should then be reviewed in accordance with current staff positions....TVA will supply a description of the changes implemented at Unit 1 but have not been reviewed for Unit 2 by the NRC technical staff...TVA will also provide the applicable portion of the FSAR and the proposed TSs...In addition, the staff should review items that are identical for WBN Units 1 and 2 that have not previously been reviewed and approved by the NRC staff. These items are changes in the design and licensing basis for WBN Unit 1 that TVA has implemented without NRC prior approval under the 10 CFR 50.59 process."</p> <p>NNC 4/15/10: The response addresses many systems and should be read by all EICB reviewers.</p>
005	7.1.3.1		☹ ☺	By letter date February 28, 2008 (Agencywide Documents Access and Management System	Responder: Craig/Webb		Closed	Closed	ML093431118, Item No. 5		
006			☹ ☺	Amendment 95 of the FSAR, Chapter 7.3, shows that change 7.3-1 consists of updating a reference from	By letter dated February 5, 2010: TVA provided the Unit 2 setpoint methodology (WCAP-177044-		Closed	Closed	ML093431118, Item No. 6		NNC: WCAP-12096 Rev. 7 (ML 073460281) is in ADAMS
007	7.1.3.1		☹ ☺	The setpoint methodology has been reviewed and approved by the NRC staff in Section 7.1.3.1 of	TVA Letter Dated March 12, 2010 (Enclosure 1, Item No. 7 on Page 7 of 15): TVA responded to		Closed This item is reviewed in ESAR	Closed	ML093431118, Item No. 7		TVA to provide Rev. 8 of the Unit 1 document (which is the current

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
008	7.3		✓ ☐	There are several staff positions that provide guidance on setpoint methodology (e.g., Reg Guide 1.105, RTP)	TVA Letter Dated March 12, 2010 (Enclosure 1, Item No. 8 on Page 7 of 15): TVA responded to		Closed	Closed	ML093431118, Item No. 8		
009	7.3.2	5.6, 6.3.5	✓ ☐	Change 7.3-2, identified in Watts Bar Nuclear Plant ESAR red-line for Unit 2 (ADAMS Accession Number	TVA Letter Dated March 12, 2010 (Enclosure 1, Item No. 9 on Page 8 of 15): TVA responded to		Closed	Closed	ML093431118, Item No. 9	3/12/10, ML 101680598	
010	7.3	7.3	✓ ☐	The original SER on Watts Bar (NUREG-0847) documents that the scope of the review of ESAR	TVA Letter Dated March 12, 2010 (Enclosure 1, Item No. 10 on Page 8 of 15): TVA responded to		Closed	Closed	ML093431118, Item No. 10	3/12/10, ML 101680598	
011	7.3.2	5.6, 6.3.5	✓ ☐	NUREG-0847 Supplement No. 2 Section 7.3.2 includes an evaluation of a change in containment	TVA Letter Dated March 12, 2010 (Enclosure 1, Item No. 11 on Page 13 of 15): TVA responded		Closed	Closed	ML093431118, Item No. 11	ML101680598, Item 9	
012	7.4	7.4	✓ ☐	The original SER on Watts Bar (NUREG-0847) documents that the scope of the review of ESAR	TVA Letter Dated March 12, 2010 (Enclosure 1, Item No. 12 on Page 13 of 15): TVA responded		Closed	Closed	ML093431118, Item No. 6	ML101680598, Item 9	
013	7.1.3.1		✓ ☐	Chapter 7 and Chapter 16 of Amendment 95 to the ESAR do not include any setpoint values. Please	TVA Letter Dated March 12, 2010 (Enclosure 1, Item No. 13 on Page 14 of 15): TVA responded		Closed	Closed	ML093431118, Item No. 13		TS have been docketed.
014			✓ ☐	Provide the justification for any hardware and software changes that have been made since the previous ILS	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 1		NNC 4/30/10: Related to Eagle 21; therefore Garo is
015			✓ ☐	Verify that the refurbishment of the power range nuclear instrumentation drawers resulted in only like-	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 2		
016			✓ ☐	Identify the precedents in license amendment requests (LARs), if any, for source range monitors or	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 3		
017	7.3.1	7.3.1, 5.5.5	✓ ☐	Identify precedents in LARs, if any, for the solid state protection system. Also, identify any hardware	Date: 4/27/10		Closed	Closed	ML093560019, Item No. 4	ML101230248, Item 4	
018			✓ ☐	Identify any changes made to any instrumentation and control (I&C) system based on prior knowledge of	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 5		
019			✓ ☐	Verify that the containment purge isolation radiation monitor is the same as used in Watts Bar Unit 1, or	Date: 4/27/10		Closed	Closed	ML093560019, Item No. 6		
020			✓ ☐	Provide environmental qualification information pursuant to Section 50.49 of Title 10 of the Code of	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 7		NNC 4/30/10: SRP Section 7.0 states: "The organization
021		7.3	✓ ☐	For the Foxboro Spec 200 platform, identify any changes in hardware from the precedent systems	Date: 5/25/10		Closed The resolution of this item will	Closed	ML093560019, Item No. 8		The resolution of this item will be covered by OI#288
022	7.3.2	5.6, 6.3.5	✓ ☐	Verify the auxiliary feedwater control refurbishment results in a like-for-like replacement, and identify any	Date: 4/27/10		Closed	Closed to open item 285	ML093560019, Item No. 9		
023			✓ ☐	Provide environmental qualification (10 CFR 50.49) information for safety-related control transmitters and	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 10		NNC 4/30/10: SRP Section 7.0 states: "The organization
024			✓ ☐	Provide a schedule by the January 13, 2010, meeting for providing information in accordance with I&C	During the January 13, 2010 meeting, TVA presented a schedule for completing various		Closed	Closed	ML093560019, Item No. 11		NNC 4/30/10: Carte to address response with respect to PAMS
025	7.5.2	7.5.1	✓ ☐	For the containment radiation high radiation monitor, verify that the information provided by TVA is	Date: 4/27/10		Closed	Closed	ML093560019, Item No. 12	ML101230248, Item 12	
026			✓ ☐	Provide environmental qualification (10 CFR 50.49) information for safety-related monitoring transmitters	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 13		NNC 4/30/10: SRP Section 7.0 states: "The organization
027			✓ ☐	For Foxboro I/A provide information regarding safety/non-safety-related interaction, common cause	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 14		
028			✓ ☐	For the turbine control AEH system, verify that the refurbishment results in a like-for-like replacement	Responder: Mark Scansen Date: 4/27/10		Closed	Closed	ML093560019, Item No. 15		
029			✓ ☐	For the rod control system, verify that the refurbishment results in a like-for-like replacement	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 16		
030			✓ ☐	Regarding the refurbishment of I&C equipment, identify any component digital upgrades and, if so,	Responder: Clark		Closed	Closed	ML093560019, Item No. 17		
031			✓ ☐	For the rod position indication system (CERPI), provide information in accordance with ISG 4. Need to	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 18		CERPI is non-safety related. Note: The issue of interlock with
032			✓ ☐	For the process computer, need to consider cyber security issues and emergency response data system	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 19		EICB will no longer consider cyber issues
033			✓ ☐	For the loose parts monitoring system, provide information regarding interactions with safety related	Date: 4/27/10 Responder: TVA		Closed	Closed	ML093560019, Item No. 20		The loose parts monitoring system is not connected to any
034			✓ ☐	2/4/2010	Responder: TVA		Close Awaiting NRC evaluation of	Close			
034.1			☐ ☐ ☐	Chapter 7.1 – Introduction Reactor Coolant System Flow Rate Measurement			Close	Close			
034.2			✓ ☐	Chapter 7.2 - Reactor Trip System Deletion of Neutron Flux Negative Rate Trip			Close	Close			
034.3	7.3	7.3	EICB (Darbail)	Chapter 7.3 – ESFAS Design Basis Analysis Parameters Alternate Method for Use of Condenser Steam Dump			Open	Open-NRC Review			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
034.4	7.5.1.1	7.5.2	M a	Chapter 7.5 - Instrumentation Systems Important to Safety			Closed	Closed	N/A	N/A	Closed
034.5	7.5.1.1	7.5.2.7.6.7	S r C	Chapter 7.6 - All Other Systems Required for Safety Plant Process Computer Replacement			Closed	Closed	N/A	N/A	Closed
034.6			EICB (Singh/Darbali)	Chapter 7.7 Control Systems Alternate Means for Monitoring Control or Shutdown Rod Position Eliminate Pressurizer Backup Heaters on High Level Signal AMSAC Replacement Foxboro I/A WINCISE /Power Distribution Monitoring System (Beacon)			Open	Open-NRC Review			
035			S	2/18/2010	Responder: Clark		Closed	Closed			LIC-110 Section 6.2.2 states: "Design features and
036	7.5.2	7.5.1	C	February 18, 2010	Date: 5/25/10 Responder: Clark		Closed	Closed	ML093560019, Item No. 11		NNC: Unit 2 FSAR Section 7.5.1. "Post Accident Monitoring
037	7.5.1.1	7.5.2	M a	2/18/2010	Responder: Clark Date: 5/25/10		Closed	Closed 09/16/10	N/A	N/A	FSAR Section 7.5, "Instrumentation System
038	7.5.1.1	7.5.2	M a	2/18/2010	Responder: Clark Date: 5/25/10		Closed	Closed	TBD	TBD	The slides presented at the December 15, 2010 meeting
039			C	January 13, 2010	Responder: Clark 5/25/10		Closed	Closed			The equation for the calculation of the estimated average hot leg
040			C	January 13, 2010	Responder: Clark 5/25/10		Closed	Closed			The equation for the calculation of the power fraction on page
041	7.5.2	7.5.1	EICB (Carte)	2/19/2010 Please provide the following Westinghouse documents: (1) WNA-DS-01617-WBT Rev. 1, "PAMS System Requirements Specification" (2) WNA-DS-01667-WBT Rev. 0, "PAMS System Design Specification" (3) WNA-CD-00018-GEN Rev. 3, "CGD for QNX version 4.5g" Please provide the following Westinghouse documents or pointers to where the material was reviewed and approved in the CQ TR or SPM: (4) WNA-PT-00058-GEN Rev. 0, "Testing Process for Common Q Safety systems" (5) WNA-TP-00357-GEN Rev. 4, "Element Software Test Procedure"	Responder: WEC Items (1) and (2) were docketed by TVA letter dated April 8, 2010. Item (3) will be addressed by Revision 2 of the Licensing Technical Report. Due 12/3/10 Item (4) will be addressed by Westinghouse developing a WBN2 Specific Test Plan to compensate for the fact that the NRC disapproved WNA-PT-00058-GEN during the original Common Q review. Due 12/7/10 Item (5) WNA-TP-00357-GEN is superseded by the SPM compliance matrix in the Licensing Technical Report next revision 1 Due 10/22/10		Open The SysRS and SRS incorporate requirements from many other documents by reference. NNC 8/25/10: (3) An earlier version of this report was docketed for the Common Q topical report; therefore, there should be no problem to docket this version. (4) Per ML091560352, the testing process document does not address the test plan requirements of the SPM. Please provide a test plan that implements the requirements of the SPM.	Open-TVA/WEC Due 12/7/10 TVA to docket information identified in ISG6.	ML093560019, Item No. 11		See also Open Item Nos. 226 & 270.
042			C	February 25, 2010: Telecom	Date: 5/25/10 Responder: Clark		Closed	Closed			The drawing provided did not have the identification numbers
043	7.5.2	7.5.1	EICB (Carte)	2/19/2010 The PAMS ISG6 compliance matrix supplied as Enclosure 1 to TVA letter dated February 5, 2010 is a first draft of the information needed. The shortcomings of the first three lines in the matrix are: Line 1: Section 11 of the Common Q topical report did include a commercial grade dedication program, but this program was not approved in the associated SE. Westinghouse stated that this was the program and it	Responder: WEC Date: 5/25/10 The PAMS ISG6 compliance matrix supplied as Enclosure 1 to TVA letter dated February 5, 2010 is a first draft of the information needed. By letter dated April 8, 2010 TVA provided the PAMS Licensing Technical Report provided additional information. Attachment 3 contains the revised Common Q		Open Revised compliance matrix is unacceptable. NNC 8/12/10: It is not quite enough to provide all of the documents requested. There are two possible routes to review that the NRC can undertake: (1) follow ISG6,	Open-NRC Review			NNC 8/25/10: A CQ PAMS ISG6 compliance matrix was docketed on: (1) February, 5 12010, (2) March 12, 2010, & (3) June 18, 2010. The staff has expressed issued with all of these compliance evaluations. The staff is still waiting for a good compliance evaluation.

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				<p>could now be reviewed. The NRC stated that TVA should identified what they believe was previously reviewed and approved.</p> <p>Line 2: TVA stated the D3 analysis was not applicable to PAMS, but provided no justification. The NRC asked for justification since SRP Chapter 7.5 identified SRM to SECV-93-087 Item II.Q as being SRP acceptance criteria for PAMS.</p> <p>Line 3: TVA identified that the Design report for computer integrity was completed as part of the common Q topical report. The NRC noted that this report is applicable for a system in a plant, and the CQ topical report did no specifically address this PAMS system at Watts Bar Unit 2.</p> <p>NRC then concluded that TVA should go through and provide a more complete and thorough compliance matrix.</p>	<p>PAMS ISG-6 Compliance Matrix, dated June 11, 2010, that addresses these items (Reference 13).</p> <p>By letter Dated June 18, 2010 (see Attachment 3) TVA provided a table, "Watts Bar 2 - Common Q PAMS ISG-6 Compliance Matrix."</p> <p>This item will be addressed in the next revision of the Licensing Technical Report Rev. 1 Due 10/22</p>		and (2) follow the CQ SPM. The TVA response that was originally pursued was to follow ISG6, but some of the compliance items for ISG6 were addressed by referencing the SPM. The NRC approved the CQ TR and associated SPM; it may be more appropriate to review the WBN2 PAMS application to for adherence to the SPM that to ISG6. In either path chosen, the applicant should provide documents and a justification for the acceptability of any deviation from the path chosen. For example, it appears that the Westinghouse's CDIs are commercial grade dedication plans, but Westinghouse maintains that they are commercial grade dedication reports; this apparent deviation should be justified or explained.				
044	7.5.2	7.5.1	☞☺	February 25, 2010	Date: 5/25/10 Responder: Clark		Closed	Closed			
045			☞☺	February 25, 2010	Date: 5/25/10 Responder: Clark		Closed	Closed			
046			☞☺	February 25, 2010	Date: 5/25/10 Responder: Clark		Closed	Closed			
047	7.5.2	7.5.1	EICB (Carte)	<p>4/8/2010</p> <p>The PAMS System Requirements Specification (SysRS) references RG 1.97 Rev. 3 where the FSAR References Rev. 2. Please explain.</p>	<p>Responder: WEC/Hilmes Date: 5/25/10</p> <p>The licensing basis for WBN Unit 2 is Regulatory Guide 1.97 Revision 2. The Common Q PAMS system was designed to Regulatory Guide 1.97 Revision 3, which is why the basis for the System Requirements Specification references revision 3. In order to resolve this discrepancy an engineering evaluation of the Common Q PAMS was performed.</p> <p>Attachment 2 contains an engineering evaluation of the Common Q PAMS design against the requirements of Reg. Guide 1.97 Rev. 2. The evaluation concluded that the Common Q PAMS meets all requirements of Reg Guide 1.97 Rev. 2. This evaluation will be added to design criteria WB-DC-30-7, Post Accident Monitoring Instrumentation by October 1, 2010.</p> <p><u>TVA Revised Response:</u></p> <p>The difference in revisions of Reg. Guide 1.97 was not identified during the contract review process. Therefore Westinghouse designed the system to the Common Q standard design which is revision 3. When the design work was</p>		<p>Open</p> <p>TVA provided information by letter dated July 30, 2010 (ML102160349) - See Enclosure 1 Item No. 5.</p> <p>NNC 8/9/10: There are two aspects of this issue. The first aspect has been addressed by the response. The second aspect is: How could Westinghouse Design, and TVA approve a design to the wrong requirement?</p>	<p>Open-TVA/WEC</p> <p>Due 10/22/10</p> <p>Revised response is acceptable.</p> <p>Awaiting Corrective action report</p>			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					assigned to a new engineer, the difference in revisions was not identified as an issue. When the issue was identified by the NRC, it was entered into the TVA Corrective Action Process as WBPER233598 (Attachment 3)						
048	7.5.2	7.5.1	☞☺	April 8, 2010	Date: 5/25/10 Responder: WEC		Closed	Closed			
049	7.5.2	7.5.1	☞☺	4/8/2010	Responder: WEC Date: 5/25/10		Closed	Closed			
050	7.5.2	7.5.1	EICB (Carte)	4/8/2010 How should the "shall" statements outside of the bracketed requirements in Common Q requirements documents be interpreted?	Responder: WEC Date: 5/25/10 These sections are descriptive text and not requirements. The next revision of the Watts Bar Unit 2 PAMS System Requirements Specification will remove "shall" from the wording in those sections. A date for completing the next revision of the System Requirements Specification will be provided no later than August 31, 2010. The System Requirements Specification will be revised by September 30, 2010 and submitted within two of receipt from Westinghouse. Get a date for SysRS revision from Westinghouse and update this item SysDS. Should be 10/22 for all documents confirm with Andy.		Open TVA response is inconsistent (e.g., WNA-DS-01667-WBT Rev. 1 page 1-1, Section 1.3.1 implies that "SysRS Section ###" has requirements. See also SDS4.4.2.1-1 on page 4-32). Is there a requirement on the shall referenced above??	Open-TVA/WEC Due 12/31/10			
051			☞☺	April 15, 2010	Date: 5/25/10 Responder: Craig/Webb		Closed	Closed	NA	NA	Review addressed by another Open Item
052	7.5.2	7.5.1	☞☺	April 19, 2010	Date: 5/25/10 Responder: Slifer		Closed	Closed			
053	7.5.2	7.5.1	☞☺	April 19, 2010	Date: 5/25/10 Responder: Slifer		Closed	Closed			
054	7.5.2	7.5.1	EICB (Singh)	4/19/2010 Please describe all the different environments in which the RM-1000 will be required to operate. Please group these environments into two categories (a) Harsh environment, per 10 CFR 50.49, and (b) Mild Environment.	Responder: Slifer/Clark Date: 5/25/10 The only safety-related application for the RM-1000 is the Containment High Range radiation monitors. The Containment High Range radiation monitors will be installed in the Main Control Room, a mild environment. The detectors will be installed remotely in the containment. For WBN Unit 2, a mild environment is defined as: A defined room or building zone where (1) the temperature, pressure, or relative humidity resulting from the direct effects of a design basis event (DBE) (e.g., temperature rise due to steam release) are no more severe than those which would occur during an abnormal plant operational condition, (2) the temperature will not exceed 130°F due to the indirect effects of a DBE (e.g., increased heat loads from electrical equipment), (3) the event radiation dose is less than or equal to 1 x 104 rads, and (4) the total event plus the 40 year TID (total integrated dose) is less than or equal to 5 x 104 rads. (Reference 3). What is Reference 3?		Open	Open-TVA Due 10/14/10 Identify source of reference 3.			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					TVA Revised Response: Reference 3 is TVA Design Criteria WB-DC-40-54, Environmental Qualification To 10CFR50.49, which provides the definition of mild and harsh environments.						
055	7.5.2	7.5.1	EICB (Singh)	4/19/2010 The "Qualification Test Report Supplement, RM-1000 Upgrades," Document No. 04508905-1SP Rev. A states that the qualification was done in accordance with IEEE 323-1974 and -1983. Please describe and justify all differences in this qualification methodology and that endorsed by Regulatory Guide 1.209. Specifically address EMI and RFI	Responder: Slifer/Clark Date: 5/25/10 The detectors for these loops will be located in a harsh environment (inside containment). The RM-1000 will be located in the main control room, which is a mild environment. The RM-1000 and associated I/F converters have been tested to the requirements present in IEEE Std. 323-1983 and -1974, as well as the System Requirements including EPRI TR 102323 (Sept. 94) in the design basis. Electro-Magnetic-Interference and Radio Frequency Interference (EMI-RFI) testing was performed (the results of the testing are included in the Equipment Qualification Test Report submitted under TVA letter dated March 12, 2010, Reference 4). Since RG 1.209 was not issued until 2007, General Atomics test reports do not reference it. For WBN Unit 2, a harsh environment is defined as: A defined room or building zone where either (1) the temperature, pressure, and relative humidity resulting from the direct effects of a DBE (e.g., temperature rise due to steam release) are more severe than those which would occur during an abnormal plant operational condition, (2) the temperature will exceed 130°F due to the indirect effects of DBE (e.g., increased heat loads from electrical equipment), (3) the event radiation dose is greater than 1 x 10 ⁴ rads, or (4) the total event plus the 40-year TID is greater than 5 x 10 ⁴ rads. (Reference 3) What is Reference 3? TVA Revised Response: Reference 3 is TVA Design Criteria WB-DC-40-54, Environmental Qualification To 10CFR50.49, which provides the definition of mild and harsh environments.		Open	Open-TVA Due 10/14/10 Identify source of reference 3.		10/14/10	
056			☞	April 19, 2010	Date: 5/25/10 Responder: Slifer		Closed	Closed			Sorrento Radiation Monitoring
057	7.5.2	7.5.1	☞	4/19/2010	Responder: TVA I&C Staff Date: 5/25/10		Closed	Closed			
058	7.5.0	7.5	☞	April 19, 2010	Date: 5/25/10 Responder: Slifer		Closed	Closed		ML101940236, Encl 1 Item 13	
059	7.5.2	7.5.1	☞	April 19, 2010	Date: Responder: Slifer		Closed	Closed			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
060	7.5.2	7.5.1	☞☺	April 19, 2010	Date: 5/25/10 Responder: Clark		Closed	Closed	NA	NA	Addressed by Open Item No. 47
061	7.5.2	7.5.1	☞☺	April 19, 2010	Date: 5/25/10 Responder: Clark		Closed	Closed	NA	NA	Addressed by Open Item No. 48
062	7.5.2	7.5.1	☞☺	April 19, 2010	Date: 5/25/10 Responder: Clark		Closed	Closed	NA	NA	Addressed by Open Item No. 49
063	7.5.2	7.5.1	☞☺	April 19, 2010	Date: 5/25/10 Responder: Clark		Closed	Closed	NA	NA	Addressed by Open Item No. 50
064	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the D3 Analysis was April 2, 2010.	Responder: Webb Date: 4/8/2010 The WBN2 Common Q PAMS provides redundant signal processing and indication of two RG-1.97 Type A variables: Core-Exit Temperature (CET) and Subcooled Margin. In the event of a common-cause failure of the Common Q PAMS, instrumentation diverse from Common Q is available for these two variables. Wide Range (WR) Hot Leg Temperature indication is specified as a diverse variable for CET in the Post-Accident Monitoring Design Criteria, WB-DC-30-7 (Attachment). WR Hot Leg Temperature indication from all four hot legs is available on control board indicators and plant computer displays. Temperature and pressure saturation margin calculations are also performed in the plant computer independently of Common Q utilizing different hardware and software. Isolated outputs from the Eagle 21 protection system are provided to the plant computer for four WR Hot Leg Temperature channels and four WR RCS Pressure channels. The temperature channels and two of the pressure channels are the same as those used in the Common Q saturation margin calculations. The plant computer temperature saturation margin is calculated as the difference in the maximum temperature input and the saturation temperature of the minimum pressure input. The temperature saturation margin is displayed as point ID U0987. The plant computer pressure saturation margin is calculated as the difference in the minimum pressure input and the saturation pressure of the maximum temperature input. The pressure saturation margin is displayed as point ID U0984. Reactor Vessel Level Indication (RVLIS) is defined as a Type B1 variable. Redundant indication for this variable is provided by the core exit thermocouples/T _{hot} and reactor coolant system (RCS) pressure. So long as the RCS pressure is greater than the saturation pressure for the temperature indicated by the core exit thermocouples/T _{hot} , there is reasonable assurance that a steam void has not formed in the core and the vessel is full. This is indicated by		Open TVA provided roughly a page of description as to why a D3 analysis is not required. The NRC requires additional information to determine the acceptability of this response. Included in Rev. 1 of the Licensing Technical Report.	Open-NRC Review Due 10/22/10	NA		No question was asked. Open item was opened to track commitment made by applicant.

