



Tennessee Valley Authority, Post Office Box 2000, Spring City, TN 37381-2000

April 27, 2010

U.S. Nuclear Regulatory Commission  
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Mail Stop: OWFN P1-35  
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Unit 2  
NRC Docket No. 50-391

10 CFR 50.4

**Subject: WATTS BAR NUCLEAR PLANT (WBN) UNIT 2 – STAFF INFORMATION REQUESTS RESULTING FROM NRC DECEMBER 15, 2009, MEETING WITH TENNESSEE VALLEY AUTHORITY (TVA) REGARDING DIGITAL INSTRUMENTATION AND CONTROLS REVIEW AND NRC CLARIFICATIONS TO THE REQUESTS PROVIDED DURING FEBRUARY 18, 2010, TELEPHONE CONFERENCE CALL (TAC NO. ME0853)**

Reference: NRC Letter dated December 22, 2009, "Summary of December 15, 2009, Meeting with Tennessee Valley Authority (TVA) Regarding Digital Instrumentation and Controls Review (TAC No. ME0853)"

The purpose of this letter is to provide TVA's responses to NRC's information requests contained in the referenced letter, as well as responses to additional NRC requests for information and clarification received during a telephone conference call held on February 18, 2010. The enclosure to this letter provides TVA's responses to the information requested by NRC.

This letter does not contain any regulatory commitments. If you have any questions, please contact me at (423) 365-2351.

Sincerely,

Masoud Bajestani  
Watts Bar Unit 2 Vice President

List of Enclosures:

1. TVA's response to NRC's requests for additional information.

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## ENCLOSURE

### **WBN Unit 2 – Staff Information Requests Resulting From NRC December 15, 2009, Meeting With TVA Regarding Digital Instrumentation And Controls Review and NRC Clarifications To The Requests Provided During February 18, 2010 Telephone Conference Call**

This enclosure contains TVA's responses to requests for additional information (RAIs) received in the referenced NRC letter (Reference 1). This enclosure also contains TVA's responses to the additional information requests and clarifications pertaining to the requests contained in the referenced letter that were provided verbally to TVA Licensing on February 18, 2010.

As noted in the following responses, some of the requested information has been provided in the RAI responses in TVA letter to NRC dated March 12, 2010, "Watts Bar Nuclear Plant (WBN) Unit 2 – Additional Information Regarding Final Safety Analysis Report (FSAR), Chapter 7, "Instrumentation And Controls" Review – Requested Common Q Proprietary Documents" (Reference 2). In those instances where the information is not available, a schedule to provide the information is included.

1. **NRC Request/Question:** *Provide the justification for any hardware and software changes that have been made since the previous U.S. Nuclear Regulatory Commission (NRC) staff review for Eagle 21 and other platforms.*

#### **TVA Response:**

In discussions with the staff, TVA's understanding is that the focus of this question is the Eagle 21 system. Please refer to Reference 2, Question 10, and TVA letter to NRC dated August 25, 2008, "Watts Bar Nuclear Plant (WBN) - Unit 2 – Westinghouse Eagle 21 Process Protection System, Response to NRC I&C Branch Request for Additional Information" (Reference 3) for the discussion of changes to the Eagle 21 system.

2. **NRC Request/Question:** *Verify that the refurbishment of the power range nuclear instrumentation drawers resulted in only like-for-like replacements.*

#### **TVA Response:**

Refer to Attachment 1 for the "Summary of Changes for Watts Bar Unit 2 Nuclear Instrumentation System (NIS)" presented at our meeting with NRC on January 13, 2010. The Certificate of Compliance is available for review onsite. This refurbishment maintains the use of analog technology and does not add any digital components or functions to the system.

3. **NRC Request/Question:** *Identify the precedents in license amendment requests (LARs), if any, for source range monitors or intermediate range monitors.*

#### **TVA Response:**

The WBN Unit 1 source and intermediate range monitors were installed prior to fuel load and are part of the original licensing basis for the plant. The WBN Unit 2 source range digital shutdown monitor is the same processor and software as originally installed in WBN Unit 1. Refer to the Thermo Fisher letter dated March 12, 2010 (Attachment 2).

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4. **NRC Request/Question:** *Identify precedents in LARs, if any, for the solid state protection system. Also, identify any hardware deviation from the precedent. Clarification 1: For SSPS, describe circuit board level changes.*

#### **TVA Response:**

The WBN Unit 1 Solid State Protection System (SSPS) is part of the original licensing basis. As noted during the January 13, 2010, meeting, some changes are necessary to support obsolescence. Refer to the Power Point presentation (Attachment 3) from TVA's January 13, 2010, meeting with NRC for a detailed listing of SSPS changes and the bases for the changes. This refurbishment maintains the same reliability and technological approach licensed and in service for WBN Unit 1.

5. **NRC Request/Question:** *Identify any changes made to any instrumentation and control (I&C) system based on prior knowledge of failures.*

#### **TVA Response:**

In communications with the staff, it is TVA's understanding that this question is focused on SSPS. The only change to improve board reliability is conformal coating is added to the SSPS boards, to help mitigate tin whisker formation.

6. **NRC Request/Question:** *Verify that the containment purge isolation radiation monitor is the same as used in Watts Bar Unit 1, or identify any hardware changes.*

#### **TVA Response:**

In communications with the staff, it is TVA's understanding that the component in question is the ratemeter. The containment purge isolation monitors (2-RE-90-130 and -131) utilize the same analog ratemeter (RP-30AM) that is installed in WBN Unit 1. The monitors are described in WBN Unit 2 Final Safety Analysis Report (FSAR), Section 11.4.2.2.6, Table 11.4-2 Sheet 2 and Table 11.4-3 Sheet 2.

7. **NRC Request/Question:** *Provide environmental qualification information pursuant to Section 50.49 of Title 10 of the Code of Federal Regulations (10 CFR) for safety-related actuation transmitters.*

#### **TVA Response:**

As part of the WBN Unit 2 50.49 program, the instrumentation has been qualified to function in the worst case harsh environment. The complete documentation is available for review at the WBN Unit 2 site in the transmitter Environmental Qualification binders. Excerpts of the qualification documents are provided in Attachment 4.

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8. **NRC Request/Question:** *For the Foxboro Spec 200 platform, (Q1) identify any changes in hardware from the precedent systems. (Q2) Provide the design report and the equipment qualification information.*

#### **TVA Responses:**

##### Q1

In discussions during the meeting with the staff held on April 14, 2010, it is TVA's understanding that this question will be reviewed by inspection, and no further response is required at this time.

##### Q2

In discussions during the meeting with the staff held on April 14, 2010, TVA's understanding is that this question will be reviewed by inspection, and no document submittals are required at this time.

9. **NRC Request/Question:** *Verify the auxiliary feedwater control refurbishment results in a like-for-like replacement, and identify any changes from the identified precedents.*

#### **TVA Response:**

In discussions with the staff, TVA's understanding is that this question pertains to the governor. The Woodward governor is being refurbished by the original equipment manufacturer to meet the original specifications. The refurbished governor does not result in a change in technology; as such, it is consistent with the WBN Unit 1 technology. The Certificate of Compliance is available for review onsite when the equipment is received.

10. **NRC Request/Question:** *(Q1) Provide environmental qualification (10 CFR 50.49) information for safety-related control transmitters and (Q2) complete the deviation section of the table.*

#### **TVA Response:**

(Q1) Refer to TVA's response to item 7 above.

(Q2) In discussions with the staff, TVA's understanding is that the focus of this question is the Common Q System. The deviations are described in WNA-LI-00058-WBT, Watts Bar Unit 2 (WBN2) Post Accident Monitoring System (PAMS) Licensing Technical Report, Revision 0, submitted under TVA letter to NRC dated April 8, 2010, "Watts Bar Nuclear Plant (WBN) Unit 2 – Additional Information Regarding Final Safety Analysis Report (FSAR), Chapter 7, 'Instrumentation And Controls' Review – Requested Common Q Proprietary Documents" (Reference 5).