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					the subcooled margin monitor/plant computer previously discussed.						
065	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the FMEA was August 31, 2010.	Responder: WEC Date: 5/25/10 Attachment 37 contains the proprietary version of the Common Q PAMS FMEA and the affidavit for withholding. A non-proprietary version will be provided at a later date.		Open FMEA provided in 10/5 letter.	Open-NRC Review	NA		No question was asked. Open item was opened to track commitment made by applicant.
066	7.5.2	7.5.1		By letter dated March 12, 2010 TVA stated that the target submittal date for the "Watts Bar 2 PAMS	Responder: WEC Date: 5/25/10		Closed	Closed	NA		No question was asked. Open item was opened to track
067	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the "Commercial Grade Dedication Instructions for AI687, AI688, Upgraded PC node box and flat panels." was September 28, 2010.	Responder: WEC Date: 5/25/10 The following status is from the revised WB2 Common Q PAMS ISG-6 Compliance Matrix submitted in response to Item 43: a. AI687, AI688 – Scheduled for September 28, 2010 b. Upgraded PC node box and flat panel displays – Per Westinghouse letter WBT-D-2024 (Reference 7), these items are available for audit at the Westinghouse Rockville office. c. Power supplies – Per Westinghouse letter WBT-D-2035 (Reference 12), these items are available for audit at the Westinghouse Rockville office. To be addressed during 9/20-9/21 audit		Open This item is addressed in Rev. 2 of the Licensing Technical Report	Open-TVA/WEC Due 12/3/10	NA		No question was asked. Open item was opened to track commitment made by applicant.
068	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the "Summary Report on acceptance of AI687, AI688, Upgraded PC node box, flat panels, and power supplies." was September 28, 2010.	Responder: WEC Date: 5/25/10 The following status is from the revised WB2 Common Q PAMS ISG-6 Compliance Matrix submitted in response to Item 43: a. AI687, AI688 – Scheduled for September 28, 2010 b. Upgraded PC node box – Per Westinghouse letter WBT-D-2024 (Reference 7), this item is available for audit at the Westinghouse Rockville office. c. Flat panel displays – Per Westinghouse letter WBT-D-2024 (Reference 7), this item is available for audit at the Westinghouse Rockville office. d. Power supplies – Per Westinghouse letter WBT-D-2035 (Reference 12), these items are available for audit at the Westinghouse Rockville office. To be addressed during 9/20-9/21 audit		Open This item is addressed in Rev. 2 of the Licensing Technical Report	Open-TVA/WEC Due 12/3/10	NA		No question was asked. Open item was opened to track commitment made by applicant.
069	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the "Watts Bar 2 PAMS Specific FAT Report" was October 2010.	Responder: WEC Date: 5/25/10		Open Awaiting for document to be docketed by TVA.	Open-TVA/WEC Due 2/18/11	NA		No question was asked. Open item was opened to track commitment made by applicant.
070	7.5.2	7.5.1		By letter dated March 12, 2010 TVA stated that the	Responder: WEC Date: 5/25/10		Open	Open-TVA/WEC	NA		No question was asked. Open

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				target submittal date for the "Concept and Definition Phase V&V Report" was March 31, 2010.	<p>Per Westinghouse letter WBT-D-1961, (Reference 8) this document is available for audit at the Westinghouse Rockville office.</p> <p>WNA-VR- 00283-WBT, Rev 0 was submitted on TVA letter to the NRC dated August 20, 2010 (Reference 7).</p> <p>The submitted V&V did not address the Requirements Traceability Matrix and did not summarize anomalies. At the September 15th public meeting, Westinghouse agreed to include the Concept and Definitions Phase Requirements Traceability Matrix (RTM) in the next IV&V report along with partial Design Phase updates to the RTM.</p>		<p>Regulations require that the NRC review be based on docketed material. Awaiting for document to be docketed by TVA.</p> <p>NNC 8/25/10: Requirements Phase SVVR provided by TVA letter dated 8/20/10.</p>	Due 12/21/10			item was opened to track committment made by applicant.
071	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the "Design Phase V&V Report" was July 30, 2010.	Responder: WEC Date: 5/25/10		Open Awaiting for document to be docketed by TVA.	Open-TVA/WEC Due 12/21/10	NA		No question was asked. Open item was opened to track committment made by applicant.
072	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the "Implementation Phase V&V Report" was September 30, 2010.	Responder: WEC Date: 5/25/10		Open Awaiting for document to be docketed by TVA.	Open-TVA/WEC Due 12/21/10	NA		No question was asked. Open item was opened to track committment made by applicant.
073	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the "Integration Phase V&V Report" was October 29, 2010.	Responder: WEC Date: 5/25/10		Open Awaiting for document to be docketed by TVA.	Open-TVA/WEC Due 12/31/10	NA		No question was asked. Open item was opened to track committment made by applicant.
074	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the "Final V&V Report" was November 30, 2010.	Responder: WEC Date: 5/25/10		Open TVA to provide due date.	Open-TVA/WEC Due	NA		No question was asked. Open item was opened to track commitment made by applicant.
075	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the "Watts Bar 2 PAMS Specific FAT Procedure" was September 30, 2010.	Responder: WEC Date: 5/25/10		Open Awaiting for document to be docketed by TVA.	Open-TVA/WEC Due 11/24/20	NA		No question was asked. Open item was opened to track commitment made by applicant.
076	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for the "Watts Bar 2 PAMS	Responder: Clark Date: 5/25/10		Closed	Closed to OI 71 and 41(4)	NA		No question was asked. Open item was opened to track
077	7.5.2	7.5.1	EICB (Carte)	By letter dated March 12, 2010 TVA stated that the target submittal date for seven other documents was	Responder: WEC Date: 5/25/10		Closed	Closed	NA	10/22/10	No question was asked. Open item was opened to track
078			EICB (Carte)	4/26/2010	Responder: Clark Date: 5/25/10		Closed	Closed to OI323			
079			EICB (Carte)	4/26/2010	Responder: Clark Date: 5/25/10		Closed	Closed			
080			EICB (Carte)	4/26/2010	Responder: WEC		Closed	Closed			
081	7.5.2	7.5.1	EICB (Carte)	5/6/2010 The PAMS Licensing Technical Report (WNA-LI-00058-WBT Rev. 0, Dated April 2010), in Section 7, lists codes and standards applicable to the Common Q PAMS. This list contains references to old revisions of several regulatory documents, for example: (1) RG 1.29 - September 1978 vs. March 2007 (2) RG 1.53 - June 1973 vs. November 2003 (a) IEEE 379-1994 vs. -2000 (3) RG 1.75 - September 1975 vs. February 2005 (a) IEEE 384-1992 vs. -1992	<p>Responder: Merten/WEC</p> <p>The codes and standards documents listed in Section 7 of the Common Q PAMS Licensing Technical Report are the documents that the Common Q platform was licensed to when the NRC approved the original topical report and issued the approved SER. The WBN Unit 2 Common Q PAMS is designed in accordance with the approved Common Q topical report and approved SER and the codes and standards on which the SER was based. Since the current</p>		<p>ML101600092 Item No.1: There are three sets of regulatory criteria that relate to a Common Q application (e.g. WBN2 PAMS): (a) Common Q platform components – Common Q TR (b) Application Development Processes – Common Q SPM (c) Application Specific –</p>	<p>Open-TVA/WEC</p> <p>Due 12/31/10</p> <p>TVA to provide requested information.</p>			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				<p>(4) RG 1.100 - June 1988 vs. September 2009 (a) IEEE 344-1987 vs. -2004 (5) RG 1.152 - January 1996 vs. January 2006 (a) IEEE 7-4.33.2-1993 vs. -2003 (6) RG 1.168 - September 1997 vs. February 2004 (a) IEEE 1012-1986 vs. -1998 (b) IEEE 1028-1988 vs. -1997 (7) IEEE 279-1991 vs. 603-1991 (8) IEEE 323-1983 vs. -1974 (RG 1.89 Rev. 1 June 1984 endorses 323-1974) However, LIC-110, "Watts Bar Unit 2 License Application Review," states: "Design features and administrative programs that are unique to Unit 2 should then be reviewed in accordance with the current staff positions." Please identify all differences between the versions referenced and the current staff positions. Please provide a justification for the acceptability PAMS with respect to these differences.</p>	<p>versions referenced are not applicable to WBN Unit 2, there is no basis for a comparison review.</p> <p>Bechtel to develop a matrix and work with Westinghouse to provide justification.</p>		<p>current regulatory criteria The Common Q Topical Report and associated appendices primarily addressed (a) and (b). The Common Q SER states:</p> <p>‘...Appendix 1, “Post Accident Monitoring Systems,” provides the functional requirements and conceptual design approach for upgrading an existing PAMS based on Common Q components (page 58, Section 4.4.1.1, “Description”)...On the basis of the above review, the staff concludes that Appendix 1 does not contain sufficient information to establish the generic acceptability of the proposed PAMS design (page 56, Section 4.4.1.3, “PAMS Evaluation”)...’</p> <p>The NRC did not approve the proposed PAMS design. Section 6, “References,” and Section 7, “Codes and Standards Applicable to the Common Q PAMS,” of the PAMS Licensing Technical Report contain items that are not the current regulatory criteria.</p> <p>Please provide an explanation of how the WBN2 PAMS conforms with the application specific regulatory criteria applicable to the WBN2 PAMS design. For example IEEE Std. 603-1991 Clause 5.6.3, “Independence Between Safety Systems and Other Systems,” and Clause 6.3, “Interaction Between the Sense and Command Features and Other Systems,” contain application specific requirements that must be addressed by a PAMS system.</p> <p>Awaiting TVA Response.</p>				
082	7.5.2	7.5.1	EICB (Carte)	<p>5/6/2010</p> <p>The PAMS Licensing Technical Report (WNA-LI-00058-WBT Rev. 0, Dated April 2010), in Section 2.3,</p>	<p>Responder: WEC 6/18/10</p> <p>Date:</p> <p>These components can be found in the Summary</p>		<p>Open</p> <p>Regulations require that the NRC review be based on</p>	<p>Open-TVA/WEC</p> <p>Revision 1, Due 10/22/10</p>			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				lists hardware/software changes to the Common Q PAMS previously reviewed by the NRC. However the Common Q ISG-6 Compliance Matrix does not contain activities that address qualification of all changes specifically:	Qualification Report Of Hardware Testing For Common Q Applications, 00000-ICE-37764, Rev 3 and TWICE Qualification Status Report, WNAQR-00011-SSP Per Westinghouse letter WBT-D-2024, (Reference __) dated June 9, 2010, these documents are available for audit at the Westinghouse Rockville Office. TVA provided information by letter dated July 30, 2010 (ML102160349) - See Enclosure 1 Item No. 7. Revision 1 of the Licensing Technical Report provides additional detail on the platform specific to WBN2 and references to the evaluation documentation.		docketed material. Awaiting for document to be docketed by TVA. NNC 8/9/10: per telephone conversation on 8/5/10, it is not clear how Westinghouse Commercial Grade Dedication Plans and Reports for Digital I&C. Westinghouse agree to present to the NRC in a public meeting on August 17, 2010, and explanation of how their system addresses regulatory criteria for both commercial grade dedication and equipment qualification. NNC 8/25/10: In the August 17, 2010 public meeting Westinghouse stated that the CDI were the plans. The NRC requested that the plans and associated reports be docketed.				
083	7.5.2	7.5.1	☹	May 6, 2010	Date: 6/18/10 Responder: WEC		Closed	Closed			
084	7.5.2	7.5.1	☹	May 6, 2010	Date: 6/18/10 Responder: Clark		Closed	Closed			
085	7.5.2	7.5.1	EICB (Carte)	5/6/2010 Please provide a detailed description of the PAMS MTP data link to the plant computer. This description should identify all equipment (model & version) and describe the functions that each piece of equipment performs. This description should be of sufficient detail for the NRC to independently evaluate the statements made in WNA-LI-00058-WBT Rev. 0, Section 5.3.	Responder: WEC Is the WEC ISG4 evaluation inadequate? Operation of the MTP as a barrier device. MTP Fails as a barrier device. Describe what prevents a MTP failure from propagating to the AC160? Node loss on the bus? Bus loss? Revise the ISG4 section of the Licensing Technical Report (Rev. 2) to provide a more detailed description of the MTP as a barrier device.		Open A response will be provided by 10/31/10 NNC 8/11/10: Design information should be available now. By letter dated July 30, 2010 (ML102160349) TVA stated that the MTP was connected to a Red Hat Linux Server (see Enclosure 1, Item No. 14 part b.). It is presumed that this server is not safety-related. IEEE 603-1991 Clause 5.6.3(1) states, "Isolation devices used to affect a safety system boundary shall be classified as part of the safety system." Please describe how the MTP serves as the isolation device.	Open-TVA/WEC Due 11/24/10 Hardware is in Rev. 1 of the Licensing Technical Report due 10/22. NNC 8/25/10: Disagree with path forward input by TVA above. An explanation is about the design is needed. FAT test procedure to include data storm testing of the MTP interface due 11/24/10			
086	7.5.2	7.5.1	EICB (Carte)	5/6/2010 The PAMS Licensing Technical Report (WNA-LI-00058-WBT Rev. 0, Dated April 2010), in Section 6, lists references applicable to the Common Q PAMS. This list contains references to old revisions of several	Responder: WEC The regulatory documents listed in the Common Q PAMS Licensing Technical Report are the documents that the Common Q platform was licensed to when the NRC approved the original	Date: 5/24/10	Open TVA to address with item OI 81.	Open-TVA/WEC Due 12/31/10			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				regulatory documents, for example: (1) DI&C-ISG04 - Rev. 0 (ML072540138) vs. Rev. 1 (ML083310185) However, LIC-110, "Watts Bar Unit 2 License Application Review," states: "Design features and administrative programs that are unique to Unit 2 should then be reviewed in accordance with the current staff positions." Please identify all differences between the versions referenced and the current staff positions. Please provide a justification for the acceptability PAMS with respect to these differences.	topical report and issued the approved SER. The WBN Unit 2 Common Q PAMS is designed in accordance with the approved Common Q topical report and approved SER and the regulatory documents on which the SER was based. Since the current versions referenced are not applicable to WBN Unit 2, there is no basis for a comparison review. Rev 0 of the Licensing Technical Report references Rev. 1 of ISG4						
087	7.5.2	7.5.1	☞ ☺	May 6, 2010	Date: 5/24/10 Responder: Slifer		Closed	Closed			
088	7.5.2	7.5.1	☞ ☺	May 6, 2010	Date: 5/24/10 Responder: Slifer		Closed	Closed			
089			☞ ☺	5/6/2010	Responder: Clark		Closed	Closed			NNC: Docketed response states that the applicable ESAR
090			☞ ☺	5/6/2010	Responder: Clark Date: 5/25/10		Closed	Closed			
091	7.4	7.4	☞ ☐ ☺	May 20, 2010	Date: 5/25/10 Responder: Clark		Closed	Closed			
092			DORL (Poole)	5/20/2010 TVA to review Licensee Open Item list and determine which items are proprietary.	Responder: Hilmes Next review due 6/18/10		Open	Open - TVA Continuous review as items are added			
093			☞ ☺	May 20, 2010	Date: 5/25/10 Responder: Knuettel		Closed	Closed			
094			☞ ☺	5/20/2010	Responder: Clark Date: 5/25/10		Closed	Closed			
095	7.8.1, 7.8.4	XX	☞ ☐ ☺	May 20, 2010	Date: Responder:		Closed	Closed			
096	7.7.5	XX	☞ ☐ ☺	5/20/2010	Responder:		Closed	Closed OI 283			
097	7.4.2	7.4	☞ ☐ ☺	May 20, 2010	Date: Responder:		Closed	Closed			
098	7.4.2	7.4	☞ ☐ ☺	May 25, 2010	Date: Responder:		Closed	Closed			
099			☞ ☐ ☺	April 12, 2010	Date: Responder: WEC		Close	Closed			Closed to Item 129
100			☞ ☺	5/20/2010	Responder: WEC		Closed	Closed	NA		No question was asked. Open item was opened to track
101			DORL (Poole)	4/12/2010 The non-proprietary versions of the following RM-1000, Containment High Range Post Accident Radiation Monitor documents will be provided by June 30, 2010. 1. V&V Report 04508006A 2. System Description 04508100-1TM 3. Qualification Reports 04508905-QR, 04508905-1 SP, 04508905-2SP, 04508905-3SP 4. Functional Testing Report 04507007-1TR	Responder: Slifer The documents, and affidavits for withholding for the listed documents were submitted to the NRC on TVA letter to the NRC dated July 15, 2010.		Open	Open-NRC Review Due 10/14/10 Confirm receipt.			TVA is working with the vendor to meet the 6/30 date, however there is the potential this will slip to 7/14.
102			☞ ☺	May 24, 2010	Date: 5/24/10 Responder: WEC		Closed	Closed	NA	NA	Request for schedule not information
103	7.4	7.4	EICB (Darball)	5/27/2010 TVA to submit excerpts of EDCR 52321	Responder: Ayala Date: 5/27/10 Attachment 1 contains the draft Scope and Intent, Unit Difference and Technical Evaluation. The final documents will be submitted within two weeks of when the EDCR is issued. (Ayala to		Open EDCR is scheduled for issue 10/13/10	Open Due 10/31/10			Submittal date is based on current EDCR scheduled issue date.

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					provide the documents)						
104	7.4	7.4	EICB (Darbali)	5/27/2010 TVA to submit excerpts of EDCR 52351	Responder: Merten Date: 5/27/10 Attachment 2 contains the draft Scope and Intent, Unit Difference and Technical Evaluation. The final documents will be submitted within two weeks of when the EDCR is issued. (Merten to provide the documents)		Open EDCR is scheduled for issue 11/30/10	Open Due 10/31/10			Submittal date is based on current EDCR scheduled issue date.
105			☞ ☺	April 29, 2010	Date: Responder: Langlev		Closed	Closed			
106			☞ ☺	May 6, 2010	Date: 5/25/10 Responder: Davies		Closed	Closed			
107			☞ ☺	May 6, 2010	Date: 5/28/10 Responder: Clark		Closed	Closed			
108			☞ ☺	May 6, 2010	Date: 5/25/10 Responder: Webb/Hilmes		Closed	Closed			
109. b			☞ ☺	5/6/2010	Responder: NA		Closed	Closed	NA	NA	Duplicate of another open Item.
109. a	7.8	XX	☞ ☺	5/6/2010	Responder: NA		Closed	Closed			
110			☞ ☺	May 6, 2010	Date: Responder: Clark		Closed	Closed			
111			☞ ☺	May 6, 2010	Date: 5/28/10 Responder: Clark		Closed	Closed	NA	NA	Request to help find, not a request for information.
112			☞ ☺	June 1, 2010	Date: Responder: Clark		Close	Closed			
113			☞ ☺	6/1/2010	Responder: Clark		Closed	Closed			
114	7.2	7.2	EICB (Garg)	6/1/2010 Provide the resolution of the Eagle 21 Rack 5 lockup on update issue.	Responder: WEC The following non-proprietary response was developed from proprietary Westinghouse letter WBT-D-2027 (Reference 11), which provided the resolution of this issue. Westinghouse approved this non-proprietary response via e-mail from A. Drake to M. Clark on June 15, 2010. As documented in WBT-D-1917, "Eagle-21 Rack 5 LCP Diagnostic Failures", (Reference 14), during the factory acceptance testing for the Unit 2 Eagle-21 System, Westinghouse noted an occasional diagnostic failure while performing the parameter update function on Rack 5. Subsequently, TVA provided to Westinghouse for testing and examination, a Loop Control Processor (LCP) board removed by TVA from Unit 1 Rack 5 for life cycle-based preventive maintenance. TVA personnel familiar with Unit 1 had indicated they had not experienced problems when performing parameter updates on Unit 1 Rack 5. Based on Westinghouse examination and testing, a difference in hardware was identified between the Unit 1 LCP shipped to Westinghouse, the new Unit 2 Rack 5 LCP, and an older LCP (older than the Unit 1 LCP) from the Westinghouse Eagle 21 test bed. Installed on the Unit 1 LCP was a different version of an 80287 math coprocessor chip (80287 XL).		Open TVA to provide justification that there are no more surprises.	Open-TVA Due 10/31/10 The write-up shows that there was differences between Unit 1 and 2 but was not identified to NRC in earlier response. Are there any more surprises like this?			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					<p>This version of the 80287 had an improved specification for calculation speed. Use of this chip on both the Unit 2 LCP and the test bed LCP allowed proper performance of the LCP when making parameter updates using the Unit 1/Unit 2 Rack 5 software. Also, use of the slower 80287 on any of the three LCP boards caused failure in parameter update with the Unit 1/Unit 2 Rack 5 software.</p> <p>Through investigation of historical records, Westinghouse found that the 80287 XL chip had been evaluated and used by its former Process Control Division (now Emerson) for this application, but the current Westinghouse documentation had not been updated. This part has now been evaluated, and the Westinghouse documentation and drawing have been revised to allow use of the 80287 XL coprocessor. The 80287 XL coprocessor has been installed on the Unit 2 Rack 5 LCP, and the appropriate factory acceptance testing has been successfully conducted using this updated board. Additionally, the LCP boards in the balance of the Unit 2 racks have been updated with the 80287 XL coprocessor.</p> <p>TVA Revised Response:</p> <p>The Eagle 21 system is installed and the Site Acceptance Test has been completed. To the best of TVA's knowledge there are no unknown issues with the system.</p>						
115			☹	2/25/2010	Responder: Clark		Closed	Closed			
116			☹	6/3/2010	Responder: WEC		Closed	Closed			Letter sent to Westinghouse requesting the basis information
117	7.1	7.1	EICB (Garg)	6/3/2010 Does TVA use a single sided or double sided methodology for as-found and as-left instrument setpoint values. (RIS2006-7)	<p>Responder: Hilmes</p> <p>Reactor Protection System (RPS) (comprised of Reactor Trip (RPS) and Engineered Safety Features Actuation System (ESFAS)) setpoint values are monitored by periodic performance of surveillance tests in accordance with Technical Specification requirements. TVA uses double-sided as-found and as-left tolerances for Reactor Trip and ESFAS trip setpoint surveillance tests as described in FSAR amendment 100.</p> <p>For TSTF-493 parameters WBN Unit 2 uses only double sided correction factors. Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change.</p>		Open	<p>Open-TVA</p> <p>Due 10/31/10</p> <p>TVA needs to address that trip setpoint and allowable value uncertainties are not reduced by the reduction factor for the single sided reduction factor. TVA response not acceptable. TVA need to clarify if single sided methodology has been used in calculating trip</p>			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
								setpoint and allowable value and if it is used then provide justifications.			
118	7.4	7.4	EICB (Darballi)	6/8/2010 TVA to submit excerpts from EDCR 55385	Responder: Merten Attachment 4 contains the draft Scope and Intent, Unit Difference and Technical Evaluation. The final documents will be submitted within two weeks of when the EDCR is issued. (Merten to provide the documents)		Open TVA has agreed to submit the EDCR by 11/15/10.	Open-TVA Due 10/31/10			Submittal date is based on current EDCR scheduled issue date. Note: The RVLIS EDCR has been split into two EDCRs. The first EDCR is 52601 (Open Item 91) The second EDCR is 55385.
119			✓ S	June 10, 2010	Date: Responder:		Closed	Closed			
120			✓ U	5/6/2010	Responder: Hilmes/Merten/Costley		Closed	Closed			
121			✓ U	5/6/2010	Responder: Webb/Webber		Closed	Closed			
122			✓ U	June 14, 2010	Date: Responder: WEC		Closed	Closed			
123	7.7.3	7.4.1, 9.3.4	✓ D S	6/14/2010	Responder:		Closed	Closed	ML101720589, RAIs 21 and 22		
124	7.7.5	XX	✓ D S	6/14/2010	Responder:		Closed	Closed	ML101720589, Item No. 23		
125	7.7.8	7.7.1.12	✓ D S	6/14/2010	Responder:		Closed	Closed	ML101720589, Item No. s 24		
126	7.8	7.8	✓ D S	June 14, 2010	Date: Responder:		Closed	Closed	ML101720589, Item No. 26		
127	7.2	7.2	✓ U	6/16/2010	Responder: WEC/Clark		Closed	Closed			
128	7.2	7.2	EICB (Garg)	6/18/2010 Submit the report on the final resolution of the Eagle 21 Rack 2 RTD input issue	Responder: WEC Drake /TVA Craig		Open	Open-TVA Due 10/31/10			TVA Unit 1 has to address first and Unit 2 will follow Unit 1.
129			DORL (Poole)	6/12/2010 TVA will provide non-proprietary versions of the following Common Q attached proprietary documents and the affidavits for the proprietary documents by June 30, 2010. 1. System Design Specification WNA-DS-01667-WBT, Rev. 1 2. System Requirements Specification WNA-DS-01617-WBT, Rev. 1 3. Software Requirements Specification WNA-SD-00239-WBT, Rev. 1	Responder: WEC The documents, and affidavits for withholding for the listed documents were submitted to the NRC on TVA letter to the NRC dated July 14, 2010.		Open	Open-NRC Review Confirmation by 10/14/108	NA	NA	
130			DORL (Poole)	6/28/2010 TVA committed to revise in Amendment 100: table 4.3-1 to add ID and OD nomenclature to thimble guide tube dimensions .	Responder: Clark FSAR Amendment 100 submitted to the NRC on TVA letter to the NRC dated September 1, 2010 added the ID and OD nomenclature.		Open	Open-NRC Review Confirmation by 10/14/10			
131			DORL (Poole)	6/28/2010 TVA committed to revise in Amendment 100: FSAR 3.10 references to eliminate (LATER) for document numbers.	Responder: Clark FSAR Amendment 100 submitted to the NRC on TVA letter to the NRC dated September 1, 2010 updated the reference document number information.		Open	Open-NRC Review Confirmation by 10/14/10			
132			DORL (Poole)	6/28/2010 TVA committed to revise in Amendment 100: FSAR	Responder: Clark FSAR Amendment 100 submitted to the NRC on		Open	Open-NRC Review			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				3.10 to correct differences between the list on page 3.10-4 and the numbering referenced by the text below the list.	TVA letter to the NRC dated September 1, 2010 corrected the numbering in the text.			Confirmation by 10/14/10			
133			DORL (Poole)	6/28/2010 TVA committed to revise in Amendment 100: FSAR 3.10 to remove references to IEEE 344-1987.	Responder: Clark FSAR Amendment 100 submitted to the NRC on TVA letter to the NRC dated September 1, 2010 removed the reference to IEEE 344-1987.		Open	Open-NRC Review Confirmation by 10/14/10			
134			DORL (Poole)	6/28/2010 TVA committed to revise in Amendment 100: FSAR Table 1.3-3 to reflect modifications to WBN2 .	Responder: Clark FSAR Amendment 100 submitted to the NRC on TVA letter to the NRC dated September 1 2010 updated the table to reflect the WBN2 modifications.		Open	Open-NRC Review Confirmation by 10/14/10			
135	7.3.1	7.3.1	☞ D ☞	6/30/2010	Responder: Clark		Closed	Closed			
136	7.3.2, 7.4	7.4, 5.6	☞ D ☞	6/30/2010	Responder: Clark		Closed	Closed			
137			☞ ☞	Several WBN2 PAMS documents contain a table titled, "Document Traceability & Compliance "	Responder: WEC		Closed	Closed	ML101650255, Item No. 1		
138			EICB (Carte)	By letter dated February 3, 2010, Westinghouse informed TVA that certain PAMS documentation has been completed. (a) The draft ISG6 states that a commercial grade dedication plan should be provided with an application for a Tier 2 review. By letter dated February 5, 2010, TVA stated that the commercial grade dedication plan was included in the Common Q Topical Report Section 11, "Commercial Grade Dedication Program." Section 11 includes a description of the Common Q Commercial Grade Dedication Program, and states: "A detailed review plan is developed for each Common Q hardware or software component that requires commercial grade dedication." Please provide the commercial grade dedication plans for each Common Q hardware or software component that has not been previously reviewed and approved by the NRC. (b) The draft ISG6 states that a commercial grade dedication report should be provided within 12 months of requested approval for a Tier 2 review. (i) Please provide 00000-ICE-37722 Rev. 0, "Commercial Grade Dedication Report for the QNX Operating System for Common Q Applications." (ii) Please provide WNA-CD-00018-GEN Rev. 3, "Commercial Dedication Report for QNX 4.25G for Common Q Applications."	Responder: WEC <u>This item is used to track all Commercial Grade Dedication issues.</u>		Open	Open-TVA/WEC To be addressed by Rev. 2 of the Licensing Technical Report due 12/3. Due 12/3/10	ML101650255, Item No. 2		
139			☞ ☞	The WBN2 PAMS System Requirements Specification (WBN2 PAMS SysRS) contains a table (see page iii)	Responder: WEC		Closed	Closed	ML101650255, Item No. 3		WBN2 PAMS System Requirements Specification
140			☞ ☞	The first requirement in the WBN2 PAMS SysRS (i.e., R2.2-1) states: "The PAMS shall be capable of	Responder: Clark		Open	Open-TVA	ML101650255, Item No. 4		WBN2 PAMS System Requirements Specification

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				operation during normal and abnormal environments and plant operating modes.” The rational for this requirement is that it is necessary to meet Regulatory Guide (RG) 1.97. What document specifies which RG 1.97 variables are implemented in the Common Q based WBN2 PAMS?	WBN Unit 2 FSAR Amendment 100 Section 7.5.1.8			Due 10/22/10			TVA docketed WNA-DS-01617-WBT Rev. 1, “RRAS Watts Bar 2 NSSS Completion Program I&C Projects Post Accident Monitoring System- System Requirements Specification,” dated December 2009.
141			U	Deleted by DORL	Date: Responder:		Closed	Closed	ML101650255, Item No. 5		WBN2 PAMS System Requirements Specification
142			EICB (Carte)	<p>The applicable regulatory guidance for reviewing the WBN2 PAMS SysRS would be IEEE 830 as endorsed by Regulatory Guide 1.172 and BTP 7-14 Section B.3.3.1, Requirements Activities – Software Requirements Specifications.” IEEE 830-1994 Section 4.3.8, “Traceable,” states: “A [requirements specification] is traceable of the origin of each of its requirements is clear...”</p> <p>1. How did TVA ensure the traceability of each requirement in the WBN2 PAMS SysRS.</p> <p>2. Explain the source(s) of the requirements present in the Post Accident Monitoring System’s Software Requirements Specification. To clarify, many documents have requirements that are incorporated by reference into the SRS, but what served to direct the author to include those various documents in the SRS or, if the requirement is based on the System Requirements Specification, what directed the author to include the requirement there?</p> <p>3. Clarify whether the unnumbered paragraphs in the Post Accident Monitoring System’s Software Requirements Specification, such as in the section headings, or are all such sections simply considered to be informative?</p> <p>Does the same apply to documents referenced by the SRS? Such as WCAP-16096-NP-A, Rev. 1A, “Software Program Manual for Common Q Systems,” which is incorporated by reference in requirement R2.3-2 in the SRS.</p> <p>R2.3-2 [The PAMS software shall comply with the requirements and guidelines defined in WCAP-16096-NP-A, “Software Program Manual for Common Q Systems” (reference 5).]</p> <p>If any requirements are expressed in such unnumbered paragraph form instead of individually identified requirements, please list them, describe why they satisfy the fundamental requirement of unambiguity, and describe how they were verified.</p> <p>4. Are there any sources of requirements in parallel with the Post Accident Monitoring System’s Software Requirements Specification? Meaning does the SRS contain, explicitly or by reference,</p>	<p>Responder: WEC</p> <p><u>This item is used to track all traceability issues with the Software Requirements Specification (SRS).</u></p> <p>At the September 15 public meeting in Rockville, the following actions were agreed to. These items address the traceability concerns with the Software Requirements Specification.</p> <p>1. Westinghouse will perform completed a review of the Requirements Traceability Matrix(RT), using the issues identified at the 9/15 public meeting as a guide (documented below) and update the RTM as required.</p> <p>2. The next issue of the IV&V report will include the Requirements phase review of the RTM and a partial review for the Design phase.</p> <p>3. Westinghouse will add a comments column in the Requirements Traceability Matrix (RTM) to address items not in the SRS or SysRS.</p> <p>4. IEEE 830 says you shouldn’t have planning information in the SRS. Westinghouse has agreed to remove this information.</p> <p>5. IEEE 830 says you shouldn’t have process requirements in the SRS. Westinghouse has agreed to remove these requirements.</p> <p>6. Westinghouse will perform and document an evaluation of the SRS to ensure compliance with Reg. Guide 1.172 and justify any deviations.</p> <p>7. 25 issues identified by V&V where some requirements have not been included in the SDS (14) and SRS (11) at the revisions reviewed by V&V. Have these been addressed? Yes. The next revisions of the SDS and SRS address these issues.</p> <p>8. Some hardware requirements are contained in the SRS instead of the System Design Specification (SDS). These will be removed from the SRS and incorporated into the next revision of the SDS.</p>		Open	Open-TVA/WEC To be addressed by Revision of the RTM, SRS, SysRS, and SysDS. Due 12/31/10.	ML101650255, Item No. 6		WBN2 PAMS System Requirements Specification TVA docketed WNA-DS-01617-WBT Rev. 1, “RRAS Watts Bar 2 NSSS Completion Program I&C Projects Post Accident Monitoring System- System Requirements Specification,” dated December 2009.

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				<p>all the requirements that were used in the design phase for the application specific software, or do software design phase activities use requirements found in any other source or document? If so, what are these sources or documents?</p> <p>5. References 12, 27, 29, and 31-44 in the Post Accident Monitoring System's Software Requirements Specification are various types of "...Reusable Software Element...".</p> <p>These references are used in the body of the SRS, for example:"</p> <p>R5.3.14-2 [The Addressable Constants CRC error signal shall be TRUE when any CAL CRC's respective ERROR terminal = TRUE (WNA-DS-00315-GEN, "Reusable Software Element Document CRC for Calibration Data" [Reference 12]).]</p> <p>They are also included via tables such as found in requirement R7.1.2-1</p> <p>[The Watts Bar 2 PAMS shall use the application-specific type circuits and custom PC elements listed in Table 7.1-1.]</p> <p>Do the referenced reusable software element documents include requirements not explicitly stated in the SRS? If so what is their origin?</p>	<p>9. RTM item R4.2-2 protection class software set to 0. Needs to be fixed internally write CAPs to revise the application restrictions document on AC160.</p> <p>10. Westinghouse to improve the traceability of the tests that are performed with the function enable (FE) switch in the "ENABLE" position.</p> <p>11. Westinghouse to revise documents to be consistent with referring to the FE switch in the "ENABLE" position</p> <p>12. The flow of information is from the SysRS to the SDS (hardware) and SRS (software). Describe how the documents are used. Describe in 1.1 of the SysRS. Need a good write up of how the process works.</p> <p>13. Westinghouse and TVA will develop a revised schedule for document submittals and provide it to the NRC no later than 9/30/10</p> <p>14. TVA will update the Procurement Requisition Resolution Matrix and submit it to show how the Common Q PAMS design meets the contract requirements.</p> <p>15. Westinghouse to add the Software Design Descriptions to the RTM</p> <p>16. Westinghouse to clarify how requirements or documents are incorporated by reference into the Common Q PAMS requirements.</p> <p>17. Westinghouse to review the use of "shall" outside of numbered paragraphs in requirements documents to ensure that all requirements are captured and clearly identified.</p> <p>18. Westinghouse to resolve the following questions concerning SDDs</p> <p>a. Is the SDD a standalone document or will it incorporate the generic SDD by reference?</p> <p>b. What are the SDDs?</p> <p>c. PAMS is a delta document so how do we capture all the generic requirements for traceability.</p> <p>For Reusable Software Elements, Westinghouse to describe as qualified libraries by following the SPM and qualified using the Software Elements Test procedure under Appendix B program. Provide a summary of RSEDs generic WCAP.</p>						

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					Westinghouse to determine if the WCAP was docketed under the AP1000 RSED concept is not in the SPM. WCAP-15927 AP-1000 does not discuss RCEDs. WCAP process was acceptable. RSEDs are listed in the SDD References.						
143			EICB (Carte)	<p>The WBN2 PAMS Software Requirements Specification (WBN2 PAMS SRS – ML101050202) contains a table (see page iii) titled, “Document Traceability & Compliance,” which states that the WBN2 PAMS SRS was created to support the three documents identified (one of which is the WBN2 PAMS SysRS). Section 1.1, “Overview,” of the WBN2 PAMS SRS states: “This document describes requirements for the major software components ...”</p> <p>(a) Please list and describe each of the “major software components”. Please include a description of any NRC review for each of these components.</p> <p>(b) Please list and describe each of the other software components. Please include a description of any NRC review for each of these components.</p> <p>(c) What other documents contain the requirements for the other software components?</p> <p>The WBN2 PAMS System Design Specification (WBN2 PAMS SDS) contains a table (see page iii) titled, “Document Traceability & Compliance,” which states that the WBN2 PAMS SysRS was created to support the WBN2 PAMS SysRS. Section 1.1, “Purpose,” of the WBN2 PAMS SDS states: “The purpose of this document is to define the hardware design requirements ...”</p> <p>(c) Do the WBN2 PAMS SRS and SDS, together, implement all of the requirements in the WBN2 PAMS SysRS?</p> <p>(d) Please briefly describe all of the documents that implement the WBN2 PAMS SysRS.</p>	<p>Responder: WEC</p> <p>Addressed in the 9/15 public meeting and 9/20 - 9/21 audit. A detailed explanation will be provided.</p>		Open	Open-TVA/WEC To be addressed by Revision of the RTM, SRS, SysRS, and SysDS. Due 12/31/10.	ML101650255, Item No. 7		WBN2 PAMS System Requirements Specification TVA docketed WNA-DS-01617-WBT Rev. 1, “RRAS Watts Bar 2 NSSS Completion Program I&C Projects Post Accident Monitoring System- System Requirements Specification,” dated December 2009.
144			EICB (Carte)	<p>The WBN2 PAMS Software Requirements Specification (WBN2 PAMS SRS) contains a table (see page iii) titled, “Document Traceability & Compliance,” which states that the WBN2 PAMS SRS was created to support the three documents identified (two of these documents have been provided on the docket).</p> <p>(a) Please describe the third document (i.e., NABU-DP-00014-GEN Revision 2, “Design Process for Common Q Safety Systems”).</p> <p>(b) Please describe the flow of information between these three documents.</p> <p>(c) Does the PAMS SRS implement the requirements in these three documents?</p>	<p>Responder: WEC</p> <p>(a) The purpose of NABU-DP-00014-GEN document is to define the process for system level design, software design and implementation, and hardware design and implementation for Common Q safety system development. This document supplements the Common Q SPM, WCAP-16096-NP-A. The scope of NABU-DP-00014-GEN includes the design and implementation processes for the application development. For a fuller description of the design process described in NABU-DP-00014-GEN please refer to the Design Process for AP1000 Common Q Safety Systems, WCAP-15927 on the AP1000 docket. Since this is a Westinghouse process document that is not specifically referenced in the SRS, it will be removed in the next revision of the</p>		Open NRC Review and WEC to complete response. b-d to be addressed at public meeting and audit. Will require information to be docketed.	Open-NRC Review Responses to items a and e provided. Need response to b-d.	ML101650255, Item No. 8		WBN2 PAMS Software Requirements Specification By letter dated April 8, 2010 (ML10101050203), TVA docketed WNA-SD-00239-WBT, Revision 1, ““RRAS Watts Bar 2 NSSS Completion Program I&C Projects, Software Requirements Specification for the Post Accident Monitoring System,” dated February 2010 (ML101050202).

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				<p>(d) Please describe if and how these three documents are used in the development of the PAMS Software Design Description.</p> <p>(e) Do the WBN2 V&V activities include verification that the requirements of these three documents have been incorporated into the WBN2 PAMS SRS.</p>	<p>document.</p> <p>(b) – Closed to items 142 and 145</p> <p>(c) – Closed 142</p> <p>(d) – Closed to Item 142</p> <p>(e) WBN2 PAMS Software Requirements Specification (WNA-SD-00239-WBT, Rev. 1) refers to Document Traceability & Compliance table on page iii. This table has three entries; Design Process for Common Q Safety Systems (NABU-DP-00014-GEN, Rev. 2), RRAS Watts Bar 2 NSSS Completion Program I&C Projects Post Accident Monitoring System – System Requirements Specification (WNA-DS-01617-WBT, Rev. 1), and RRAS Watts Bar 2 NSSS Completion Program I&C Projects Post Accident Monitoring System – System Design Specification (WNA-DS-01667-WBT, Rev. 1).</p> <p>IV&V performed a Requirements Traceability Assessment during which it reviewed Software Requirements Specification (WBN2 PAMS SRS, WNA-SD-00239-WBT, Rev. 1) against System Requirements Specification (WNA-DS-01617-WBT, Rev. 1) and System Design Specification (WNA-DS-01667-WBT, Rev. 1). Requirements within Software Requirements Specification that are referring to NABU-DP-00014-GEN, Rev 2, Design Process for Common Q Safety Systems, have also been reviewed for traceability and compliance. During IV&V's RTA effort the anomaly reports V&V-769 and V&V- 770 have been initiated and reported in the IV&V Phase Summary Report for the System Definition Phase, WNA-VR-00283-WBT, Rev. 0.</p> <p>IV&V has verified that the requirements in SRS are derived from the specified documents listed in the Document Traceability and Compliance Table of WBN2 PAMS SRS.</p>				ML101650255, Item No. 6		
145			EICB (Carte)	<p>The WBN2 PAMS System Design Specification (WBN2 PAMS SDS) contains a table (see page iii) titled, "Document Traceability & Compliance," which states that the WBN2 PAMS SDS was created to support the WBN2 PAMS SysRS.</p> <p>(a) Does the WBN2 PAMS SDS implement all of the hardware requirements in the WBN2 PAMS SysRS?</p> <p>(b) Please briefly describe all of the documents that implement the hardware requirements of the WBN2 PAMS SysRS.</p>	<p>Responder: WEC</p> <p><u>This item is used to track all traceability issues with the System Design Specification (SDS).</u></p> <p><u>At the September 15 public meeting in Rockville, the following actions were agreed to. These items partially address the traceability concerns with the System Design Specification. This item will be updated with the results of the September 20 and 21 Commercial Grade Dedication and SDS RTM audit.</u></p> <p>1. Westinghouse will perform completed a</p>		Open	Open-TVA/WEC	ML101650255, Item No. 9		<p>WBN2 PAMS System Design Specification</p> <p>TVA docketed WNA-DS-01667-WBT Rev. 1, "RRAS Watts Bar 2 NSSS Completion Program I&C Projects Post Accident Monitoring System- System Design Specification," dated December 2009.</p>

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					<p>review of the Requirements Traceability Matrix(RT), using the issues identified at the 9/15 public meeting as a guide (documented below) and update the RTM as required.</p> <p>2. Some hardware requirements are contained in the SRS instead of the System Design Specification (SDS). These will be removed from the SRS and incorporated into the next revision of the SDS.</p> <p>3. 25 issues identified by V&V where some requirements have not been included in the SDS (14) and SRS (11) at the revisions reviewed by V&V. Have these been addressed? Yes. The next revisions of the SDS and SRS address these issues.</p> <p>4. TVA will update the Procurement Requisition Resolution Matrix and submit it to show how the Common Q PAMS design meets the contract requirements.</p> <p>5. The next issue of the IV&V report will include the Requirements phase review of the RTM and a partial review for the Design phase.</p> <p>6. Westinghouse to provide the generic AC160 and flat panel specifications.</p> <p>7. Westinghouse and TVA to develop a schedule of licensing document submittals that can be met by the project team.</p> <p>8. The flow of information is from the SysRS to the SDS (hardware) and SRS (software). Describe how the documents are used. Describe in 1.1 of the SysRS. Need a good write up of how the process works.</p>						
146			☞☺	6/17/2010	Responder:		Closed	Closed	ML101650255, Item No. 10		PAMS System Requirements Specifications
147			☞☺	6/17/2010	Responder:		Closed	Closed	ML101650255, Item No. 11		PAMS System Requirements Specifications
148			☞☺	6/17/2010	Responder:		Closed	Closed	ML101650255, Item No. 12		PAMS System Requirements Specifications
149	7.2	7.2	☞☺	FSAR Section 7.1.1.2(2), Overtemperature delta T and Overpressure delta T equations have been simplified	Responder: Tindell		Close	Close	ML101720589, Item No. 1		
150	7.2	7.2	☞☺	Many of the changes were based on the Westinghouse document N3-99-4003. Provide this	Responder: Clark		Close	Close	ML101720589, Item No. 2		
151	7.2	7.2	☞☺	Provide the EDCR 52378 and 54504 which discusses the basis for many changes to this FSAR section	Responder: Clark		Close	Close	ML101720589, Item No. 3		
152	7.2	7.2	EICB (Garg)	Deleted portion of FSAR section 7.2.3.3.4 and moved to FSAR section 7.2.1.1.5. However, the FSAR section 7.2.1.1.5 does not include the discussion of ambient temperature and also on the calibration of the sealed reference leg system. No justification was provided for deleting this discussion. Please explain the bases for deletion of this information.	<p>Responder: Merten/Clark</p> <p>The text was revised to match the Unit 1 UFSAR. The Unit 1 text was modified in Amendment 1 by FSAR Change Package 1553 S00 which is contained in Attachment 30. The basis for the change in the change package is:</p>		Open	<p>Open-TVA</p> <p>Due 10/22/10</p> <p>TVA to confirm if this description is the same as for Unit 1. If it is</p>	ML101720589, Item No. 4		