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### **WBN Unit 2 – Staff Information Requests Resulting From NRC December 15, 2009, Meeting With TVA Regarding Digital Instrumentation And Controls Review and NRC Clarifications To The Requests Provided During February 18, 2010 Telephone Conference Call**

11. **NRC Request/Question:** *Provide a schedule by the January 13, 2010, meeting for providing documentation in accordance with I&C Interim Staff Guidance (ISG) 6. Clarification 1: Schedule for ISG-6 for Common Q and RM1000.*

**TVA Response:**

Refer to the proprietary ISG-6 Matrix for Common Q that is included in TVA letter to NRC (Reference 2), Question 4. The matrix provides the schedule for document submittals.

In discussions with the staff, the NRC reviewer determined that the requirement to submit an ISG-6 evaluation for the RM1000 is not required. In regard to the schedule, please refer to Reference 2, Question 4, for a listing and schedule for submittal of the required documentation.

12. **NRC Request/Question:** *For the containment radiation high radiation monitor, verify that the information provided by TVA is consistent with the information provided with the previously-approved license amendment request for the Duane Arnold plant or provide Phase 3 information.*

**TVA Response:**

Proprietary versions of requested documentation and the schedule for the non-proprietary versions and proprietary withholding applications are included in Reference 2, Question 4.

13. **NRC Request/Question:** *Provide environmental qualification (10 CFR 50.49) information for safety-related monitoring transmitters.*

**TVA Response:**

Refer to TVA's response to item 7 above.

14. **NRC Request/Question:** *For Foxboro IA provide information regarding safety/nonsafety-related interaction, common cause failures, and communication with safety related equipment in accordance with ISG 4.*

**TVA Response:**

There are no digital communications or interactions between Foxboro Intelligent Automation (IA) and any safety-related system.

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### ***WBN Unit 2 – Staff Information Requests Resulting From NRC December 15, 2009, Meeting With TVA Regarding Digital Instrumentation And Controls Review and NRC Clarifications To The Requests Provided During February 18, 2010 Telephone Conference Call***

15. **NRC Request/Question:** *For the turbine control AEH system, verify that the refurbishment results in a like-for-like replacement.*

**TVA Response:**

The system is being refurbished to match the WBN Unit 1 analog electro hydraulic system. The replacement turbine servo control valve cards have imbedded digital processors that are the same as those installed on WBN Unit 1 under 10 CFR 50.59. The change to the digital processor was made to improve reliability and ensure stable servo control valve operation. The servo control valve cards are non-safety-related.

16. **NRC Request/Question:** *For the rod control system, verify that the refurbishment results in a like-for-like replacement.*

**TVA Response:**

Refer to the Summary of Changes for Rod Control System (Attachment 5) presented at our meeting with NRC on January 13, 2010.

17. **NRC Request/Question:** *Regarding the refurbishment of I&C equipment, identify any component digital upgrades and, if so, provide the supporting design information.*

**TVA Response:**

As previously discussed in response 15, the turbine servo control valve cards contain imbedded digital processors that are the same as those installed on WBN Unit 1 under 10 CFR 50.59. They are non-safety-related and are not reflected in the same level of detail contained in the FSAR.

18. **NRC Request/Question:** *For the rod position indication system (CERPI), provide information in accordance with ISG 4. Need to consider cyber-security issues. Clarification 1: For CERPI, just indication? Regulatory Guide (RG) 1.97 information? ISG-4.*

**TVA Response:**

CERPI is a non-safety-related indication-only system within the Indication and Monitoring echelon. It has no interconnection with any digital systems within the Control or Protection echelons. While it is part of the Westinghouse Common Q I&C platform, its AF-100 communications bus does not connect with or communicate with the Common Q PAMS AF-100 communications bus, which is the only other Common Q system installed in WBN Unit 2.

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In the Unit 2 FSAR, Table 7.5-2, control rod position indication (CERPI) is RG-1.97 Variable 20. It is classified as a D3 variable. The following justification (Deviation 35) for this classification from the Unit 2 FSAR is provided. This deviation is consistent with the Unit 1 design basis.

#### JUSTIFICATION

“Control rod position indication is an indirect variable. It provides backup indication for monitoring reactivity control. Neutron flux (Category 1) is a direct variable that allows the operator to determine if reactivity is under control (i.e., the reactor has tripped and the core is in a subcritical condition). Since this provides backup indication, utilizing it as a Type D variable is sufficient.”

Based on this, TVA believes that ISG-4 is not applicable to the CERPI system.

19. **NRC Request/Question:** (Q1) *For the process computer, need to consider cyber security issues and emergency response data system needs. Clarification 1: (Q2) Process Computer describe separation from safety systems. (Q3) Confused by FSAR Section 7.5 has PAMS and Plant Computer, Section 7.1.1.1 confusion as to SR?*

#### TVA Response:

(Q1) The plant (process) computer is part of the WBN Unit 2 Cyber Security Plan as described in TVA letter, "Request for Approval of the Watts Bar Nuclear Plant Cyber Security Plan," dated November 23, 2009 (Reference 4). As previously committed, the WBN Unit 2 Cyber Security Plan will be completed by December 31, 2010.

(Q2) The Plant Computer System is non-safety-related. Interfaces to safety-related systems are protected from feedback as follows:

- a. Eagle 21 – Mono-directional communications path as described in Reference 3.
- b. Common Q – The Maintenance and Test Panel, as described in WNA-LI-00058-WBT, WBN Unit 2 Post Accident Monitoring System (PAMS) Licensing Technical Report, Revision 0, submitted under TVA letter to NRC dated April 9, 2010 (Reference 5).

(Q3) FSAR Section 7.5 originally contained the description of the Emergency Response Facility Data System (ERFDS) computer. In the original WBN Unit 2 design, the ERFDS and the plant computer were separate non-safety-related mainframe computers. The WBN Unit 2 Integrated Computer System (ICS) modification merges the ERFDS and plant computer systems into a single computer network. As a result, FSAR Section 7.5 references to the ERFDS computer were revised to read “plant computer.”

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20. **NRC Request/Question:** *For the loose parts monitoring system, provide information regarding interactions with safety related equipment. Clarification 1: LPM describe separation from safety systems. How isolated? Describe interface to SPDS, TSC and nuclear data links.*

**TVA Response:**

The Loose Parts Monitoring System (LPMS) has no digital or electrical interaction with any safety-related systems. The mechanical interaction is limited to the accelerometers mounted on the Steam Generator reactor coolant inlet region and the Reactor Pressure Vessel Upper and Lower heads. The system is described in WBN Unit 2 FSAR, Section 7.6.7.

There is no interface from the LPMS to the Safety Parameter Display System (SPDS), Technical Support Center (TSC), or plant computer.

Clarification to TVA's RAI response submitted March 12, 2010 (Reference 2).

An additional change to the ICS drawing markup submitted in response to Question 14 is required. The ICS network connection to the LPMS (grid location F-9) was included during the planning stages of the WBN Unit 2 ICS project. TVA determined this connection is not required and plans to remove it at the next revision of the drawing. A revised markup of the drawing is attached (Attachment 6).

### **Verbal NRC Request for Additional Information Provided February 18, 2010**

Requests/Questions 21 through 25 are new requests for additional information and clarifications to the preceding questions provided verbally by the Staff to TVA Licensing on February 18, 2010. Clarifications to specific questions are addressed in the preceding responses.

21. **NRC Request/Question:** *Provide justification and bases for hardware changes.*

**TVA Response:**

- a. Eagle 21 – The existing Unit 2 Foxboro analog control system is obsolete and no longer vendor supported. The Foxboro system was replaced on Unit 1 prior to initial startup. Based on operating experience of WBN Unit 1 and Sequoyah Nuclear Plant Units 1 and 2, Eagle 21 has proven to be reliable.
- b. SSPS – The existing system is still supported by Westinghouse. The plant's operating and maintenance experience with the SSPS, and maintaining the same licensing basis as WBN Unit 1 resulted in the decision to retain and refurbish the SSPS for WBN Unit 2.