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					<p>16 The update to Section 7.2.1.1.5 is taken from text in Section 7.2.2.3.4 with clarifications and editorial changes. The relocated discussion of the pressurizer water level instrumentation is more appropriately included in this section than Section 7.2.2.3.4, which deals with control and protection system interaction. The changes to 7.2.1.1.5 are based on a general description of the Westinghouse pressurizer level design, channel independence, and actual installation attributes found on TVA physical drawings. Also, the hydrogen gas entrainment issue documented in NRC Information Bulletin No. 92-54, Level Instrumentation Inaccuracies Caused by Rapid Depressurization, is retained and clarified. Similar clarification is made to Reactor Protection System Description N3-9g.4003 Section 3.1.1.2(d). The original text in 7.2.2.3.4 provides some information that is too detailed and is not pertinent to the subject of discussion. It also includes a statement that the error effect on the level measurement during a blowdown accident would be about one inch. The basis for this value is not known; however, the worst case reference leg loss of fill error due to a rapid RCS depressurization event is no more than 12 inches elevation head. This value is based on the relative elevation difference between the condensing chamber and the reference leg sensor bellows. The Westinghouse Owners Group response to this issue is found in RIMS # L44930216800. The channel error value discrepancy is documented in WBP980417. The remaining text in 7.2.2.3.4 is revised to clarify the control and protection system interaction discussion.</p> <p><u>TVA Revised Response:</u></p> <p>This change was incorporated in the Unit 1 UFSAR in Amendment 1.</p>			same as Unit 1 then why this was shown as change in redline version of FSAR Amendment 96.			
153	7.2	7.2	EICB (Garg)	FSAR section 7.2.1.1.7 added the reference to FSAR section 10.4.4.3 for exception to P-12. However, FSAR section 10.4.4.3 states bypass condition is not displayed and it is not automatically removed when conditions for bypass are no longer met. Provide the basis for this.	<p>Responder: Craig/Webb</p> <p>EDC E50952-A added an alternate method of RCS cooldown using additional steam dump valves after entering Mode 4, by disabling the P-12 Interlock. Operators use additional condenser dump valves to aid in maintaining a cooldown rate closer to the administrative limit established by operating procedure.</p> <p>Refer to Unit 1 UFSAR Amendment 3 Change Package 1676 S00 (Attachment 6) for the safety evaluation and basis for this change.</p> <p>The 50.59 for the change is included in the Change Package.</p> <p>The process is controlled by the procedures used</p>		Open	<p>Open-TVA</p> <p>Due 10/22/10</p> <p>TVA will send 50.59.</p> <p>TVA to provide date when information will be docketed. TVA did not address why bypass condition is not displayed.</p> <p>NRC Review 10/21/10</p>	ML101720589, Item No. 5		

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					to shutdown and then restart the plant. These procedures install the bypass and then ensure that it is removed prior to starting the plant. The shutdown procedure GO-6 uses Appendix F to bypass the P-12 interlock. One of the steps in GO-6 Appendix F says "PLACE Caution Order on 1-HS-1-103A, 1-HS-1-103B, AND 1-PIC-1-33 indicating that P-12 interlock is disabled". This provides indication to the operators that the P-12 interlock is bypassed.						
154	7.2	7.2	EICB (Garg)	FSAR section 7.2.1.1.10, setpoints: NRC staff has issued RIS 2006-17 to provide guidance to the industry regarding the instrument setpoint methodology which complies with 10 CFR 50.36 requirements. Provide the information on how the WBN2 setpoint methodology meets the guidance of RIS 2006-17 and include this discussion in this section. Also, by letter dated May 13, 2010, TVA provided Rev. 7 of EEB-TI-28 to the staff. The staff noted that section 4.3.3.6 of EEB-TI-28 discusses the correction for setpoints with a single side of interest. It should be noted that the staff has not approved this aspect of setpoint methodology for Unit 1. The staff finds this reduction in uncertainties is not justified unless it can be demonstrated that the 95/95 criteria is met. Therefore, either remove this reduction factor for single sided uncertainties or justify how you meet the 95/95 criteria given in RG 1.105.	<p>Responder: Craig/Webb</p> <p>(Q1) Refer to the response to letter item 13, RAI Matrix Item 51.</p> <p>(Q2) EEB-TI-28's single sided methodology conforms with WBN's design basis commitment to ensure that 95% of the analyzed population is covered by the calculated tolerance limits as defined in NRC Reg Guide 1.105, Revision 2, 1986 that was in affect during WBN Unit 1 licensing. The single sided methodology is not used for any TSTF-493 setpoints that use TI-28 methodology.</p> <p><u>TVA Revised Response:</u></p> <p>(Q1) WBN 2 implementation of TSTF-493, Rev. 4, Option A includes addition of a discussion of the WBN setpoint methodology in FSAR section 7.1.2.1.9.</p> <p>(Q2) EEB-TI-28's single-sided methodology conforms to WBN's design basis commitment to ensure that 95% of the analyzed population is covered by the calculated tolerance limits as defined in NRC Reg Guide 1.105, Revision 2, 1986, which was in effect during WBN Unit 1 licensing. Single-sided multipliers are not used for any TSTF-493 setpoints.</p> <p>There are some areas where a 95% confidence level could not be achieved. Some examples would be harsh environment instrumentation where only 2 or 3 devices were tested in the 10CFR50.49 program. In these situations, the Confidence is referred to as "high."</p>		Open	Open-TVA Due 10/31/10 FSAR AMD 100. Since all the setpoint and allowable value for Unit 2 is calculated and added to TS, TVA needs to address the latest criteria and that include 95/95 criteria. Why the last sentence has been modified by adding TI-28. It was NRC's understanding that all setpoints have to meet TI-28	ML101720589, Item No. 6		
155	7.2	7.2	SG	Summary of FSAR change document section 7.2 states that sections 7.2.1.1.9 and 7.2.2.2(4) are	Date: Responder: Stockton		Closed	Closed	ML101720589, Item No. 7		
156	7.2	7.2	EICB (Garg)	FSAR section 7.2.2.1.1 states that dashed lines in Figure 15.1-1.....designed to prevent exceeding 121% of power.....The value of 121% is changed from 118%. The justification for this change states that this was done to bring the text of this section in agreement with section 4.3.2.2.5, 4.4.2.2.6 and table 4.1-1. However, Table 4.1-1 and section 4.3.2.2.5 still	<p>Responder: WEC</p> <p>Per Westinghouse letter WBT-D-2340, TENNESSEE VALLEY AUTHORITY WATTS BAR NUCLEAR PLANT UNIT 2 FSAR Markups Units I and 2 118% vs. 121 % and Correction to RAI Response SNPB 4.3.2-7, (Reference 17) the</p>		Open	Open-NRC Review TVA to Docket FSAR Amendment 101.	ML101720589, Item No. 8		Response on hold pending Westinghouse review.

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				show this value as 118%. Justify the change.	118% value should be 121%. Depending on the use in the FSAR either 118% or 121% are the correct values. As a result of the question, Westinghouse reviewed all locations where either 118% or 121% are used and the context of use and provided a FSAR markup to reflect the correct value at the specific location. These changes will be incorporated in a future FSAR amendment.						
157	7.2	7.2	EICB (Garg)	FSAR section 7.2.2.1.1, fifth paragraph was deleted except for the last sentence. The last sentence states that, "The P-8 interlock acts essentially as a high nuclear power reactor trip when operating in this condition." This sentence is confusing because the condition is not defined. Please clarify this discrepancy.	Responder: Tindell The condition is defined in the preceding discussion as operating with a reactor coolant pump out of service and core power less than 25%.		Open Response Acceptable	Open-NRC Review	ML101720589, Item No. 9		
158	7.2	7.2	EICB (Garg)	FSAR section 7.2.2.1.1, paragraph six was changed to state that the design meets the requirements of	Responder: Tindell		Closed	Closed	ML101720589, Item No. 10		
159	7.2	7.2	EICB (Garg)	FSAR section 7.2.2.1.2 discusses reactor coolant flow measurement by elbow taps. However, it further states that for Unit 2, precision calorimetric flow measurement methodology will be used. If elbow taps are not used for Unit 2, then why does this section discuss this methodology? It is the staff's understanding that TVA plans to use elbow taps methodology in the future for Unit 2. Please revise this section to describe the current plant design/methodology.	Responder: Craig For the purposes of measuring reactor coolant flow for Reactor Protection functions, elbow taps are used for both Unit 1 and 2. The discussion and equation are valid for establishing the nominal full power flow which is used to establish the Reactor Protection System low flow trip setpoint. However the method used to verify reactor coolant flow, as required by the Technical Specifications, is not the same. Unit 1 uses a simplified methodology based on elbow tap ΔP measurements correlated with precision calorimetric data over several cycles of operation as described in Reference 17, WCAP-16067, Rev 0, RCS Flow Measurement Using Elbow Tap Methodology at Watts Bar Unit 1. The plan is for Unit 2 to transition to this method after sufficient data is obtained. Pending this transaction, 7.2.2.1.2 will be revised as follows: From: "Nominal full power flow is established at the beginning of each fuel cycle by either elbow tap methodology or, performance of the RCS calorimetric flow measurement, (For Unit 1 elbow tap methodology is implemented for RCS flow measurement (Reference [17]) and Unit 2 may implement elbow tap methodology at a future date) the results of which are used to normalize the RCS flow indicators. This provides a reference point for the low flow reactor trip setpoint, and also provides a relatively simple method for periodic verification of the thermal design flow assumed in the safety analysis, as required by the Technical Specifications. Accuracy and repeatability of the flow measurement instrumentation are considered in establishment of the low flow setpoint and the minimum required flow and are adequate for these functions. This is for Unit 1 only. For Unit 2,		Open Response Acceptable	Open-NRC Review Due 10/31	ML101720589, Item No. 11		

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					the precision calorimetric flow measurement methodology will be used.” To: “Nominal full power flow is established at the beginning of each fuel cycle by either elbow tap methodology or, performance of the RCS calorimetric flow measurement. Unit 1 utilizes elbow tap methodology Reference [17]. Unit 2 utilizes the RCS calorimetric flow measurement. The results are used to normalize the RCS flow indicators and provide a reference point for the low flow reactor trip setpoint.”						
160	7.2	7.2	EICB (Garg)	FSAR section 7.2.2.2(7) deleted text which has references 12 and 14. These references are not included in the revised text. Provide the basis for the deletion of these references. Also, the revised text states that typically this requirement is satisfied by utilizing 2/4 logic for the trip function or by providing a diverse trip. Provide any exception to this and their basis for acceptability.	Responder: Tindell The text was revised to match the Unit 1 UFSAR. The Unit 1 text was modified in Amendment 1 by FSAR Change Package 1553 S00 which is contained in Attachment 30. The basis for the change in the change package is: 23. (page 7.2-24): Portions of the discussion of control and protection system interaction are revised to clarify the requirement. The discussion of how the SG low-low water level protective function and the control system Median Signal Selector satisfy this requirement is deleted since it is redundant to the information provided in Section 7.2.2.3.5. Reactor Protection System Description N3-99-4003 is also revised to move and clarify the discussion of the requirements for control and protection system Interaction from Section 3.1.1.2 to Section 2.2.11, where the Issue is also discussed.		Open	Open-NRC Review 10/21	ML101720589, Item No. 12		
161	7.2	7.2	☞ ☪	FSAR section 7.2.2.3 states that changes to the control function description in this section are expected	Responder: Clark		Closed	Closed	ML101720589, Item No. 13		
162	7.2	7.2	☞ ☪	FSAR section 7.2.2.2(14) states that bypass of a protection channel during testing is indicated by an	Responder: Tindell		Closed	Closed	ML101720589, Item No. 14		
163	7.2	7.2	☞ ☪	Deleted by DORL	Date: Responder:		Closed	Closed	ML101720589, Item No. 15		
164	7.2 7.5.1	7.2	☞ ☪	FSAR section 7.2.2.2(20) has been revised to include the plant computer as a means to provide information	Responder: Perkins		Closed	Closed	ML101720589, Item No. 16		Item No. 8 is being drafted
165	7.2	7.2	☞ ☪	FSAR section 7.2.2.3.2, last paragraph of this section has been deleted. The basis for this deletion is that	Responder: Clark		Closed	Closed	ML101720589, Item No. 17		
166	7.2	7.2	☞ ☪	Changes to FSAR section 7.2.2.2(20) are justified based on the statement that the integrated computer	Responder: Clark		Closed	Closed	ML101720589, Item No. 18		
167	7.2	7.2	EICB (Garg)	FSAR section 7.2.2.4, provide an analysis or reference to chapter 15 analysis which demonstrate that failure of rod stop during a rod withdrawal event will not affect the safety limit.	Responder: Clark Continuous rod withdrawal events are analyzed in FSAR sections 15.2.1 and 15.2.2. While the rod stops a mentioned, they are not credited in the analysis.		Open	Open-NRC Review 10/21	ML101720589, Item No. 19		
168	7.2	7.2	EICB (Garg)	FSAR table 7.2-4, item 9 deleted loss of offsite power to station auxiliaries (station blackout) based on the fact that station blackout is not listed in AAPC events. Explain what are AAPC events and how it justifies deleting this accident from the list.	Responder: Clark This change is in accordance with the Unit 1 UFSAR. The change was made by FSAR Change Package 1553 S00 (Attachment 30). The justification for the change is: “38 (Table 7.2-4): This table lists the reactor trips		Open	Open - NRC Review 10/21	ML101720589, Item No. 20		

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					and the various accident analyses for which each trip could provide protection. The intent of the table is to demonstrate the diversity of and comprehensive protection provided by the reactor trip system against various postulated events and to correlate the trip functions with the analyses in which they may be utilized, either as a primary or secondary protective function. Chapter 15, along with the Accident Analysis Parameters Checklist, WB-OC-40-70, provides the accident analysis discussion and identifies the protection system functions which provide accident mitigation. The additions and deletions to the table are made for consistency with the safety analyses of record as reflected in the design and licensing basis and do not represent analysis changes or protection system changes. Therefore, they are considered to be non-significant as discussed at the beginning of this section. Neutron Monitoring System Description N3-85-4003 Table 2 is also revised for consistency with WB-DC-40-70."						
169			☞ ☺	6/18/2010	Responder: Clark		Closed	Closed			
170			☞ ☺	6/17/2010	Responder: Clark		Closed	Closed			
171	7.2	7.2	EICB (Garg)	6/17/2010 An external unidirectional communications interface was installed between the Eagle 21 test subsystem and the plant process computer. TVA should confirm that testing has demonstrated that two way communication is impossible with the described configuration. (Open Item # 3 of Eagle 21 audit)	Responder: Craig The external Eagle 21 unidirectional communications interface will be tested prior to WBN Unit 2 fuel load		Open	Open - TVA Response 10/20			
172			☞ ☺	6/17/2010	Responder: Craig		Closed	Closed			
173	7.1	7.1	☞ ☺	6/17/2010	Responder: Craig/Webb/Powers		Closed	Closed to OI 154			
174			☞ ☺	6/28/2010	Responder: Hilmes/Craig		Closed	Closed			
175			☞ ☺	June 28, 2010	Responder:		Closed	Closed			
176	7.1	7.1	☞ ☺	6/28/2010	Responder: Craig/Webb		Closed	Closed to OI 154			
177	7.5.2.1	7.5.1	☞ ☺	7/15/2010	Responder: Clark		Closed	Closed	N/A	N/A	RAI not required
178	7.5.2.1	7.5.1	☞ ☺	7/15/2010	Responder: Clark		Closed	Closed	N/A	N/A	RAI not required
179			☞ ☺	An emphasis is placed on traceability in System Requirements Specifications in the SRP in the	Responder: WEC		Closed	Closed	ML101650255, Item No. 6		
180			☞ ☺	The SRP, BTP 7-14, Section B.3.3.1 states that Regulatory Guide 1.172 endorses with a few noted	Responder: WEC		Closed	Closed	ML101650255, Item No. 6		
181			☞ ☺	An emphasis is placed on traceability in System Requirements Specifications in the SRP in the	Responder: WEC		Closed	Closed	ML101650255, Item No. 6		
182			☞ ☺	Characteristics that the SRP states that a Software Requirements Specifications should have include	Responder: WEC		Closed	Closed	ML101650255, Item No. 6		
183			EICB (Carte)	7/15/2010 An emphasis is placed on traceability in System Requirements Specifications in the SRP, in the unmodified IEEE std 830-1993, and even more so given the modifications to the standard listed in	Responder: WEC The generic Software Requirements Specification applies except as modified by the WBN Unit 2 System Requirements Specification.		Open	Open-TVA/WEC Due 10/22/10			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				<p>Regulatory Guide 1.172, which breaks with typical NRC use of the word “should” to say “Each identifiable requirement in an SRS must be traceable backwards to the system requirements and the design bases or regulatory requirements that is satisfies”</p> <p>On page 1-2 of the Post Accident Monitoring System’s Software Requirements Specification in the background section, is the sentence “Those sections of the above references that require modification from the generic PAMS are defined in the document” referring purely to the changes from WNA-DS-01617-WBT “Post Accident Monitoring System-System Requirements Specification” or is it saying that there are additional changes beyond those and that the SRS defines them?</p> <p>If there are additional changes, what is their origin?</p>							
184			50	7/15/2010	Responder: WEC		Closed	Closed	ML101650255, Item No. 6		
185			EICB (Carte)	<p>7/15/2010</p> <p>An emphasis is placed on the traceability of requirements in Software Requirements Specifications in the SRP, in the unmodified IEEE std 830-1993, and even more so given the modifications to the standard listed in Regulatory Guide 1.172, which breaks with typical NRC use of the word “should” to say “Each identifiable requirement in an SRS must be traceable backwards to the system requirements and the design bases or regulatory requirements that is satisfies” Also the NRC considers that the SRS is the complete set of requirements used for the design of the software, whether it is contained within one document or many. In order to evaluate an SRS against the guidance in the SRP the staff needs access to all the requirements.</p> <p>References 12, 27, 29, and 31-44 in the Post Accident Monitoring System’s Software Requirements Specification are various types of “...Reusable Software Element...”.</p> <p>These references are used in the body of the SRS, for example:“</p> <p>R5.3.14-2 [The Addressable Constants CRC error signal shall be TRUE when any CAL CRC's respective ERROR terminal = TRUE (WNA-DS-00315-GEN, "Reusable Software Element Document CRC for Calibration Data" [Reference 12]).]</p> <p>They are also included via tables such as found in requirement R7.1.2-1</p> <p>[The Watts Bar 2 PAMS shall use the application-specific type circuits and custom PC elements listed in Table 7.1-1.]</p> <p>Do the referenced reusable software element</p>	<p>Responder: WEC</p> <p>Steve Clark to look at how to combine traceability items.</p> <p>Was addressed to during the 9/15 meeting and 9/20 - 9/21 audit.</p>		Open	Open-TVA/WEC Due 10/22/10			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				documents include requirements not explicitly stated in the SRS? If so what is their origin?							
186	7.7.8	7.7.1.12	EICB (Darbali)	<p>7/15/2010</p> <p>Along with Amendment 96, TVA submitted a list of Bechtel changes for each section. Change number 45 addresses a change to section 7.7.1.12, AMSAC, however, the Justification column states “This change is not included. EDCR 52408 installs the AMSAC in Unit 2. It does not have a trouble alarms. The existing words better reflect the operation of the system.”</p> <p>Even though this change was not included in Amendment 96, will it be included in a future amendment?</p> <p>Also, please submit a summary of EDCR 52408.</p>	<p>Responder: Perkins/Clark</p> <p>No. The previous wording reflected operation of the computer based AMSAC system. The change reflects the operation of the relay logic based system that replaced the original computer based system in Unit 1. Unit 2 is installing a similar relay logic based system, so the change to the Unit 1 wording is applicable to Unit 2.</p> <p><u>EDCR 52408 Summary</u></p> <p>A Purchase Order was issued to Nutherm International to provide a Unit 2 cabinet with the same functions as the current Unit 1 AMSAC. EDCR 52408 will install the cabinet and route/install cabling to provide the necessary inputs/outputs for/from the AMSAC cabinet.</p> <p>In the Main Control Room, three cables will be installed for the AMSAC handswitch on 2-M-3 and “AMSAC NOT ARMED” and “AMSAC ACTUATED” annunciator windows.</p> <p>In the Turbine Building, two pressure transmitters will be installed in two local panels to sense turbine pressure. Cables will be routed to the transmitters to provide the signal and power. Four cables will be routed to a local panel to provide steam generator level signals.</p> <p>In the Control Building, three cables will be routed to separation relays which will provide the start signal for the Motor Driven Auxiliary Feedwater Pumps, Turbine Driven Auxiliary Feedwater Pump, and initiate a Turbine Trip. Additionally, a cable will be routed to Unit 2 ICS for ‘AMSAC NOT ARMED’ and “AMSAC ACTUATED” log points.</p> <p>This EDCR is intended to configure Unit 2 AMSAC like Unit 1 when possible.</p> <p>TVA Revised Response:</p> <p>No further changes to the FSAR associated with AMSAC are planned.</p>		<p>Open</p> <p>Response is satisfactory. Issue date of Amendment 101 is not yet determined.</p> <p>Follow-up NRC Request:</p> <p>TVA to state that no further FSAR changes are planned.</p>	<p>Open-NRC Review</p> <p>Due Date 10/31/10</p>			
187			EICB (Carte)	<p>By letter dated June 18, 2010, TVA docketed responses to NRC requests for information.</p> <p>1) Enclosure 1, Item No. 33 of the TVA letter dated June 18, 2010, did not identify any connection from the PAMS Operator Modules (OMs) to the plant computer and printers; however, Figure 2.1-1 of the PAMS System Requirements Specification (WNA-DS-01617-WBT Rev. 1 – ML101680578) shows a TCP connection from the OMs to the plant computer and</p>	<p>Responder: Merten</p> <p>1) The original design was to allow printing from both the Operator Module (OM) and Maintenance and Test Panel (MTP) via the plant computer. This required both to be connected to the plant computer. Westinghouse did not perceive this as an issue, because the standard Common Q PAMS design includes both the flat panel displays and individual control panel indicators. The</p>		<p>Open</p> <p>NNC 8/25/10: Why did TVA not catch this on the review of the PAMS SysRS or SRS? Does TVA check that the CQ PAMS system meets the requirements in its purchase specifications?</p>	<p>Open-TVA</p> <p>Revise Response</p> <p>Due 12/31</p>	<p>ML101970033, Item No. 1 & 2</p>		<p>Are these connections already docketed?</p>