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- c. Rosemount Transmitters – The original safety-related transmitters were not available at the time the transmitters were ordered, which required TVA to find a new transmitter supplier. Rosemount has a proven track record in the nuclear industry and a sufficiently broad product line that most transmitters could be procured from a single source.
- d. Common Q – The original subcooled margin monitor is non-safety-related and therefore does not meet RG-1.97 requirements. The safety-related WBN Unit 1 replacement, ICCM-86 system, is no longer available. This required TVA to find a new safety-related system. The Westinghouse Common Q system was selected based on familiarity with the platform (CERPI is also a Common Q system) and the decision to upgrade the incore neutron monitoring system to WINCISE (Westinghouse Incore Information Surveillance & Engineering).
- e. Source and Intermediate Range Monitors – The existing Westinghouse source and intermediate range monitors do not meet the requirements of RG-1.97. Therefore, the licensee will replace this system. The replacement system from Thermo Fisher was selected to provide as close a match as possible to the WBN Unit 1 system.
- f. Turbine Servo Valve Control Cards – The digital cards were installed in WBN Unit 1 to improve reliability and improve the stability of servo control valve operation. The change to WBN Unit 2 is being done to bring the WBN Unit 2 hardware into agreement with Unit 1 and prevent a similar issue with the servo control valves in Unit 2.
- g. Containment High Range Post Accident Radiation Monitors – The monitors described in the WBN Unit 2 FSAR were never installed. This required new monitors to be procured. The General Atomics monitors were selected based on good operating experience with similar equipment at other TVA facilities.
- h. Balance of Plant (BOP) and Nuclear Steam Supply System (NSSS) Safety-Related Control and Indication – The existing analog safety-related mix or Foxboro/Bailey/Robert Shaw equipment is out of date and parts are difficult to procure. WBN Unit 1 had previously replaced portions of the Auxiliary Feedwater controls with analog Foxboro Spec 200, which provided an experience base with this equipment. This led to the decision to replace the remaining hardware with analog Foxboro Spec 200 equipment.
- i. BOP and NSSS Non-Safety-Related Control and Indication – Like the safety-related hardware, the existing Foxboro system is no longer manufactured or supported, making future maintenance difficult. As a result, the decision was made to procure new hardware. The Foxboro IA System was selected based on operating experience with the hardware within the TVA nuclear fleet.

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- j. Containment Hydrogen Monitor – The plant elected to implement the relief provided by RG-1.7 and 10 CFR 50.44 and the associated rule making which allowed the downgrading of the hydrogen monitor from dual safety-related monitors to a single non-safety-related monitor. The Meggitt monitor was selected because it is a more reliable system and requires less maintenance than the existing systems.
- k. Plant Computer – The existing P2500 Plant Computer and ERFDS Computer mainframes are obsolete and no longer supported. The WBN Unit 2 system was designed to match as closely as possible the WBN Unit 1 system functional design while incorporating newer network and upgraded cyber security features.
- l. Incore Neutron Monitoring – Due to the maintenance issues with the Movable Incore Probe System and the top mounted Core Exit Thermocouples (CET) connectors, the decision was made to replace those systems with WINCISE for WBN Unit 2.
- m. LPMS – Due to equipment obsolescence and reliability issues, WBN Unit 1 placed the LPMS on the 5 Year Plan for replacement. The decision was made to replace both Units 1 and 2 in the same timeframe.
- n. Reactor Coolant Pump and Turbine Vibration Monitoring – WBN Unit 1 previously replaced the Vibration Monitoring Systems with Bentley Nevada Model 3300 equipment. In order to keep WBN Unit 2 closely aligned with WBN Unit 1, the decision was made to replace the WBN Unit 2 system. The Bentley Nevada Model 3300 is no longer available, so WBN Unit 2 is using Bentley Nevada model 3500.
- o. Annunciator System – Ronan DOS-based annunciator systems were purchased for both WBN Units 1 and 2 prior to Unit 1 startup. The WBN Unit 2 system was never installed, and the hardware was placed in a warehouse. Since the WBN Unit 2 DOS-based system was obsolete and parts had been used for Unit 1, the decision was made to replace the multiplexers and central processing units and reutilize the lamp boxes.
- p. Voltage Regulator – WBN Unit 1 decided to replace the voltage regulator and issued a design change which is being installed at the next Unit 1 outage. This change is being made to maintain WBN Unit 2 hardware fidelity with WBN Unit 1.

**22. NRC Request/Question:** *Provide references for engineering or procurement procedures for like-for-like.*

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#### **TVA Response:**

TVA processes for like-for-like evaluations are described in Nuclear Engineering Department Procedure (NEDP) 8, "Technical Evaluation for Procurement of Materials and Services" (Attachment 7).

23. **NRC Request/Question:** *If not submitted before, explain differences and similarities from Unit 1.*

#### **TVA Response:**

- a. Eagle 21 – Please refer to the response to Question 1.
- b. SSPS – Please refer to the response to Question 4.
- c. Rosemount Transmitters - The majority of the Westinghouse transmitters provided for WBN Unit 1 are replaced with Rosemount transmitters. The exceptions are the capillary transmitters for Reactor Vessel Level Instrumentation System (RVLIS) and Pressurizer Level. The WBN Unit 1 transmitters are primarily 10-50 milliampere (mA) technology while the replacement WBN Unit 2 transmitters are 4-20 mA technology. Due to the change in mA range, the majority of the BOP transmitters are replaced in WBN Unit 2 as well. The BOP transmitters not being replaced are limited to BOP loops already in service to support WBN Unit 1.
- d. Common Q PAMS – This is a new system in place of the WBN Unit 1 ICCM-86 system. The Common Q PAMS combines the RVLIS, Core Exit Thermocouples (including the reference junction box), and Subcooled Margin Monitor functions into a single platform.
- e. Source and Intermediate Range Monitors – The analog detectors and electronics provide the same functions and ranges as the WBN Unit 1 systems but are a later design. The digital source range shutdown monitor uses the same processor and software as WBN Unit 1. Please refer to the response to Question 3.
- f. Turbine Servo Valve Control Cards – Installation of this change makes WBN Unit 2 identical to WBN Unit 1.
- g. Containment High Range Post Accident Radiation Monitors – The WBN Unit 2 digital monitors are functionally equivalent to the WBN Unit 1 analog monitors.
- h. BOP and NSSS Safety-Related Control and Indication – The auxiliary feedwater controls (Foxboro Spec 200) are the same as WBN Unit 1. All other loops are replaced with Foxboro Spec 200 hardware in WBN Unit 2.

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- i. BOP and NSSS Non-Safety-Related Control and Indication – The existing analog control and indication loops in WBN Unit 1 are replaced with a Foxboro IA distributed control system in WBN Unit 2.
- j. Containment Hydrogen Monitor – The WBN Unit 1 dual safety-related monitors are replaced with an upgraded single non-safety-related monitor in WBN Unit 2.
- k. Plant Computer – The WBN Units 1 and 2 systems are functionally nearly identical. The WBN Unit 2 system uses an upgraded network topology, newer hardware, and improved cyber security systems.
- l. Incore Neutron Monitoring – The WBN Unit 1 movable incore probe system is upgraded in WBN Unit 2 to WINCISE. The WINCISE system replaces the movable detectors with a set of 5 fixed detectors in each of the 58 incore thimbles. The new system relocates the CET from the top head entry to the top of the new bottom-mounted Incore Instrument Thimble Assemblies. The safety-related CET signals split from the non-safety-related incore power signals at the seal table. The WINCISE system provides a continuous monitor of incore power instead of performing periodic flux maps using the movable probe system.
- m. Loose Parts Monitoring – The WBN Unit 1s and 2 systems are being upgraded to a Westinghouse Digital Metal Impact Monitoring System (DMIMS-DX).
- n. Reactor Coolant Pump and Turbine Vibration Monitoring – The WBN Unit 1 systems were previously replaced with a Bentley Nevada 3300 system, which is no longer available. The WBN Unit 2 system is being upgraded to a Bentley Nevada 3500 system, which is the currently available model.
- o. Annunciator System – The WBN Unit 1 and 2 systems are operationally identical. The WBN Unit 2 system uses newer hardware running Microsoft Windows® instead of DOS and the same lamp boxes as WBN Unit 1.
- p. Voltage Regulator – TVA plans to install the same voltage regulators in both WBN Units 1 and 2.

**24. NRC Request/Question:** *For SSPS, describe circuit board level changes.*

**TVA Response:**

Please refer to the response to Question 4.

**25. NRC Request/Question:** *Identify any changes due to failures.*

**TVA Response:**

The only change was the addition of conformal coating to the SSPS boards, to help mitigate tin whisker formation.