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				printer. Please explain. 2) Please clarify whether any digital safety-related systems or components have a digital communications path to non-safety-related systems or with safety related systems in another division. If so, NRC staff will need these paths identified on the docket.	Westinghouse Common Q team did not realize that WBN does not use the individual control panel indicators. As a result, the original design documents provided by Westinghouse included the connection from the OM to the plant computer. The TVA team did not realize that the Westinghouse design relied on the OM and MTP to be qualified isolation devices that protected the AC160 functions and individual control panel indicators from interference from the plant computer. It was not until a meeting was held to discuss the design of the OM that the issues came to light. That was when Westinghouse understood that the OM was the PAMS display and WBN did not use individual control panel indicators and TVA understood that the OM was being credited as the “qualified isolation device”. It became apparent at the meeting to both TVA and Westinghouse that the original design was not acceptable. The team then agreed to delete the OM connection to the plant computer. 2) This is a duplicate of closed RAI Matrix Item 45.						
188			☞ ☺	By letter dated June 30, 2010, TVA docketed, “Tennessee Valley Authority (TVA) Watts Bar Unit 2	Responder: Clark		Closed	Closed to Open Item 187	ML101970033, Item No. 3 & 4		
189		7.6.7	☞ ☺	7/20/2010	Responder: Clark		Closed	Closed			
190	7.9		EICB (Singh)	FSAR Table 7.1-1 states: “Regulatory Guide 1.133, May 1981 “Loose-Part Detection Program for the Primary System of Light–Water Cooled Reactors”, Revision 1 (See Note 12)...Note 12 Conforms except as noted below...Positi[o]ns C.3.a.(3) and C.5.c. recommend a channel calibration be performed at least once pe[r] 18 months. In lieu of this recommendation, the DMIMS will be calibrated at the frequency stated in subsection TSR 3.3.6.3 of TR 3.3.6 (Loose-Part Detection System).” 1) Clarify what frequency is specified in TSR 3.3.6.3. 2) Please explain why the stated calibration frequency is adequate for meeting regulatory requirements. 3) Please provide sufficient documentation for the NRC to independently evaluate the conformance claims stated in the FSAR.	Responder: Clark 1) TSR 3.3.6.3 specifies 18 months as the calibration frequency. 2) Per the Technical Requirements Manual (TRM) Bases 3.3.6 (Attachment 9) the surveillance requirements and frequency are provided in Regulatory Guide 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors." 3) TRM section 3.3.6 and it’s bases are contained in Attachment 9 to the 10/5/10 response letter.		Open	Open-NRC Review TVA letter of 10/5/2010, Attachment 2 provided the system description. Staff has noticed missing information in the system description when compared to FSAR Amendment 100. Item stays open. Staff is in the process of identifying the missing or discrepant information.	ML101970134, Item Nos. 1-4		
191	7.9		☞ ☺	NUREG-0800 Chapter 7, Section 7.9, "Data Communication Systems" contains review criteria for	Responder: Jimmie Perkins		Closed	Closed	ML10197016, Item Nos. 1-3		
192	7.5.1.1	7.5.2	☞ ☺	The NRC Staff is using SRP (NUREG-0800) Chapter 7 Section 7.5 “Instrumentation Systems Important to	Responder: Clark		Closed	Closed	Item No. 1 sent to DORI		
193	7.5.1.1	7.5.2	☞ ☺	The WBU2 FSAR, Section 7.5.2, “Plant Computer System ” contains three subsections	Responder: Clark		Closed	Closed	Item No. 2 sent to DORI		

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
194	7.5.1.1.1	7.5.2.1	M a	The WBU2 FSAR Section 7.5.2.1, “Safety Parameter Display System ” contains a description of the Safety	Responder: Costley/Norman		Closed	Closed	Item No. 3 sent to DORI		
195	7.5.1.1.2	7.5.2.2	M a	Bypassed and Inoperable Status Indication (BISI)	Responder: Costley/Norman		Closed	Closed	Item No. 4 sent to DORI		
196	7.5.1.1.2	7.5.2.2	M a	Bypassed and Inoperable Status Indication (BISI)	Responder: Costley/Norman		Closed	Closed	Item No. 5 sent to DORI		
197			X	Open Item 197 was never issued.			Closed	Closed			
198	7.5.1.1.2	7.5.2.2	M a	SRP Section 7.5, Subsection III, “Review Procedures” states: Recommended review emphasis for BISI	Responder: Costley/Norman		Closed	Closed	Item No. 6 sent to DORI		
199	7.5.1.1.3	7.5.2.3	M a	The WBU2 FSAR Section 7.5.2.3, “Technical Support Center and Nuclear Data Links ” contains a description	Responder: Costley/Norman		Closed	Closed	Item No. 7 sent to DORI		Related SE Section 7.5.5.3
200	7.2 7.3 7.5 7.7		EICB (Carte)	7/21/2010 Amendment 99 of the Watts Bar Unit 2 FSAR Section 7.5, “Instrumentation Systems Important to Safety,” does not include any description of instrumentation for normal operation; therefore, Section 7.5 of the FSAR does not support statements made in the SER Section 7.5; compare SER (ML072060490) Section 7.5.1 and FSAR Amendment 99 Section 7.5. Please identify where, in the docketed material, information exists to support the statements in the SER Section 7.5.1.	Responder: Clark The statement in SER Section 7.5.1 is supported by the following: <ul style="list-style-type: none">I&C Systems for Normal Operation FSAR SectionEagle 21 7.2Neutron Monitoring 7.2Foxboro Spec 200 7.3 (List of other sections in attachment 34)Foxboro I/A 7.7.11 (new section will be added by amendment 101) (other sections have been previously provided)Plant Computer 7.5.2Rod Control 7.7.1.2CERPI 7.7.1.2Control Rod Drive 7.7.1.1Incore Neutron Monitoring 7.7.1.9Lose Part Detection/Monitoring 7.6.7Vibration Monitoring RCP 5.5.1.2Control Boards 7.1.1.10RVLIS 7.5, 5.6	•	Open	Open-NRC Review TVA to provide Amendment 101 NRC Review			
201	7.7.1.1.1		EICB (Carte)	7/21/2010 Amendment 99, FSAR Section 7.7.1.1.1, "Reactor Control Input Signals (Unit 2 Only)," contains a description of functions performed uniquely for Unit 2. Please describe the equipment that performs this function (in sufficient detail to support a regulatory evaluation), and evaluate this equipment against the appropriate regulatory criteria.	Responder: Webb These functions are within the scope of the Foxboro I/A system. Section 7.7.11 will be added to the FSAR in amendment 101 to provide a discussion of the DCS.		Open	Open-NRC Review TVA to docket amendment 101.			
202	7.5.2		EICB (Carte)	7/22/2010 The letter (ML0003740165) which transmitted the Safety Evaluation for the Common Q topical report to Westinghouse stated: "Should our criteria or regulations change so that our conclusions as to the acceptability of the report are invalidated, CE Nuclear Power and/or the applicant referencing the topical report will be expected to revise and resubmit their respective documentation, or submit justification for continued applicability of the topical report without revision of the respective documentation." Question No 81 identified many criteria changes; please revise the respective documentation or submit justification for continued applicability of the topical report.	Responder: WEC Revision 1 of the Licensing Technical Report will provide more detailed information on the changes to the platform. Rev. 2 of the Licensing Technical Report will include the applicability of guidance.		Open	Open-TVA Licensing Technical Report R2 Due 12/3			
203	7.5.1.1	7.5.2	M a	7/26/2010	Responder: Clark		Closed	Closed			Item No. 9 is being drafted

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
204	7.5.1.1	7.5.2	EICB (Marcus)	<p>7/26/2010</p> <p>By letter dated March 12, 2010 (ML101680577) TVA provided drawing No. 2-45W2697-1-1, "Integrated Computer System Network Configuration Connection Diagram," that depicts three "Data Diodes. Please provide a detailed description of the equipment, software, and configurations of each "Data Diode".</p>	<p>Responder: Costley/Norman</p> <p>1. Three data diodes. 2. Two provide an interface between train A and B of Common Q. a. These are identical systems consisting of the following: i. Dual DELL R200 computers ii. Red Hat Enterprise Linux software that is locked down by CTI iii. 55 Mbs Owl cards iv. Fiber optic Ethernet interface to trained Maintenance test panel b. Software is configured to allow only specific traffic from the MTP to pass through to the ICS c. The secure side of the data diode will initiate the connection to the MTP, so there will be a bidirectional connection between the secure side of the data diode and the MTP. There will be no bidirectional data flow from the ICS to the MTP since the diode will block all incoming traffic from the ICS. 3. The third data diode is placed between the two ICS systems and the two PEDS computer systems. a. Hardware is identical to that used by TVA in other plants i. Dual HP DL360GS computers ii. Red Hat Enterprise Linux software that is locked down by CTI iii. 155 Mbs OWL cards iv. RJ45 Ethernet to PEDS network b. Diode is configured to allow certain types of data to flow from the ICS network to the PEDS network. This includes but is not limited to the following: i. Once per second current values and qualities for all points ii. History data archived by the ICS iii. Data files c. The data diode does not allow any data to be transferred between the PEDS network and the ICS network.</p>		<p>Open</p> <p>10/5/10 TVA letter Response 68 provided information.</p>	<p>Open-NRC Review</p> <p>NRC to issue formal RAI to TVA</p>			<p>Item No. 10 is being drafted</p>
205			EICB (Garg)	<p>7/26/2010</p> <p>Regarding the Foxboro Spec 200 system installed at Unit 2:</p> <p>a- Is it similar to Unit 1? If not, identify the differences and evaluation of the acceptability of these differences.</p> <p>b- deleted</p> <p>c- For each system which is discussed in the FSAR and utilizes the Spec 200 system, please provide the instrument logic diagram, loop/block diagram with reference to where the system is discussed in the FSAR.</p>	<p>Responder: Clark</p> <p>As discussed at the August 3 and 4 meeting in Knoxville between TVA and the NRC, the Foxboro Spec 200 is not a system. The Foxboro Spec 200 analog hardware is used to replace the existing obsolete hardware with the same functions. There are no interconnections between the analog loops unless such interconnections existed prior to the replacement. This is strictly an analog to analog upgrade due to equipment obsolescence. The Foxboro hardware is installed in existing cabinets which require modifications to accept the Foxboro hardware racks.</p>		<p>Open</p>	<p>Open-NRC Review</p> <p>TVA to respond or provide proposed date of response.</p> <p>10/14</p>			<p>Question B related to prior NRC approval of this system or 50.59 information. This question will be addressed in the August plant visit.</p>

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					<p>a- A listing of the replacements and differences was previously provided as Attachment 1 to TVA letter to the NRC dated June 18, 2010. Within Unit 1, only portions of the AFW controls were replaced. In Unit 2 all safety-related analog loops were replaced. The Foxboro Spec 200 is a fully qualified industry standard for replacement of obsolete analog instrument and control loop hardware.</p> <p>b- deleted</p> <p>c- c- The Foxboro Spec 200 hardware has not been installed. Therefore the revised drawings have not been issued. Based on this, EDCR excerpts for the logic diagrams and loop/logic drawings were provided as attachments to TVA letter to the NRC dated July 30, 2010. The cross reference between the functions upgraded as part of the Foxboro Spec 200 change is contained in Attachment 33.</p>						
206	7.5.1.1	7.5.2	EICB (Marcus)	<p>7/27/2010</p> <p>The NRC Requested a description of the plant computer and TVA provided: (1) Dell marketing literature for Dell Poweredge R200 Server, which can be found on the internet (http://www.dell.com/downloads/global/products/pedge/en/pe_R200_spec_sheet_new.pdf), and (2) HP Integrity rx2660 Server User Service guide (edition 6), which has not yet been found on the internet, but many other editions have been found. This information is not adequate for answering the question. (Note: TVA also provided a network configuration connection diagram, which is necessary but not sufficient.)</p> <p>Please provide a description of the plant computer: (1) Please include sufficient detail so that an evaluation can be made against the SRP acceptance criteria in SRP Section 7.7. (2) Please identify the equipment (hardware and software) that performs each function described in the FSAR.</p>	<p>Responder: Clark</p> <p>(1) The “Plant Computer” is not just a computer but is a system and is designated the Integrated Computer System or ICS. The ICS is composed of multiple computer CPUs, LCD displays, RTP Multiplexer Assemblies, network fiber optic panels, fiber optic converters, Ethernet switches and network taps previously described in items 71, 81 and 82 above. For a detailed discussion of the ICS functions refer to design criteria document WB-DC-30-29 Rev. 8, Integrated Computer System submitted under TVA letter dated August 11, 2010.</p> <p>(2) As previously discussed in item 82, there is no unique set of hardware for any specific function.</p>		<p>Open</p> <p>WB-DC-30-29 Rev. 8 is Enclosure 1 of TVA letter dated August 11, 2010 (ML102240382 letter and ML102240383 Enclosure 1).</p> <p>10/5/10 TVA letter Response 70 provided information.</p>	<p>Open-NRC Review</p> <p>NRC to issue formal RAI to TVA.</p>			Item No. 11 is being drafted.
207				July 27, 2010	Date: Responder:		Closed	Closed			
208	7.5.2.1	7.5.1	EICB (Marcus)	<p>7/27/2010</p> <p>By letter dated June 18, 2010 (ML101940236), TVA responded to an NRC request for additional information. Enclosure 1 Item No. 6 of this letter identified, for each PAM variable whether the variable was: (1) implemented identically to Unit 1 and reviewed by the NRC, (2) implemented identically to Unit 1 but modified under 10 CFR 50.59 after it was</p>	<p>Responder: Clark</p> <p>The notes provided with the table include the change to the variable under 10 CFR 50.59. For ease of review, the other note references have been deleted for these variables and only the note dealing with the Unit 1 change has been retained in the Notes column of the table excerpt. The applicable notes are highlighted in the notes</p>		<p>Open</p> <p>10/5/10 TVA letter Response 71 provided information.</p>	<p>Open-NRC Review</p> <p>issue formal RAI to TVA</p>			Item No. 12 is being drafted.

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				reviewed by the NRC, and (3) implemented in a manner that is unique to Unit 2. There were sixteen variables modified under 10 CFR 50.59; please describe the changes that were performed under 50.59.	list.						
209	7.5.2.1	7.5.1	EICB (Marcus)	<p>7/27/2010</p> <p>By letter dated June 18, 2010 (ML101940236), TVA responded to an NRC request for additional information. Enclosure 1 Item No. 6 of this letter identified, for each PAM variable whether the variable was: (1) implemented identically to Unit 1 and reviewed by the NRC, (2) implemented identically to Unit 1 but modified under 10 CFR 50.59 after it was reviewed by the NRC, and (3) implemented in a manner that is unique to Unit 2. There were nine variables that were identified as both Unique to Unit 2 and identical to what was reviewed and approved on Unit 1. Please explain.</p>	<p>Responder: Clark</p> <p>The first eight variables in question are primary chemistry parameter. The parameters are the same for both units, but in Unit 1, the sample is obtained via the post accident sampling system, while in Unit 2 the sample is obtained using a grab sample via the normal sample system.</p> <p>The last variable was somewhat difficult to characterize. The method of detection and the hardware manufacturer is the same in both units. However, due to obsolescence some of the parts are different than what is installed in Unit 1. The differences are described in Note 21 of the original response.</p>		Open 10 /5/10 TVA letter Response 72 provided information.	Open-NRC Review issue formal RAI to TVA			Item No.13 is being drafted.
210	7.5.2.1	7.5.1	EICB (Marcus)	<p>7/27/2010</p> <p>By letter dated June 18, 2010 (ML101940236), TVA responded to an NRC request for additional information. Enclosure 1 Item No. 6 of this letter identified, for each PAM variable whether the variable was: (1) implemented identically to Unit 1 and reviewed by the NRC, (2) implemented identically to Unit 1 but modified under 10 CFR 50.59 after it was reviewed by the NRC, and (3) implemented in a manner that is unique to Unit 2. There were seven variables that were identified as both identical to Unit 1 and changed under 10 CFR 50.59. Please explain.</p>	<p>Responder: Clark</p> <p>The design basis for Unit 2 is to match Unit 1 as closely as possible. This includes incorporating changes made to Unit 1 after licensing under 10 CFR 50.59. The changes in question fall into this category and are described in the Notes for each variable in the original submittal.</p>		Open 10/5/10 TVA letter Response 73 provided information.	Open-NRC Review issue formal RAI to TVA			Item No. 14 is being drafted.
211	7.5.1.1 7.5.2 7.6.1 7.7.1 7.7.2 7.7.4 7.9		EICB (Carte)	<p>7/27/2010</p> <p>FSA Table 7.1-1 shows: "The extent to which the recommendations of the applicable NRC regulatory guides and IEEE standards are followed for the Class 1E instrumentation and control systems is shown below. The symbol (F) indicates full compliance. Those which are not fully implemented are discussed in the referenced sections of the FSAR and in the footnotes as indicated."</p> <p>Please describe how systems that are important to safety, but not 1E, comply with 10 CFR 50.55a(a)1: "Structures, systems, and components must be designed, fabricated, erected, constructed, tested, and inspected to quality standards commensurate with the importance of the safety function to be performed."</p>	<p>Responder: Clark</p> <p>The WBN 2 FSAR Section 7.5 defines the following systems as "important to safety"</p> <p>1. Post Accident Monitoring including:</p> <p>a. Common Q Post Accident Monitoring System (Safety-Related)</p> <p>i. Reactor Vessel Level</p> <p>ii. Core Exit Thermocouples</p> <p>iii. Subcooling Margin Monitor</p> <p>b. Eagle 21 indications (Safety-Related)</p> <p>c. Foxboro Spec 200 indications (Safety-Related)</p> <p>d. Neutron Monitoring (Source and Intermediate Range) (Safety-Related)</p> <p>e. Radiation Monitors (Safety-Related)</p> <p>f. Unit 1 and Common shared indications (Safety-Related)</p> <p>g. Foxboro I/A indications (Non-Safety-Related)</p> <p>h. Radiation Monitors (Non-Safety-Related)</p> <p>i. CERPI (Non-Safety-Related)</p> <p>j. Integrated Computer System (Non-Safety-Related)</p> <p>k. Unit 1 and Common shared indications (Non-Safety-Related)</p>		Open	Open-NRC Review TVA to Docket Amendment 101			Relates to SE Sections: 7.5.5, Plant Computer 7.6.10, Loose Part Monitoring 7.7.1, Control System Description 7.7.2, Safety System Status Monitoring System 7.7.4, PZR & SG Overfill 7.9, Data Communications

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					<p>Post Accident Monitoring Instrumentation Design Criteria, WB-DC-30-7, Rev. 22, Appendix A provides the minimum quality requirements for each Category (1, 2 or 3) of variable. By definition, no Category 1 variable can be non-safety-related. Therefore, non-safety-related variables and the source equipment are limited to category 2 or 3. Since some variables are designated as having more than 1 category, the requirements of the highest category apply. Additional design criteria information for specific systems is contained in:</p> <p>g. Foxboro I/A – Site-Specific Engineering Specification WBN Unit 2 NSSS and BOP Controls Upgrade Specification Rev. 1 (Attachment 23)</p> <p>h. CERPI – Rod Control System Description, N3-85-4003, Rev. 12 Section 2.2, Design Requirements</p> <p>i. Radiation Monitors – Design Criteria Document WB-DC-40-24, Radiation Monitoring – (Unit 1 / Unit 2), Rev. 21</p> <p>j. Integrated Computer System – Design Criteria Document WB-DC-30-29 Plant Integrated Computer System (ICS), Rev. 8 (Submitted under TVA to NRC letter dated August __, 2010)</p> <p>2. Plant Computer (Integrated Computer System) – See Item j above.</p> <p>The WBN 2 FSAR Section 7.6, defines the following non-safety-related systems as “other systems required for safety”</p> <p>1. Foxboro I/A – While not specifically described, functions performed by the system are described in this section. The qualify requirements are described above.</p> <p>2. Lose Part Monitoring System – Design Criteria Document WB-DC-30-31, Loose Parts Monitoring System, Rev. 4, provides the quality requirements for this system. A description of the distributed control system will be added as FSAR section 7.7.1.11 in FSAR Amendment 101.</p> <p>Installation is performed in accordance with the quality requirements of either the Bechtel or TVA work order processes based on the quality classification of the equipment being installed. Vendor testing is performed in accordance with procurement specification requirements which are based on the type and quality classification of the equipment. Preoperational testing is performed in accordance with Chapter 14 of the FSAR.</p>						
212	7.5.2		o m ☺	7/27/2010	Responder: WEC		Open	Open-TVA/WEC			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				By letter dated June 18, 2010 (ML101940236) TVA stated (Enclosure 1, Attachment 3, Item No. 3) that the PAMS system design specification and software requirements specification contain information to address the "Design Report on Computer Integrity, Test and Calibration..." The staff has reviewed these documents, and it is not clear how this is the case. (1) Please describe how the information provided demonstrates compliance with IEEE 603-1991 Clauses 5.5, 5.7, 5.10, & 6.5. (2) Please describe how the information provided demonstrates conformance with IEEE 7-4.3.2-2003 Clauses 5.5 & 57.	Application specific requirements for testing. This cannot be addressed in a topical report. Evaluation of how the hardware meets the regulatory requirements. WEC to provide the information and determine where the information will be located.			Due 12/31/10			
213	7.5.2		EICB (Carte)	7/27/2010 By letter dated June 18, 2010 (ML101940236) TVA stated (Enclosure 1, Attachment 3, Item No. 3) that the PAMS system design specification and software requirements specification contain information to address the "Theory of Operation Description." The staff has reviewed these documents, and it is not clear how this is the case. The docketed material does not appear to contain the design basis information that is required to evaluate compliance with the Clause of IEEE 603. (1) Please provide the design basis (as described in IEEE 604 Clause 4) of the Common Q PAMS. (2) Please provide a regulatory evaluation of how the PAMs complies with the applicable regulatory requirements for the theory of operation. For example: Regarding IEEE 603 Clause 5.8.4 (1) What are the manually controlled protective actions? (2) How do the documents identified demonstrate compliance with this clause?	Responder: WEC		Open NNC to review and revise this question after LTR R1is received.	Open-TVA/WEC Due 12/31/10			
214			EICB (Carte)	7/27/2010 By letter dated June 18, 2010 (ML101940236) TVA stated (Enclosure 1, Attachment 3, Item No. 10) that the approved Common Q Topical Report contains information to address the "Safety Analysis." The Common Q SPM however states that a Preliminary Hazards Analysis Report and the V&V reports document the software hazards analysis. Please Provide these documents.	Responder: WEC According to "The Software Program Manual for Common Q Systems," WCAP-16096-NP-1A, the Software Safety Plan only applies to Protection class software and PAMS is classified as Important-to-safety. Exhibit 4-1 of the SPM shows that PAMS is classified as Important-to-Safety		Open WEC References Common Q PAMS preliminary hazards analysis is referenced in the SRS. WEC to delete.	Open-TVA/WEC Due 10/22/10			
215			JP	7/29/2010	Responder: WEC		Closed	Closed			
216	7.5.1.1	7.5.2	EICB (Marcus)	7/29/2010 By letter dated March 12, 2010 (ML101680577), TVA stated that it would provide five documents to describe the Process computer: (1) EDCR 52322 Rev. A excerpts, (2) HP RX2660 Users Guide AB419-9002C-ed6, (3) Dell Poweredge R200 Server sheet November 2007, (4) RTP Corp 8707 I/O Brochure RTP 8707-02, 2004, and (5) Integrated Computer System Drawing.	Responder: Clark 1) EDCR 52322 is contained in Attachment 7. 5) The design change referred to is the addition of a data diode. This has not been incorporated into the drawing. Please see the response to letter item 88 (RAI Matrix Item 224).		Open 10/5/10 TVA letter Response 76 and Attachment 7 provided information.	Open-NRC Review NRC to confirm by 10/20/10 in 10/5 letter. NRC to issue formal RAI to TVA.			Item No. 15 is being drafted.
217			UG	7/6/2010	Responder: Clark		Close	Close			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
218			☞ ☺	7/6/2010	Responder: Clark		Closed	Closed			
219			☞ ☺	8/4/2010	Responder: TVA Licensing		Closed	Closed			
220			☞ ☺	8/4/2010	Responder: Ayala		Closed	Closed			
221	7.7.1.2	7.7.1.3	EICB (Marcus)	8/4/2010 Submit EDCR Technical Evaluation for the source and intermediate range updated electronics for Unit 2	Responder: Trelease The EDCR 52421 Source and Intermediate Range, Scope and Intent, Unit Difference and Technical Evaluations are contained in Attachment 31 to 10/5 letter.		Open 10/5/10 TVA letter Response 78 and Attachment 31 provided information.	Open-NRC Review NRC to confirm by 10/20/10 in 10/5 letter. NRC to issue formal RAI to TVA.			Item No. 16 is being drafted.
222			☞ ☺	8/4/2010	Responder: Clark		Close	Close			
223			☞ ☺	8/4/2010	Responder: Clark		Closed	Closed			
224	7.5.1.1	7.5.2	EICB (Marcus)	8/4/2010 Mike Norman [TVA Computer Eng. Group] will check status of DCN/50.59 for Integrated Computer System upgrade that will install the data diode between the WBN PEDS and the Unit 1 and Unit 2 ICS.	Responder: Norman (TVA CEG) The Data diode to isolate the WBN Unit 1 and Unit 2 ICS computers from the WBN PEDS computers will be installed in PIC 56278 as part of DCN 54971. This DCN is scheduled for implementation in Spring 2011. This date was included in the Cyber Security Plan Implementation Schedules submitted to the NRC on July 23.		Open 10/5/10 TVA letter Response 80 provided information.	Open-NRC Review NRC to confirm by 10/20/10 in 10/5 letter. NRC to issue formal RAI to TVA.			Item No. 17 is being drafted.
225			☞ ☺	8/4/2010	Responder: Scansen		Close	Close			
226			☞ ☹	8/4/2010	Responder: TVA Licensing		Closed	Closed			See also Open Item Nos. 41 & 270
227			☞ ☺	8/4/2010	Responder: Clark		Close	Close			
228			☞ ☺	8/4/2010	Responder: Clark		Closed	Closed			
229			☞ ☺	8/4/2010	Responder: Clark		Closed	Closed			
230			☞ ☺	8/4/2010	Responder: Webb		Closed	Closed			
231			☞ ☺	8/4/2010	Responder: Clark		Closed	Closed			
232			☞ ☹	8/4/2010	Responder: Clark		Closed	Closed			
233			☞ ☺	8/4/2010	Responder: Clark		Closed	Closed			
234			☞ ☺	8/4/2010	Responder:		Closed	Closed			
235			☞ ☺	8/4/2010	Responder: TVA Licensing		Closed	Closed			
236			☞ ☺	8/4/2010	Responder: Clark		Close	Close			
237			☞ ☺	8/4/2010	Responder: Clark		Closed	Closed			
238			☞ ☺	8/4/2010	Responder: Webb/Hilmes		Closed	Closed			
239			☞ ☺	8/4/2010	Responder: Hilmes		Closed	Closed			
240			☞ ☺	8/4/2010	Responder: Clark		Close	Close			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
241			US	8/4/2010	Responder: Davies		Closed	Closed			
242			UG	8/4/2010	Responder: Hilmes		Close	Close			
243			UG	8/3/2010	Responder: WEC		Closed	Closed.	ML101650255, Item No. 6		
244			EICB (Carte)	8/3/2010 Section 8.2.2 of the Common Q SPM (ML050350234) states that the Software Requirements Specification (SRS) shall be developed using IEEE 830 and RE 1.172. Clause 4.8, "Embedding project requirements in the SRS," of the IEEE 830 states that an SRS should address the software product, not the process of producing the software. In addition Section 4.3.2.1 of the SPM states "Any alternatives to the SPM processes or additional project specific information for the ...SCMP...shall be specified in the PQP. Contrary to these two statements in the SPM, the WBN2 PAMS SRS (ML101050202) contains many process related requirements, for example all seventeen requirements in Section 2.3.2, "Configuration Control," address process requirements for configuration control. Please explain how the above meets the intent of the approved SPM.	Responder: WEC WEC agreed to remove process related items from all docs. Close to previous item and revise previous item to include all documents.		Open	Open-TVA/WEC Due 10/22/10			LIC-101 Rev. 3 Appendix B Section 4, "Safety Evaluation" states: "the information relied upon in the SE must be docketed correspondence." LIC-101 Rev. 3 states: "The safety analysis that supports the change requested should include technical information in sufficient detail to enable the NRC staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements and the protection of public health and safety."
245			EICB (Carte)	8/3/2010 Section 5.8 of the Common Q SPM (ML050350234) identifies the required test documentation for systems developed using the Common Q SPM. Please provide sufficient information for the NRC staff to independently assess whether the test plan for WBN2 PAMS, is as described in the SPM (e.g., Section 5.8.1).	Responder: WEC Relates to the commitment to provide the test plan and the SPM compliance matrix		Open	Open-TVA/WEC Due 12/7/10			LIC-101 Rev. 3 Appendix B Section 4, "Safety Evaluation" states: "the information relied upon in the SE must be docketed correspondence." LIC-101 Rev. 3 states: "The safety analysis that supports the change requested should include technical information in sufficient detail to enable the NRC staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements and the protection of public health and safety."
246			EICB (Carte)	8/3/2010 Section 4.3.2.1, "Initiation Phase" of the Common Q SPM (ML050350234) requires that a Project Quality Plan (PQP) be developed. Many other section of the SPM identify that this PQP should contain information required by ISG6. Please provide the PQP. If "PQP" is not the name of the documentation produced, please describe the documentation produced and provide the information that the SPM states should be in the PQP.	Responder: WEC There is a PQP and SPM compliance matrix will be referenced in the Licensing Technical Report. WEC to identify the elements of the SPM in the compliance matrix		Open	Open-TVA/WEC Due 10/22/10			LIC-101 Rev. 3 Appendix B Section 4, "Safety Evaluation" states: "the information relied upon in the SE must be docketed correspondence." LIC-101 Rev. 3 states: "The safety analysis that supports the change requested should include technical information in sufficient detail to enable the NRC staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
											and the protection of public health and safety."
247			EICB (Carte)	8/8/2010 As part of the Common Q topical report development effort, Westinghouse developed the Software Program Manual for Common Q Systems (ML050350234) to address software planning documentation. The NRC reviewed the SPM and concluded: "the SPM specifies plans that will provide a quality software life cycle process, and that these plans commit to documentation of life cycle activities that will permit the staff or others to evaluate the quality of the design features upon which the safety determination will be based. The staff will review the Implementation of the life cycle process and the software life cycle process design outputs for specific applications on a plant-specific basis." Please identify the implementation documentation produced as a result of following the SPM, and state what information will be docketed.	Responder: WEC The documents will be identified in Rev. 1 of the Licensing Technical Report in the compliance matrix. WEC to make the documents available ASAP in Rockville. May require later submittal.		Open	Open-TVA/WEC Due 10/22/10.			LIC-101 Rev. 3 Appendix B Section 4, "Safety Evaluation" states: "the information relied upon in the SE must be docketed correspondence." LIC-101 Rev. 3 states: "The safety analysis that supports the change requested should include technical information in sufficient detail to enable the NRC staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements and the protection of public health and safety."
248			EICB (Carte)	8/8/2010 As part of the Common Q topical report development effort, Westinghouse developed the Software Program Manual for Common Q Systems (ML050350234) to address software planning documentation. The NRC reviewed the SPM and concluded: "the SPM specifies plans that will provide a quality software life cycle process, and that these plans commit to documentation of life cycle activities that will permit the staff or others to evaluate the quality of the design features upon which the safety determination will be based. The staff will review the Implementation of the life cycle process and the software life cycle process design outputs for specific applications on a plant-specific basis." Please identify the design outputs produced as a result of following the SPM, and state when what information will be docketed.	Responder: WEC The documents will be identified in Rev. 1 of the Licensing Technical Report in the compliance matrix. WEC to make the documents available ASAP in Rockville. May require later submittal.		Open	Open-TVA/WEC Due 10/22/10.			LIC-101 Rev. 3 Appendix B Section 4, "Safety Evaluation" states: "the information relied upon in the SE must be docketed correspondence." LIC-101 Rev. 3 states: "The safety analysis that supports the change requested should include technical information in sufficient detail to enable the NRC staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements and the protection of public health and safety."
249			OC	8/8/2010	Responder: WEC		Closed	Closed			LIC-101 Rev. 3 Appendix B Section 4, "Safety Evaluation"
250			EICB (Carte)	8/8/2010 The SPM describes the software and documents that will be created and placed under configuration control. The SCMP (e.g., SPM Section 6, "Software Configuration Management Plan") describes the implementation tasks that are to be carried out. The acceptance criterion for software CM implementation is that the tasks in the SCMP have been carried out in their entirety. Documentation should exist that shows that the configuration management tasks for that activity group have been successfully accomplished. Please provide information that shows that the CM tasks have been successfully accomplished for each life cycle activity group.	Responder: WEC Westinghouse develops Software Release Reports/Records and a Configuration Management Release Report. Describe the documents and when they will be produced. Summarize guidance on how to produce these records, focus on project specific requirements in SPM etc.		Open	Open-TVA/WEC Due 10/22/10			LIC-101 Rev. 3 Appendix B Section 4, "Safety Evaluation" states: "the information relied upon in the SE must be docketed correspondence." LIC-101 Rev. 3 states: "The safety analysis that supports the change requested should include technical information in sufficient detail to enable the NRC staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements and the protection of public health and safety."
251			OC	8/8/2010	Responder: WEC		Open	Open-TVA/WEC			LIC-101 Rev. 3 Appendix B Section 4, "Safety Evaluation"

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				The SPM describes the software testing and documents that will be created. The SPM also describes the testing tasks that are to be carried out. The acceptance criterion for software test implementation is that the tasks in the SPM have been carried out in their entirety. Please provide information that shows that testing been successfully accomplished.	Addressed by SPM Compliance matrix in Rev. 1 of the Licensing Technical Report. Norbert is looking for guidance on how to ask for less.			Due 10/22/10.			states: "the information relied upon in the SE must be docketed correspondence." LIC-101 Rev. 3 states: "The safety analysis that supports the change requested should include technical information in sufficient detail to enable the NRC staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements and the protection of public health and safety."
252			EICB (Carte)	8/8/2010 The SPM contain requirements for software requirements traceability analysis and associated documentation (see Section 5.4.5.3, "Requirements Traceability Analysis"). Please provide information that demonstrates that requirements traceability analysis has been successfully accomplished.	Responder: WEC Explain response to AP1000 audit report. RTM docketed NRC awaiting V&V evaluation of RTM.		Open Read ML091560352	Open-TVA/WEC RTM Revision due 12/31 Check on this Hilmes			LIC-101 Rev. 3 Appendix B Section 4, "Safety Evaluation" states: "the information relied upon in the SE must be docketed correspondence." LIC-101 Rev. 3 states: "The safety analysis that supports the change requested should include technical information in sufficient detail to enable the NRC staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements and the protection of public health and safety."
253			☞☪	8/8/2010	Responder: Clark		Closed	Closed			Related to Open Item no. 83.
254			☞☪	8/10/2010	Responder: WEC		Closed	Closed	NA	NA	Request to make documents available for audit
255			☞☪	8/10/2010	Responder: WEC		Closed	Closed	NA	NA	Request to make documents available for audit
256			☞☪	8/10/2010	Responder: WEC		Closed	Closed	NA	NA	Request to make documents available for audit
257			☞☪	8/10/2010	Responder: WEC		Closed	Closed	NA	NA	Request to make documents available for audit
258			☞☪	8/10/2010	Responder: WEC		Closed	Closed	NA	NA	Request to make documents available for audit
259			☞☪	8/10/2010	Responder: WEC		Closed	Closed	NA	NA	Request to make documents available for audit
260			☞☪	8/10/2010	Responder: WEC		Closed	Closed	NA	NA	Request to make documents available for audit
261			☞☪	8/10/2010	Responder: WEC		Closed	Closed	ML101650255, Item No. 6		LIC-110 Rev. 1 Section 6.2.2 states: "Design features and
262			☞☪	8/10/2010	Responder: WEC		Closed	Closed	NA	NA	Request to make documents available for audit
263			☞☪	8/11/2010 Based on an examination of document available at the	Responder: WEC		Closed	Closed	ML101650255, Item No. 2		
264			☞☪	8/11/2010	Responder: WEC		Closed	Closed	ML101650255, Item No. 2		
265			☞☪	8/11/2010	Responder: WEC		Closed	Closed	ML101650255, Item No. 2		
266			☞B (Cart	8/11/2010 Please provide a high level description of the Foxboro	Responder: Webb/Webber FSAR section 7.7.1.11 will be added in		Open	Open-TVA TVA to Docket			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				IA equipment used at WBN2. This description should be more detailed than a brochure on the product line (or available on the web), and less detailed than a technical manual on each field replaceable unit. It is expected that such literature already exists.	Amendment 101. In discussions with the NRC reviewer on October 4, 2010 it was agreed that the new FSAR section along with previously submitted documents should be sufficient to address this request. The NRC reviewer will notify TVA if additional documentation is required.			Amendment 101			
267			EICB (Carte)	8/11/2010 By letter dated June 18, 2010 (ML101940236) TVA stated that the software safety plan (SSP) was not applicable to PAMS applications (see Watts Bar 2 - Common Q PAMS ISG-6 Compliance matrix Item No. 10); however, reference No. 30 of the SRS (ML101050202) is: 00000-ICE-37727, Rev. 0, "Post Accident Monitoring System Software Preliminary Hazard Analysis for the Common Q PAMS Project." A Preliminary Hazard Analysis is required by the SSP. Please explain.	Responder: WEC		Open	Open-TVA/WEC Due 10/22/10			
268			EICB (Carte)	8/19/2010 By letter dated March 12, 2010 (ML101680577), TVA stated that the application specific hardware and software architecture descriptions are addressed in the WBN2 PAMS System Design Specification (ML101680579, ML102040481, & ML102040482) and Software Requirements Specification (ML101050202, ML102040486, & ML1022040487). Neither of these documents contain a non-proprietary figure of the architecture that can be used in the SE. Please provide a non-proprietary figure of the architecture.	Responder: WEC Andy to see what can be done.		Open	Open-TVA/WEC Due 12/31/10 HILMES Check on This			
269			Justi n	8/20/2010 DORL to send the Eagle-21 Audit Report to TVA.	Responder: NRC		Open	OPEN-NRC Action			
270			U C	8/23/2010	Responder: Clark		Closed	Closed			See also Open Item Nod. 41 & 245
271			U C	8/23/2010	Responder: WEC		Closed	Closed	ML101650255, Item No. 6		
272	7.5.2.1	7.5.1	EICB (Marcus)	8/26/2010 In WBN2 FSAR Table 7.5-2, "Regulatory Guide 1.97 Variable List (Deviation and Justification for Deviations)," (WBNP-96) for Variable 19, "Containment Hydrogen Concentration," Deviation 2 (page 19 of 41), the variable number is listed as 15. The variable number should be listed as 19.	Responder: Clark The variable number will be changed to 19 in FSAR Amendment 101 as shown below: Table 7.5-2 DEVIATION 2 VARIABLE (1519) Containment Hydrogen Concentration		Open Response is acceptable	Open-TVA Due 10/31/10 NRC to issue formal RAI to TVA.			Item No. 20 is being drafted.
273	7.5.2.1	7.5.1	M a	8/26/2010	Responder: Clark		Closed	Closed			Item No. 18 is being drafted.
274. a	7.5.2.1	7.5.1	EICB (Marcus)	8/26/2010 In WBN2 FSAR Table 7.5-2, "Regulatory Guide 1.97 Variable List (Deviation and Justification for Deviations)," (WBNP-96) for Variable 82, "Steam Generator Level Wide Range," Deviation 10 (page 24	Responder: Clark The SC in the last sentence will be changed to SG in FSAR Amendment 101 as shown below: SG wide range level indication is utilized as a		Open Response is acceptable.	Open-TVA Due 10/31/10 NRC to issue formal RAI to			Item No. 21 is being drafted.

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				of 41), in the last sentence, of the Justification, SC should be SG.	diverse variable to auxiliary feedwater (AFW) flow for gross indication of flow to the SGs. The WBN AFW monitors are Types A1 and D2. WBN's position is that since SG wide range level is only used as a backup to redundant AFW flow monitors, it does not require redundancy			TVA.			
274. b			EICB (Singh)	8/26/2010 Loose Parts Monitoring System: TR 3.3 refers to section 4.4.6 of the FSAR for description of the loose parts monitoring system. However, this section of the FSAR is not available. TVA to check the reference and respond.	Responder: Clark The reference will be changed to FSAR section 7.6.7 Loose Part Monitoring System (LPMS) System Description in next revision of the Technical Requirements Manual as shown below: 1. Watts Bar FSAR, Section 7.6.7, "Lose Part Monitoring System." (Note: Bechtel I&C to submit TRM change package to TVA Licensing.)		Open	Open-TVA Due 10/31/10			
275				8/27/2010	Responder: Clark		Closed	Closed			
276	7.6	7.6	EICB (Garg)	8/27/2010 In order for the staff to review the effects of multi control systems failure, provide the summary of the analyses documenting the effect on the plant based on the following events: (1) loss of power to all control systems powered by a single power supply; (2) failure of each instrument sensor which provides signal to two or more control systems; (3) Break of any sensor impulse line which is used for sensors providing signals to two or more control systems; and (4) failure of digital system based on the common cause software failure affecting two or more control systems. For each of these events, confirm that the consequences of these events will not be outside chapter 15 analyses or beyond the capability of operators or safety systems.	Responder: Webb The NRC reviewer confirmed this question applies to non-safety systems. (1) The DCS segmentation analysis addressed the power supply arrangement for the NSSS/BOP control systems implemented with Foxboro I/A. (2) Signals shared by more than one control system are addressed in the DCS segmentation analysis. (3) Where feasible, the unit 2 design includes separate sense lines for redundant transmitters, eliminating a single point of failure which is present in unit 1. In those applications where separate sense lines are not practicable, failure of a single sense line would be bounded by the failure of a single transmitter and would have the same effect as for unit 1. (4) Limiting DCS failures were addressed in the segmentation analysis, supplemented by Fault Handling in the I/A Series System, Revision 1, submitted on TVA letter to NRC dated October 5, 2010, Attachment 42.		Open	Open-TVA TVA to Docket in 10/20 letter TVA to provide justification for non-safety system other than DCS. The statement that failure of sense line where more than one transmitter is connected would be bounded by the failure of a single transmitter does not make sense.			
277	7.6	7.6.3	EICB (Garg)	8/27/2010 NUREG 0847, "Safety evaluation report Related to the operation of Watts Bar Nuclear Plant, Units 1 and 2." has section 7.6.3 which discusses the, "Upper Head Injection Manual Control" system but has been removed from the FSAR. Please provide the information regarding when this system was removed, and the justification for the removal of the system and if the NRC staff has previously reviewed and accepted the removal of the system provide the reference to the staff's SE.	Responder: Clark Removal of the Upper Head Injection System was reviewed as part of the WBN Unit 1 original and was reviewed by the staff in SER Supplement 6: 1.7 Summary of Outstanding Issues - PAGE 1-3 "Supplement 6" (22) Removal of upper head injection system Opened (SSER 6) 6.3.1 (TAC 77195)		Open	Open-TVA Due 10/31			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
278	7.6	7.6.6	EICB (Garg)	8/27/2010 For FSAR Section 7.6.6, provide the justification for adding valves FCV 63-8 and FCV 63-11, which require that power to be removed and will be administratively controlled prior to use of RHR system for plant cooldown. Provide the P & ID and block diagram showing the operation of these valves.	Responder: Trelease UFSAR section 7.6.6 does not identify control valves FCV-63-8 and -11 as part of a list of valves that are required to have their motive power removed during specific operating modes. The Unit 1 General operating instructions GO-1 and GO-6 (which will be used as a guideline for unit 2) provide administrative instructions to remove power and restore power to these valves in mode 3. Also, U1 Emergency operating procedures (e.g ES-1.3) do not address the restoration of power to the valves as part of post LOCA Mitigation activities. Attachment 8 contains the control and logic diagrams, along with the applicable design changes to verify that the control schemes are similar to unit 1.		Open	Open-TVA TVA to Docket in 10/20 letter			
279	7.6	7.6.6	EICB (Garg)	8/27/2010 For FSAR Section 7.6.6, provide the justification for the exception to install protective covers which operator has to remove before he can have access to control switch to operate two additional valves FCV62-98 and FCV62-99.	Responder: Mather The FSAR change to include the valves as exceptions to the use of protective covers was made to match Unit 1 UFSAR change Pkg. No. 1547 Safety Assessment Item 8. The change package identified FCV-62-98 and 99 as exceptions to the use of protective covers. This change was based on WBPER980417 which removed the power from the valves and had them locked open. TVA will incorporate the same changes in Unit 2 as Unit 1. The Unit 1 changes are described in References 3 and 4.		Open	Open-TVA TVA to docket in 10/20 letter			
280	7.6	7.6.6	EICB (Garg)	8/27/2010 For FSAR Section 7.6.6, provide the justification for the acceptability of removing FCV 63-5 from the list of valves which has operating instructions specifying the removal of power during specific modes of plant operation.	Responder: Trelease Historical DCN 38661 removes the requirement that power be removed from FCV-63-5 during normal operations, and notes that the valve does not have a shunt breaker to allow MCR position indication with power removed. The Unit 2 system description has been updated to reflect the Unit 1 change to the system description, and the update of section 7.6.6 to remove the requirement of FCV-63-5 from the list of valves which has operating instructions specifying the removal of power during normal operations. This is supported by the failure modes and effects analysis for the safety injection system calculation EMP-SNM-043029 (which has been revised to be applicable to Unit 2), as well as the Unit 2 FSAR Table 6.3-8 both which state that spurious closure of FCV-63-5 is not credible. Spurious closure of FCV-63-5 is not credible because the MCR hand switch is provided with a protective cover to prevent operator error. In addition, the hand switch is wired with contacts on both sides of the motor contactor to prevent a single failure within the switch gear from spuriously closing the valve. These features eliminate the need to remove power from FCV-63-5.		Open Response is acceptable.	Open-TVA TVA to issue by 10/20			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					Attachment 10 contains the documentation associated with this response.						
281	7.6	7.6.8	EICB (Garg)	8/27/2010 For FSAR Section 7.6.8 in amendment 96, redline version has completely rewritten this section of the FSAR, however, the staff is not able to determine any changes made to the section. Explain what changes have been made to this FSAR Section.	Responder: Webb Attachment 5 contains the FSAR markup showing what was changed.		Open	Open-TVA Tva to docket in 10/31 letter			
282	7.6	7.6.9	EICB (Garg)	8/27/2010 For FSAR Section 7.6.9 which discusses the switch over from injection to recirculation, and is a ESF system, the compliance with IEEE 279 has been removed from the FSAR. Justify this deletion.	Responder: Trelease The re-write for section 7.6.9 was to provide a more concise description of the instrumentation and controls. The section was too wordy, and several topics were duplicated in section 7.3. Wording is now more closely aligned to system description. Compliance with IEEE 279 is not intended to be removed, merely the reference to the standard in that particular section. A statement is added that 'The automatic switchover of the RHR pumps from the injection to the recirculation Mode is part of the Engineered Safety Features Actuation System (ESFAS) discussed in chapter 7.3.' Chapter 7.3 includes a reference to IEEE Standard 279-1979. The reference in 7.6.9 was therefore considered unnecessary, and therefore removed. Attachment 9 contains FSAR excerpts required to support this response.		Open Response is acceptable	Open-TVA TVA to issue by 10/20			
283	7.7.5	XX	EICB (Darbali)	8/27/2010 Follow-up to item 96 On Open Item 96, regarding the implementation of IEN 79-22, part of TVA's response was: The non-safety-related device/systems within the scope of IEN 79-22 are: 1. Steam generator power operated relief valve control system 2. Pressurizer power operated relief valve control system 3. Main feedwater control system 4. Automatic rod control system. Failure of these systems/devices due to a high energy line break is fully addressed in Chapter 15, "Accident Analysis" of the WBN Unit 2 FSAR. Please identify the sections of FSAR Chapter 15 that address the failures of these systems.	Responder: Clark 1. Steam generator power operated relief valve control system The potential scenario for this event is addressed in 15.2.13, Accidental Depressurization of the Main Steam System. 2. Pressurizer power operated relief valve control system The potential scenario for this event is depressurization of the reactor coolant system due to a relief valve failing open. This is addressed in 15.2.12, Accidental Depressurization of the Reactor Coolant System and 15.3.1, Loss Of Reactor Coolant From Small Ruptured Pipes Or From Cracks In Large Pipes Which Actuate The Emergency Core Cooling System. 3. Main feedwater control system The potential scenarios for this event are:		Open	Open-TVA Due 10/31/10			This item is a follow-up question to item 96.

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					<div><div><div>a. A loss of feedwater due a feedwater isolation valve failing closed. This is addressed in 15.2.8, Loss of Normal Feedwater.</div><div>b. A feedwater regulating valve failing open. This is addressed in 15.2.10, Excessive heat removal due to feedwater system malfunctions.</div></div><div>4. Automatic rod control system</div><div>The potential scenarios are uncontrolled rod withdrawal events that are addressed in 15.2.1, Uncontrolled Rod Cluster Control Assembly Bank Withdrawal From A Subcritical Condition, 15.2.2, Uncontrolled Rod Cluster Control Assembly Bank Withdrawal At Power, and 15.2.3, Rod Cluster Control Assembly Misalignment.</div></div>						
284	7.7.3	7.4.1	EICB (Darbali)	8/27/2010 Follow-up to item 123 Please provide a readable electrical logic diagram of the Volume Control Tank Level Control System.	Responder: Webber Attachment 2 to the 10/20 letter contains the electrical logic diagrams and required Drawing Change Authorizations (DRAs).		Open	Open-TVA Due 10/31/10			This item is a follow-up question to item 123
285	7.3.3	7.3	EICB (Darbali)	8/27/2010 Follow-up to item 22 Do the control loops meet the requirements of IEEE-279? If not are they isolated from the circuit which meets the requirements of 279.	Responder: McNeil The Foxboro SPEC 200 components are physically arranged in the racks to meet the requirements of IEEE-279 and Watts Bar Design Criteria WB-DC-30-4, Separation/Isolation. Foxboro (Invensys) uses two IE analog modules to isolate IE to Non-IE signals. These are Contact Output Isolator (Model Number 2A0-L2C-R Relay Output) and Voltage-to-Current Converter (Model Number 2A0-VAI), both of which have the Input and Output signals isolated.		Open	Open-TVA Due 10/31/10			This item is a follow-up question to item 22
286	7.7.3	9.3.4.2.4	EICB (Darbali)	8/27/2010 SE 7.7.3, Volume Control Tank Level Control System In FSAR section 9.3.4.2.4 a change was made to the last paragraph of the Volume Control Tank description (page 9.3-31 of the Amendment 97 redline), where the "low-low level alarm" was changed to "low level alarm". Please explain if this deletion was an editorial change to correct a typo.	Responder: Webber Low alarm is correct – the setpoint is above the low-low interlock that opens the isolation valve, mentioned earlier in the paragraph. Editorial change to correct a typo.		Open Response is satisfactory.	Open-TVA Due 10/31/10			
287	7.3	7.3-1	EICB (Darbali)	8/27/2010 In Amendment 95 of FSAR section 7.3.2.3 ‘Further Considerations’, the list of signals that would start the auxiliary feedwater motor driven and turbine driven pumps was moved to table 7.3-1 item 3, Auxiliary Feedwater. However, item (6) ‘AMSAC’ was not included in table 7.3-1.	Responder: Elton Unit 2 FSAR Section 7.3 addresses Engineered Safety Features (ESF) Actuation System. AMSAC is non-safety, and thus non-ESF. Therefore, it was correct to not include AMSAC when the initiating signals were relocated from Unit 2 FSAR Section 7.3.2.3 to Table 7.3-1.		Open	Open-TVA Due 10/31/10	ML102390538, Item No. 1, 9/10/10		

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				Please explain this omission or state your commitment to correct this in a future amendment.							
288	7.3		EICB (Garg)	9/2/2010 Can we add a section to chapter 7 giving a brief overview of the Foxboro Spec 200 in Section 7.3?	Responder: McNeil The following new section will be added to the WBN Unit 2 FSAR as part of Amendment 102: 7.3.1.1.3 Analog Instrumentation The miscellaneous safety-related analog process control and indication loops are a set of discrete analog modules that have been tested and qualified for use in safety related systems. The various components have been qualified to IEEE Standard 323-1983 (R-1996) "IEEE Standard for Qualifying Class IE Equipment for Nuclear Power Generating Stations", IEEE Standard 344-1987 (R-1993) "IEEE Standard Recommended Practices for Seismic Qualification of Class IE Equipment for Nuclear Power Generating Stations", and IEEE Standard 384-1984 (R-1992) "IEEE Standard Criteria for Independence of Class IE Equipment and Circuits". The modules are arranged in instrument loops to provide the safety function as described in the TVA licensing basis for the Emergency Gas Treatment, Auxiliary Feedwater, and Safety-Related Balance of Plant systems. Seismic qualification of the analog modules and racks is addressed in FSAR Section 3.10. The components are physically arranged in the racks to meet the requirements of IEEE-279 and Watts Bar Design Criteria WB-DC-30-4, Separation/Isolation. Two IE analog modules are used to isolate IE to Non-IE signals. These are the Contact Output Isolator and Voltage-to-Current Converter, both of which have the Input and Output signals isolated.		Open TVA committed to adding a description of the Foxboro Spec 200 hardware at the 10/12 NRC Public Meeting.	Open-TVA Due 10/31/10			
289			EICB (Singh)	9/2/2010 Provide an ISG 2 diversity analysis for the containment high range accident monitors RM-1000.	Responder: Faulkner There are 4 Containment High Range Radiation Monitors (HRRMs) for WBN2, a pair in upper containment and a pair in lower containment. Each pair completely meets the requirements for safety related equipment including separation, independence, electrical isolation, seismic qualification, quality requirements, etc. Each monitor channel is a standalone instrument loop with traditional individual panel readout. They are		Open	Open-TVA Staff has the following comments on the proposed TVA response: Please explain any actions or functions that may be based on			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					<p>not a part of a Highly Integrated Control Room (HICR) and there is no diversity question relating to the HRRMs and any HICR infrastructure. Therefore, the response to this RAI will address the functional uses of the HRRMs and the alternate and diverse instrumentation that could be used for those functions should a common mode software issue render both trains of HRRMs non-functional.</p> <p>The Containment HRRMs have no automatic actuation function. They only provide indication as required by RG 1.97R2. They are used at WBN for 2 functions. They are used by the operators in Emergency Operating Instructions (EOI) as one of the indications of abnormal containment conditions indicative of a Loss of Coolant Accident (LOCA) after a Reactor Trip and Safety Injection and they are used in Emergency Plan Implementing Procedures (EPIP) to assist with event classification for events which involve fuel cladding degradation.</p> <p>In the EOI procedures, there are several diverse indications of containment conditions that are used to detect a LOCA and they are Containment Pressure, Containment Temperature, and Containment Sump Level. All of these instrument channels are diverse to the HRRMs in that they do not share a software platform or any integrated information or control system features. The HRRMs functional through individual, self contained, microprocessor based instrument loops. Containment Pressure and Sump Level indications are provided through Eagle 21 equipment which is completely diverse from the HRRMs.. Containment Temperature is provided through Foxboro Spec 200 instrument channels which are completely diverse from the HRRMs. All of these readouts are through traditional panel meters and are not part of any HICR infrastructure.</p> <p>In the EPIPs, the HRRMs are used to indicate loss of fuel clad barrier and the potential loss of a containment barrier. Potential fuel clad damage can also be determined from samples taken from the Reactor Coolant System and from Incore Thermocouple readings. RCS sampling does not rely on plant instrumentation systems and the Incore Thermocouple System uses a Common Q software platform which is diverse from the</p>			<p>alarms or indications in case of total loss of all HHRMs.</p> <p>Please confirm that the location for obtaining the RCS sample is accessible after an accident.</p> <p>Please note that staff intended to use ISG2 and not ISG4 for citing the need to address diversity. ISG4 is an inadvertent error and it has been corrected to ISG2.</p> <p>Otherwise, the response is acceptable.</p> <p>Due 10/31/10</p>			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					<p>HRRMs. The accessibility required to obtain post accident samples of RCS has been demonstrated to be a viable post accident action at WBN.</p> <p>Should all 4 channels of HRRMs fail upscale, Annunciator Response Instructions would be followed and they call for evacuation of containment, sampling of RCS, checking other non-accident Radiation Monitors, notification of Radiological Control personnel to investigate, potential transition to Abnormal Operating procedures for management of potential radioactive material release, and evaluation under the Emergency Plan Implementing Procedures for event classification. All of these actions are conservative actions. Should all 4 channels of the HRRMs fail downscale, the operators would turn to diverse indications as noted above before taking any further action.</p> <p>Therefore, there are diverse methods and equipment sets that can be used for any functions provided by the HRRMs should both channels become nonfunctional.</p>						
290		7.7	☺	9/7/2010	Responder: Clark		Closed	Closed	NA	NA	This item is a duplicate of item 291
291		7.7	EICB (Carte)	9/7/2010 The equation at the bottom of Amendment 100 page 7.7-3 is wrong. There are two ways that this equation is inconsistent with the text above it.	Responder: Clark The errors in the terms within the equation for total rod speed error [T _E] will be corrected in FSAR Amendment 101 as shown below: $T_E = T_{ref} \frac{1}{(1 + t_2 s)} - T_{avg} \frac{(1 + t_3 s)}{(1 + t_4 s)(1 + t_5 s)} + \left[(Q_{tu} - Q_n) \frac{t_1 s}{(1 + t_1 s)} K_1 K_2 \right]$		Open	Open-TVA Due 10/31/10			
292	7.2.5	7.2	EICB (Garg)	9/7/2010 FSAR Section 7.2, Steam Generator Reference Leg: By letter dated July 27, 1994, TVA had withdrawn its commitment on Unit 1 to insulate SG reference leg. TVA had provided an analysis to justify this action which was accepted by the staff. Confirm whether SG reference leg in Unit 2 are insulated and if not then confirm that the analysis which was submitted for Unit 1 is also applicable to Unit 2.	Responder: Craig The SG level transmitter reference legs are not insulated on Unit 1 and will not be insulated on Unit 2. The analysis provided for Unit 1 is also applicable to Unit 2. FSAR Section 7.2.1.1.2 (5) indicates that the Low-Low steam generator water level trip protects the reactor from loss of heat sink in the event of a loss of feedwater to one or more steam generators or a major feedwater line rupture <u>outside</u> containment. For a feedwater line rupture <u>inside</u> containment the TVA analysis credits the high containment pressure Safety Injection signal. FSAR Section 15.4.2.2 has been revised accordingly. Reference: 1. Watts Bar Unit 1 SER NUREG-0847, Supplement 14.		Open	Open-TVA Due 10/31/10			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					2. Westinghouse WCAP 13462, Revision 2						
293	7.7.4	7.2.2.3.5	EICB (Marcus)	<p>9/8/2010</p> <p>FSAR Amendment 100, Section 7.2.2.3.5 discusses Steam Generator Water Level and protection against low water level. However, this section does not discuss protection against Steam Generator overflow. Additionally, FSAR Section 7.2.2.3.4 discusses Pressurizer Water Level and provides minimal information concerning Pressurizer overflow. Please provide a discussion of protection against Pressurizer and Steam Generator overflow.</p>	<p>Responder: Craig</p> <p><u>Steam Generator Overflow</u> FSAR Section 7.2 discusses reactor trip functions. Section 7.2.2.3.5 describes the Low-Low steam generator level reactor trip. The steam generator High-High level interlock (P-14) protects against steam generator overflow by initiating feedwater isolation and a turbine trip. Reactor trip occurs indirectly as a result of the turbine trip if power is above 50%, the P-9 interlock. This function is identified as ESFAS interlock P-14 in FSAR Section 7.3, Table 7.3-3. The High-High level interlock is also discussed in FSAR Section 10.4.7.3. Section 15.2.10 analyzes the feedwater malfunction event which causes one or more feedwater control valves to fail to the fully open position.</p> <p><u>Pressurizer Overflow</u> The High pressurizer water level reactor trip protects against pressurizer overflow. This trip is described in FSAR Section 7.2.1.1.2 (3). Section 7.2.2.3.4 discusses specific control and protection interactions related to pressurizer level control. The high water level trip setpoint provides sufficient margin such that the undesirable condition of discharging liquid coolant through the safety valves is avoided. Pressurizer level is modeled in various Chapter 15 events to ensure that critical protection functions will function as required.</p>		Open	Open-TVA Due 10/31/10 NRC to review and issue formal RAI to TVA.			Item No. 22 is being drafted.
294	7.3	7.3.1.1.1	EICB (Darbali)	<p>9/9/2010</p> <p>In Amendment 95 of FSAR section 7.3.1.1.1 'Function Initiation', item (13) was arranged into paragraph form from what used to be a listing of items (a), (b) and (c).</p> <p>The second bullet under item (c) was omitted in the new paragraph.</p> <p><i>Initiates Phase B containment isolation of the following:</i></p> <ul style="list-style-type: none"><i>"Closure of the main steam isolation valves (MSIV) to limit reactor coolant system cooldown for breaks downstream of the MSIV's."</i> <p>Please explain this omission or state your commitment to correct this in a future amendment.</p>	<p>Responder: Elton</p> <p>The information provided in Unit 2 FSAR Section 7.3.1.1 is not meant to describe the specific function of each item in detail; the descriptions provided are a summary listing. The omitted information provided information beyond the level of detail provided for the other items in this section.</p> <p>The level of detail contained in item (13) of Unit 2 FSAR Section 7.3.1.1 is consistent with that contained in item 13. of Unit 1 UFSAR Section 7.3.1.1.</p>		Open	Open-TVA Due 10/31/10	ML102390538, Item No. 2, 9/10/10		
295	7.3	7.3.1.1.2	EICB (Darbali)	<p>9/9/2010</p> <p>In Amendment 95 of FSAR section 7.3.1.1.2 'Process Protection Circuitry', item (3), references to sections 7.6 and 7.7 were removed.</p>	<p>Responder: Elton</p> <p>The level of detail is sufficient for this section without the two removed references to other Sections.</p>		Open	Open-TVA Due 10/31/10	ML102390538, Item No. 3, 9/10/10		

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				Please explain the reason for removal.	The level of detail contained in item (3) of Unit 2 FSAR Section 7.3.1.1.2 is consistent with that contained in item 3. of Unit 1 UFSAR Section 7.3.1.1.2.						
296	7.3	7.3.1.2.1	EICB (Darbali)	9/9/2010 In Amendment 95 of FSAR section 7.3.1.2.1 ‘Generating Station Conditions’, the new paragraph was arranged from what used to be a listing of items (1.b), (1.c), and (2.b), leaving out items (1.a) and (2.a). Even if the paragraph contains the word ‘include’, the breaks in items (1.a) and (2.a) should be listed. Please explain this omission or state your commitment to correct this in a future amendment.	Responder: Elton The information provided in Unit 2 FSAR Section 7.3.1.2.1 is not meant to provide detailed information describing what each condition includes. Deletion of the breaks described in Items (1.a) and (2.a) is justified because they are encompassed by the operating conditions primary system breaks and secondary system breaks, respectively. The level of detail contained in Unit 2 FSAR Section 7.3.1.2.1 is consistent with that contained in Unit 1 UFSAR Section 7.3.1.2.1.		Open	Open-TVA Due 10/31/10	ML102390538, Item No. 4, 9/10/10		
297	7.3	7.3.1.2.2	EICB (Darbali)	9/9/2010 In Amendment 95 of FSAR section 7.3.1.2.2 ‘Generating Station Variables’, the following sentence was erased: <i>Post accident monitoring requirements and variables are given in Tables 7.5-1 and 7.5-2.</i> Please explain the reason for removal.	Responder: Elton Unit 2 FSAR Section 7.3 addresses Engineered Safety Features (ESF) Actuation System. Post accident monitoring is not an ESF; thus, a reference to it is not required in 7.3.1.2.2.		Open	Open-TVA Due 10/31/10	ML102390538, Item No. 5, 9/10/10		
298	7.3	XX	EICB (Darbali)	9/9/2010 IE Bulletin 80-06 calls for review of engineered safety features with the objective of ensuring that no device will change position solely because of the ‘reset’ action. In Supplement 3 of NUREG-0847, section 7.3.5, the staff approved the design modifications proposed by the applicant that would allow certain devices to remain unchanged upon an ESF reset. The staff also found acceptable the applicant’s justification for some safety-related equipment that does not remain in its emergency mode after an ESF reset. Please confirm whether or not the equipment that was determined in NUREG-0847 and its supplements to remain unchanged upon an ESF reset will still remain unchanged in Unit 2.	Responder: Clark A review of the schematic diagrams for the WBN Unit 2 valves listed in SER 3 found the following: (1) For feedwater isolation valves (FCV-3-33, FCV-3-47, FCV-3-87, and FCV-3-100), feedwater check valve bypass valves (FCV-3-185, FCV-3-186, FCV-3-187, and FCV-3-188), and upper tap main feedwater isolation valves (FCV 3-236, FCV-3-239, FCV-3-242, and FCV-3-245), the Unit 2 equivalent reset switch and a relay have been added for each steam generator loop. When the engineered safety feature (ESF) signal is reset, the individual valve will not change state until both the loop and the ESF train reset switches have been reset. (2) For steam generator blowdown isolation valves (FCV-43-54D, FCV-43-56D, FCV-43-59D, FCV-43-63D, FCV-43-55, FCV-43-58, FCV-43-61, and FCV-43-64), the ESF signal is sealed in by means of a seal in relay. The individual valve will not change state until a hand switch in the sample room is used to reopen the individual valve. (3) For residual heat removal heat exchanger outlet flow control valves (FCV-74-16 and		Open	Open-TVA Due 10/31/10	ML102390538, Item No. 6, 9/10/10		

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					FCV-74-28), the ESF signal is sealed in by the limit switch. The Unit 2 equivalent reset switch has been added at the control room control board. When the ESF signal is reset, the individual valve will not change state until the individual reset switch has been reset.						
299				Provide Common Q Software Requirements Specification Post Accident Monitoring System 00000-	Attachment 41 of the 10/5 letter contains the Common Q Software Requirements Specification		Closed	Closed			
300			EICB (Singh)	Need Radiation Monitoring System Description/Design Criteria Are detectors different from Unit 1. Describe any differences. Are there any commercially dedicated parts in the RM-1000? If so, how are they dedicated? Please confirm that digital communication ports available in RM-1000 are not used.	Responder: Temples/Mather (1) The Radiation Monitoring Design Criteria Document, WB-DC-40-24, Revision 21 is contained in Attachment 5 to letter dated October 31, 2010. (2) Attachment 7 contains the General Atomics detector differences report. (3) For safety-related applications, General Atomics Electronic Systems, Inc. supplies the RM-1000 module assembly as a Basic Component. This assembly does contain component parts that are Safety-Related Commercial Grade Items (SRCGI). Because these SRCGI components are assembled into the delivered Basic Component, they are dedicated to the assembly by virtue of the acceptance test of the full RM-1000 assembly. (4) The digital communications ports on the safety-related RM-1000 radiation monitors are not used.		Open	Open-TVA Due 10/31/10			
301			EICB (Singh)	TVA is requested to address the consequences of total loss of CERPI. In addition, address how the actions stipulated in the plant Technical Specifications will be taken when the CERPI system indications are lost. Information notice IN 2010-10 (ML100080281) addresses the need to consider software failures and the actions required to assure that the plant will stay within its licensing basis. Provide FMEA in support of your response. FSAR Table 7.7-1, Plant Control System Interlocks lists interlock C-11 to block automatic rod withdrawal when 1/1 Control Bank D rod position is above setpoint. This interlock capability would be lost in case of total loss of CERPI. How is the rod block assured for this event? How is automatic rod withdrawal affected in case of total loss of signals from the CERPI to the ICS? Is this interlock fail safe? FSAR chapter 15, Section 2.3.2.1states that the resolution of the rod position indicator channel is 5% of span (7.2 inches). The CERPI system accuracy specified in the CERPI System requirements	Responder: WEC/Davies/Clark (1) A total loss of CERPI puts the plant into LCO 3.0.3 which states: When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in: a. MODE 3 within 7 hours; b. MODE 4 within 13 hours; and c. MODE 5 within 37 hours. Exceptions to this Specification are stated in the individual Specifications. Where corrective measures are completed		Open	Open-TVA Due 10/31/10			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				Specification, WNDS-DS-00001_WBT, Rev. 2 is 12 steps or 5.19%. The specified system accuracy seems to be greater than the accuracy assumed in the FSAR Chapter 15. Please clarify this anomaly.	<p>that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.</p> <p>(2) See the response to Question 1.</p> <p>(3) There is no FMEA for the CERPI system, nor is one required to respond to questions 1 and 2.</p> <p>(4) Control Bank D Automatic Rod Withdrawal Limit would be assured by Operations and control circuitry by the following 2 methods:</p> <p>a. A simultaneous failure of all indications of the Rod Position Indication System places the plant in LCO 3.0.3 since it would prevent compliance with actions in LCO 3.1.8.</p> <p>b. CERPI cabinet relays A-KX-18 and B-KX-18 are the PLC controlled components of Rod Withdrawal Limit. The relays are “active low” requiring power to activate the contacts in the control circuit as shown on attached. Total loss of CERPI will open the contacts and block Automatic Rod Withdrawal. Additionally, Annunciator window 64F will annunciate to show “C-11 BANK D AUTO WITHDRAWAL BLOCKED”.</p> <p>(5) The CERPI Maintenance and Test Panels are used to set the Rod Withdrawal Limit with output signal to ICS as a parallel path. As stated above, the relays are the controlling functions and loss of signal to ICS will not affect the capability of the control circuit to disable the Automatic Rod Withdrawal function. The C-11 interlock is fail safe with regards to loss of power.</p> <p>(6) RAI RESPONSE: The cycle-specific analyses for the static rod misalignment assume full misalignment of an individual rod from the bank position indicator(s). Such a misalignment exceeds that which is possible during plant operations when accounting for the most adverse combination of the rod deviation alarm and uncertainty of the rod position indicator (both 12 steps). For consistency of parameter (and units) with the deviation alarm and position indicator uncertainty, the WBN Unit 2 FSAR Chapter 15, Section 2.3.1 will be revised to read:</p> <p>“The resolution of the rod position indicator</p>						

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					<p>channel is ± 12 steps. Deviation of any RCCA from its group by twice this distance (24 steps) will not cause power distributions worse than the design limits. The deviation alarm alerts the operator to rod deviation with respect to group demand position in excess of 12 steps. If the rod deviation alarm is not operable, the operator is required to take action as required by the Technical Specifications.”</p> <p>This change is consistent with FSAR section 4.3.2.2.5, Limiting Power Distributions Page 4.3-13 which states the maximum deviation assumed is 12 steps.</p>						
302	7.5.2.1	7.5.1	EICB (Marcus)	09/17/2010 Item 208 requested a description of the changes that were performed under 10 CFR 50.59 for 16 Unit 1 PAM variables that were identified in Enclosure 1 Item No.6 of the letter dated June 18, 2010 (ML101940236). Please identify the specific 10 CFR 50.59 documentation that applies to each of these 16 variables.	Responder: Tindell Attachment 8 contains the requested 50.59 evaluations and the variable table cross referencing the variable to the appropriate DCN. There are two changes to the original table. Variable 9, RCS Pressurizer Level and 10, RCS Pressure Wide Range have been changed from 50.59 Y to N. The original response showed these variables as changed under 10 CFR 50.59. The response was based on the plan to replace all paper recorders in Unit 1. The assumption was that these recorders would be replaced prior to Unit 2 startup. While this may still occur, the recorders have not been replaced at this time.		Open	Open-TVA Due 10/31/10 NRC to issue formal RAI to TVA			Item No. 23 is being drafted.
303	7.5.2.1	7.5.1	EICB (Marcus)	09/17/2010 Enclosure 1 Item 6 of the letter dated June 18, 2010 included a column to indicate the Unit 2 variable source for each PAM variable and also if the variable was unique to Unit 2. For each variable that was indicated as unique to Unit 2 and the Unit 2 variable source is (1) Foxboro Spec 200, (2) Common Q PAMS, or (3) Foxboro IA, identify the Unit 1 variable source.	Responder: Tindell Attachment 9 contains the cross reference between the Unit 2 and Unit 1 variable sources for the unique WBN Unit 2 variables within the scope of the Foxboro Spec 200, Common Q PAMS and Foxboro I/A changes.		Open	Open-TVA Due 10/31/10 NRC to issue formal RAI to TVA			Item No. 24 is being drafted.
304	7.5.2.1	7.5.1	EICB (Marcus)	09/17/2010 Enclosure 1 Item 6 of the letter dated June 18, 2010 indicated that the Unit 2 variable source for 14 PAM variables is Eagle 21. Please confirm that for each of these 14 variables the Unit 1 variable source is also the Eagle 21.	Responder: Tindell The source for the Unit 1 variables is the Eagle 21 System.		Open	Open-TVA Due 10/31/10 NRC to issue formal RAI to TVA			Item No. 25 is being drafted.
305	7.5.2.1	7.5.1	EICB (Marcus)	09/17/2010 Enclosure 1 Item 6 of the letter dated June 18, 2010 indicated that the Unit 2 variable source for 2 PAM variables is the Integrated Computer System. Please confirm that for these 2 variables the Unit 1 variable source was the Unit 1 plant computer system.	Responder: Tindell The source for the Unit 1 variables is the Integrated Computer System.		Open	Open-TVA Due 10/31/10 NRC to issue formal RAI to TVA			Item No. 26 is being drafted.
306	7.1	7.1	EB (Gar)	FSAR amendment 100, page 7.1-12 provides the definition of Allowable value which is not consistent with TSTF-493 as allowable value is the value beyond	Responder: Hilmes The FSAR Allowable Value definition will be		Open	Open-TVA Due 10/31/10			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				which instrument channel is declared inoperable.	revised to be consistent with the TSTF-493 in FSAR Amendment 102. Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change.						
307	7.1	7.1	EICB (Garg)	(1) FSAR amendment 100, Section 7.1, page 7.1-12, definition of Acceptable as found tolerance is not in accordance with TSTF-493 as AAF is the limit beyond which the instrument channel is degraded but may be operable and its operability must be evaluated. (2) Also it states that AAF is based on measurable instrument channel uncertainties, such as drift, expected during the surveillance interval. These wording should be revised to agree with the wording given in RIS2006-17 as these wordings are very vague. (3) Also it states that RPS functions use double sided tolerance limits for the AAF. Since AAF is a band it will always be double sided and therefore, this clarification does not mean anything and it clouds the issue.	Responder: Hilmes (1) The Acceptable As Found (AAF) definition will be revised to be consistent with TSTF-493 in FSAR Amendment 102. Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change. (2) Additional detail on the AAF methodology was provided in sections 7.1.2.1.9.1, Westinghouse Setpoint Methodology, and 7.1.2.1.9.2, TVA Setpoint Methodology. These sections will be revised to clarify the AAF calculations in FSAR Amendment 102. Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change. (3) The statement about double sided limits addresses a TSTF requirement that the AAF tolerance consider errors in both the conservative and non-conservative directions and ensures that an as-found value which exceeds these limits, even in the conservative direction (away from the safety limit), will be evaluated. Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change.		Open	Open-TVA Due 10/31/10			
308	7.1	7.1	EICB (Garg)	(1) FSAR Amendment 100, Section 7.1, page 7.1-13, definition of Acceptable as left tolerance is not in accordance with TSTF-493 as it states that this may take calibration history into consideration. This is very vague and ambiguous. (2) Also it states that RPS functions use double sided tolerance limits. Since ALF is a band it will always be double sided and therefore, this clarification does not mean anything and clouds the issue.	Responder: Hilmes (1) The statement about using calibration history to determine the Acceptable As Left (AAL) will be deleted in FSAR Amendment 102. Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change. (2) See response to letter item 27 (NRC Matrix Item 307).		Open	Open-TVA Due 10/31/10			
309	7.1	7.1.2.1.9.1	EICB (Garg)	(1) FSAR amendment 100, Page 7.1-14, Westinghouse setpoint methodology, states that AAF is the algebraic sum of the This is not acceptable. As algebraic sum is non conservative compared to the SRSS method and will mask the operability of the instrument channel and therefore, it is not acceptable to the staff. (2) It also make the statement that ALT may take calibration history into consideration which is vague and ambiguous.	Responder: Hilmes (1) The AAF calculation for Westinghouse setpoint methodology calculations will be revised to SRSS method. (2) The statement about using calibration history to determine the AAL will be deleted.		Open	Open-TVA Due 10/31/10			
310	7.1	7.1.2.1.9.2	EICB (Garg)	(1) FSAR amendment 100, Page 7.1-14, TVA setpoint methodology, states that for AAFand other measurable uncertainties as appropriate (i.e., those	Responder: Hilmes (1) The statement will be revised to say those		Open	Open-TVA Due 10/31/10			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				present during calibration....) should be changed to present during normal operation..... (2) Also on page 7.1-15, states that ALT may take calibration history into consideration which is vague and ambiguous.	present during the surveillance interval in FSAR Amendment 102. Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change. (2) The statement about using calibration history to determine the AAL will be deleted in FSAR Amendment 102. Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change.						
311	7.1	7.1	EICB (Garg)	Both Westinghouse and TVA setpoint methodology do not have any discussion on single sided calculation. Please confirm that single sided calculation has not been used for all setpoints with TSTF-493 and provide a statement to that effect in the FSAR.	Responder: Hilmes A statement that single-sided corrections are not used for TSTF-493 setpoints will be included in FSAR Amendment 102. Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change.		Open	Open-TVA Due 10/31/10			
312		7.0	EICB (Garg)	By letter dated September 10,2010, TVA provided the summary evaluation of 50.59 reports which were related to FSAR Chapter 7.0. However, these evaluation only covers Amendments 0 thru 8. Provide all other evaluation which have been done since these amendments and which forms the basis for FSAR Chapter 7.0 systems.	Responder: Stockton Amendment 8 is the current version of Unit 1 UFSAR.		Open	Open-TVA Due 10/31/10			
313	7.7.8	7.7.1.12	EICB (Darbali)	EDCR 52408 (installation of AMSAC in Unit 2) states that Design Criteria WB-DC-40-57 needs to be modified to reflect AMSAC in Unit 2. 1. Has WB-DC-40-57 been completed for Unit 2? If so, please submit. 2. If WB-DC-40-57 has not been completed for Unit 2, please give an estimated date of completion and submittal. 3. Please submit WB-DC-40-57 for Unit 1 and identify any changes to the Unit 2 version.	Responder: Ayala (1) The review of WB-DC-40-57 for Unit 2 applicability has been completed and included in Revision 4 of the document. (2) There are 17 open Watts Bar Nuclear Plant Unit 2 Startup Integration Task Equipment List (WITEL) punch list items associated with Revision 4 that require resolution. A list of the punch list items is contained in Attachment 10. (3) Attachment 10 contains TVA design criteria WB-DC-40-57, Revision 4, Anticipated Transients Without Scram Mitigation System Actuation Circuitry (AMSAC)ontained in Attachment ?? of the 10/31 letter		Open	Open-TVA Due 10/31/10			
314	7.3	7.3	EICB (Darbali)	The following 50.59 changes were listed in the March 12 RAI response letter (item 10) but were not included in the September 9 submittal of 50.59 safety evaluations. Please submit the 50.59 safety evaluations for the following changes: • DCN 38842 (Revise OTΔT and OPΔT turbine runback setpoints) • DCN 50991 (Install Test Points) • DCN 51124 (Eliminate spurious ICS alarms associated with the SSPS	Responder: Stockton Attachment 7 contains the requested safety evaluations.		Open	Open-TVA Due 10/31/10			Related to OI 10

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
315	7.5.3	7.5.3	EICB (Garg)	IE Bulletin 79-27 required that emergency operating procedures to be used by control room operators to attain safe shutdown upon loss of any Class IE or non Class IE bus are adequate. WBN1 has performed the review and documented their conclusion. Confirm that WBN2 emergency procedures are adequate to achieve safe shutdown in the event of loss of any Class IE or non-Class IE bus.	Responder: S. Smith (TVA Operations) While the WBN Unit 2 Emergency Operating Procedures (EOPs) have not been written, they will be written the same as the Unit 1 EOPs. WBN Unit 1 personnel will perform validations to ensure that WBN Unit 2 EOPs will perform the required actions. The WBN Unit 2 EOPs will be written and validated prior to Unit 2 fuel load.		Open	Open-TVA Due 10/31/10			
316	7.5.2.3	7.5	EICB (Singh)	TVA has provided various documents in support of RM-1000 high range monitors for WBN2. Please clarify the following: RM-1000 v1.1 Software Verification Report 04508006 (Sequoyah) RM-1000 v1.2 Software Verification Report 04508006 (Sequoyah) RM-1000 System Verification Test Results (Sequoyah) These documents were prepared for the Sequoyah plant. IS the version provided applicable to WBN2? Please confirm and explain if these documents are applicable to WBN 2 as provided or with differences?	Responder: Temples/Mather The Sequoyah RM-1000 v1.1 Software Verification Report 04508006 and RM-1000 v1.2 Software Verification Report 04508006 are applicable to WBN Unit 2. The RM-1000 System Verification Test Results report is not applicable to WBN Unit 2. This document was for the non-safety related software and was superseded by the 04508006 v1.1 and v1.2 reports for the safety-related software.		Open	Open-TVA Due 10/31/10			
317	7.5.2.3	7.5	EICB (Singh)	TVA has provided a proprietary and a non-proprietary version of Technical Manual for RM-1000 Digital Radiation Processor under ML101680582 and ML101680587). (i) Are these documents applicable to WBN2 as provided (October 2003 version). (ii) Why is DCN38993-A attached at the back of the proprietary version? It is for WBN1 Turbine Governor Control Valve. (iii) This document does not state the requirements for RM-1000 units. Please provide a document that states the requirements for the RM-1000 radiation monitors for WBN2.	Responder: Temples i. These documents are applicable to WBN Unit 2. ii. This was an error in document preparation that occurred when attachments were assembled for a previous letter. iii. The Technical Manual is not intended to include equipment requirements. Requirements would be found in the applicable TVA Specifications for the contract. Attachment 11 contains the Material Requisition Specification Revisions 1 and 4 which contain the requested information.		Open	Open-TVA Due 10/31/10 (iii) Staff is looking for high level requirements for RM-1000 monitors. Pl. provide appropriate documents.			
318	7.5.2.3	7.5	EICB (Singh)	TVA has provided the following documents for RM-1000 equipment qualification: (i) Qualification Test Report for RM-1000 Processor Module and Current-To-Frequency Converter 04508905-QR (January 2001) (ii) Qualification Test Report Supplement, RM-1000 Upgrades 04508905-1SP (June 2006) (iii) Qualification Test Report Supplement, RM-1000 Upgrades 04508905-2SP (June 2008) (iv) Qualification Test Report Supplement, RM-1000 Upgrades 04508905-3SP (May 2008) Please clarify whether all of these are fully applicable to WBN2 or are they applicable with exceptions? If with exceptions, then please clarify what those are. Supplement 3 was issued one month prior to supplement 2. Please explain the reason for the same.	Responder: Temples (i) Applicable to WBN Unit 2. 04508905-1QR is applicable only in regards to the RM-1000, with the exception of re-qualification of certain RM-1000 equipment differences covered in the -1SP report. The Current-to-Frequency (I-F) converter module qualifications in the base report and the -1SP report are not applicable to the RM-1000s, and will be used later as references in the WBN Unit 2 specific qualification reports. (ii) Applicable to WBN Unit 2. (iii) Not applicable to WBN Unit 2 (iv) Not applicable to WBN Unit 2 The 04508905-3SP report was prepared for another TVA plant, as a monitor system-level report, where the system included equipment		Open	Open-TVA Due 10/31/10 Note check 04508905-1QR or QR. Staff version is QR only.			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
					mostly based on the base report equipment items. These two -2SP and -3SP supplement reports were essentially worked concurrently, but the -2SP document review/release process resulted in the release time difference.						
319	7.5.2.3	7.5	EICB (Singh)	<p>TVA provided System Verification Test Results 04507007-1TR (July 1999) for Sequoyah to support test verification. However, the document states (page v) that it is not applicable for high range monitors with an action noted for fixing a problem with the high range RM-1000 monitors on page vi. TVA to respond to the following clarifications:</p> <p>Has the anomaly noted on page vi been resolved for the high range monitors?</p> <p>Provide the high range verification document for WBN2.</p>	<p>Responder: Temples</p> <p>See TVA letter to the NRC dated October 20, 2010, item 26 (RAI Matrix Item 316) for non-applicability of 04507007-1TR. The recorded anomaly was later resolved through the verification of software version 1.2, reported in RM-1000 v1.2 Software Verification Report 04508006.</p> <p>The high range verification documents are the Sequoyah RM-1000 v1.1 Software Verification Report 04508006 and RM-1000 v1.2 Software Verification Report 04508006.</p>		Open	Open-TVA Due 10/31/10			
320				<p>Per Westinghouse letter WBT-D-2340, TENNESSEE VALLEY AUTHORITY WATTS BAR NUCLEAR PLANT UNIT 2 FSAR Markups Units 1 and 2 118% vs 121 % and Correction to RAI Response SNPB 4.3.2-7, (Reference 17) the 118% value should be 121%. Depending on the use in the FSAR either 118% or 121% is the correct value. As a result of the question, Westinghouse reviewed all locations where either 118% or 121% are used and the context of use and provided a FSAR markup to reflect the correct value at the specific location. These changes will be incorporated in FSAR Amendment 101</p>	<p>Responder: Clark</p> <p>This item is not required It was entered as a tracking commitment from the 10/5 letter to issue FSAR Amendment 101 which includes the described change. Amendment 101 will be issued no later than 10/29.</p>		Closed	Closed			
321				<p>For the purposes of measuring reactor coolant flow for Reactor Protection functions, elbow taps are used for both Unit 1 and 2. The discussion and equation are valid for establishing the nominal full power flow which is used to establish the Reactor Protection System low flow trip setpoint. However the method used to verify reactor coolant flow, as required by the Technical Specifications, is not the same. Unit 1 uses a simplified methodology based on elbow tap ΔP measurements correlated with precision calorimetric data over several cycles of operation as described in FSAR Reference 17, WCAP-16067, Rev 0, RCS Flow Measurement Using Elbow Tap Methodology at Watts Bar Unit 1. The plan is for Unit 2 to transition to this method after sufficient data is obtained. Pending this transition, 7.2.2.1.2 will be revised to read as follows:</p> <p>“Nominal full power flow is established at the beginning of each fuel cycle by either elbow tap methodology or, performance of the RCS calorimetric flow measurement. Unit 1 utilizes elbow tap methodology Reference [17]. Unit 2 utilizes the RCS calorimetric flow measurement. The results are used to normalize the RCS flow indicators and provide a reference point for the low flow reactor trip setpoint.”</p>	<p>Responder: Clark</p> <p>This item is not required It was entered as a tracking commitment from the 10/5 letter to issue FSAR Amendment 101 which includes the described change. Amendment 101 will be issued no later than 10/29.</p>		Closed	Closed			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
				This change will be incorporated in FSAR Amendment 101							
322				Section 7.7.1.11 will be added to FSAR Amendment 101 to provide a discussion of the Distributed Control System	Responder: Clark This item is not required It was entered as a tracking commitment from the 10/5 letter to issue FSAR Amendment 101 which includes the described change. Amendment 101 will be issued no later than 10/29.		Closed	Closed			
323				WCAP-13869 revision 1 was previously reviewed under WBN Unit 1 SER SSER 13 (Reference 8). Unit 2 references revision 2. An analysis of the differences and their acceptability will be submitted to the NRC by November 15, 2010	Responder: Craig WCAP 13869 was revised to address feedline breaks occurring inside containment. Revision 2 was a result of the TVA decision to not insulate the Steam Generator level transmitter reference legs (Reference TVA response to NRC RAI 15.4.2.2 Q4). Attachment 12 contains the WCAP 13869 Revision 2 Change Analysis.		Open	Open-TVA Due 10/31/10			
324				Per the NRC reviewer, the BISI calculation is not required to be submitted.			Closed	Closed			
325				The Unit 2 loops in service for Unit 1 that are scheduled to be transferred to the Foxboro Spec 200 hardware will be transferred prior to Unit 2 fuel load	Responder: TVA Startup Olson		Open	Open-TVA Due prior to fuel load			
326				TVA uses double-sided methodology for as-found and as-left Reactor Trip and ESFAS instrument setpoint values. The FSAR will be revised in a future amendment to reflect this methodology	Responder: Webb Attachment 3 contains the revised FSAR section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change.		Open October 22, 2010	Open-TVA Due 10/31/10			
327				Attachment 36 contains Foxboro proprietary drawings 08F802403-SC-2001 sheets 1 through 6. An affidavit for withholding and non-proprietary versions of the drawings will be submitted by January 31, 2011.	Responder: Webber		Open January 31, 2011	Open-TVA Due 1/31/11			
328	7.5.2.3	7.5	EICB (Singh)	Provide the model number for the four containment high range area monitors, RM-1000 and identify how the software V&V and qualification documents apply to them. If there is no specific model number then how is it ensured that the correct radiation monitor is received at the site and subsequently installed?	Responder: Temples The RM-1000 monitors are uniquely identified by serial numbers which will be assigned when the equipment is assembled.		Open	Open-TVA Due 10/31/10			
329	7.6.1	7.6.7	EICB (Singh)	Section 7.6.7 of the FSAR (Amendment 100) states that, "The DMIMS-DX™ audio and visual alarm capability will remain functional after an Operating Basis Earthquake (OBE). All of the DMIMS-DX™ components are qualified for structural integrity during a Safe Shutdown Earthquake (SSE) and will not mechanically impact any safety-related equipment." TVA to clarify the seismic qualification of the loose parts monitoring system and include the appropriate information in Table 3.10 (or another suitable section) of the FSAR.	Responder: Clark The FSAR Section 3.10 title is SEISMIC DESIGN OF CATEGORY I INSTRUMENTATION AND ELECTRICAL EQUIPMENT. Since the Loose Part Monitoring System is not a Category 1 system, it is not included in the scope of 3.10. FSAR Section 7.6.7 provides the information the seismic design of the system which is consistent with the requirements of TVA Design Criteria, WB-DC-30-31, LOOSE PARTS MONITORING SYSTEM.		Open	Open-TVA Due 10/31/10			

No.	SE Sec.	FSAR Sec.	NRC POC	Issue	TVA Response(s)	Prop Y/N	Status/ Current Actions	Resolution Path	RAI No. & Date	RAI Resp. Date	Comments
330	7.3	7.3	EICB (Darbali)	<p>Related to Item 298</p> <p>IE Bulletin 80-06 calls for review of engineered safety features with the objective of ensuring that no device will change position solely because of the ‘reset’ action.</p> <p>In Supplement 3 of NUREG-0847, section 7.3.5, the staff approved the design modifications proposed by the applicant that would allow certain devices to remain unchanged upon an ESF reset. The staff also found acceptable the applicant’s justification for some safety-related equipment that does not remain in its emergency mode after an ESF reset.</p> <p>Please list for Unit 1 and Unit 2 the safety-related equipment that does not remain in its emergency mode after an ESF reset.</p>	Responder: TBD		Open	Open-TVA Due TBD			

Matrix Items	Number	Notes
NRC Chapter 7 Matrix Total Line Items	338	
Closed Line Items	196	
NRC Review Line Items	36	
Open Line Items	106	
WEC Common Q Open Line Items	33	1 shared with Bechtel due 12/31/10
WEC Non Common Q Open Line Items	2	1 Eagle 21 (Rack 2 resolution) remains open for October 31 letter
Bechtel Non Common Q Open Line Items	50	5 Items remaining for October 31 Letter 3 EDCR excerpts (working) 1 Reg. Guide 1.97 Unit 1 variable source report (working) 1 General Atomic Detector Difference report (working)
TVA Open Line Items	21	All October 31 Letter items complete
Letters		
October Letter 1 Due 10/20/10	NA	Distributed for concurrence on 10/18/10
October Letter 2 Due 10/31/10	NA	Draft under development FSAR Change Package working TRM Change Package not started