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### ***WBN Unit 2 – Staff Information Requests Resulting From NRC December 15, 2009, Meeting With TVA Regarding Digital Instrumentation And Controls Review and NRC Clarifications To The Requests Provided During February 18, 2010 Telephone Conference Call***

#### **References:**

1. NRC letter to TVA dated December 22, 2009, "Summary of December 15, 2009, Meeting with Tennessee Valley Authority (TVA) Regarding Digital Instrumentation and Controls Review (TAC No. ME0853)" (A02 091224 001)
2. TVA letter to NRC dated March 12, 2010, "Watts Bar Nuclear Plant (WBN) Unit 2 – Additional Information Regarding Final Safety Analysis Report (FSAR), Chapter 7, 'Instrumentation And Controls' Review – Requested Common Q Proprietary Documents" (T02 100312 001)
3. TVA letter to NRC dated August 25, 2008, "Watts Bar Nuclear Plant (WBN) - Unit 2 – Westinghouse Eagle 21 Process Protection System, Response to NRC I&C Branch Request for Additional Information (TAC No. MD6311)" (ML082410088) (T02 080826 001)
4. TVA letter to NRC dated November 23, 2009, "Request for Approval of the Watts Bar Nuclear Plant Cyber Security Plan."
5. TVA letter to NRC dated April 8, 2010, "Watts Bar Nuclear Plant (WBN) Unit 2 – Additional Information Regarding Final Safety Analysis Report (FSAR), Chapter 7, 'Instrumentation And Controls' Review – Requested Common Q Proprietary Documents" (T02 100408 001)

#### **Attachments:**

Attachment 1 – Summary of Changes for WBN Unit 2 Nuclear Instrumentation System (NIS)

Attachment 2 – Thermo Fisher Scientific Letter, dated March 12, 2010

Attachment 3 – Power Point Presentation from January 13, 2010 Meeting with NRC on Solid State Protection System (SSPS)

Attachment 4 – Excerpts of Environmental Qualification (EQ) Documents for Safety-related Rosemount Transmitters

Attachment 5 – Summary of Changes for Rod Control System Presented in January 13, 2010 NRC meeting.

Attachment 6 – Revised markup of ICS Plan Drawing.

Attachment 7 – NEDP-8, "Technical Evaluation for Procurement of Materials and Services

**ATTACHMENT 1**

**Summary of Changes for WBN Unit 2 Nuclear Instrumentation System (NIS)**

## Summary of Changes for Watts Bar Unit 2 Nuclear Instrumentation System (NIS)

- The same drawing set applies to Watts Bar Units 1 & 2.
- 9 original Watts Bar Unit 2 NIS drawers were refurbished and tested per Factory Acceptance Test procedures.
- 2 new drawers were built based on the original design used for Watts Bar Unit 1 and were tested to the Factory Acceptance Test procedures.
- No functional design changes except for the addition of a Flux Deviation Time Delay card to the Unit 2 Flux Deviation drawer.

<b>Summary of Changes for Watts Bar Unit 2 Nuclear Instrumentation System (NIS)</b>			
<b>CHANGE (HW or SW)</b>	<b>WHY Change was Required</b>	<b>PROCESS/BASIS for Change being Acceptable</b>	<b>Documentation</b>
Addition of Flux Deviation Time Delay Card	TVA requested this functionality that Unit 1 has not been implemented in the chassis.	This change is non-safety. This card adds the capability to eliminate nuisance Flux Deviation annunciations by delaying the annunciation until the condition exists for an adjustable amount of time.	14DS002 1059E47 4256A68
Low Voltage Power Supply Connector 802338-MC1	Old connector became obsolete.	No change in function or qualification levels. Fit and form reworked to ensure a match with the obsolete connector. Some new connectors had slight mechanical interference with old mating connectors. New connectors are now reworked by Westinghouse to ensure proper fit with existing connectors.	CDI-2281 RRAS-NPI-08-019
Console Slide Rails & Drawer Mounting Strips 1506790A-L 1506790A-R 1506790B-L 1506790B-R	Old drawer mounting hardware became obsolete.	New drawer slide rails and mounting strips have compatible mounting holes, but both slide rails and mounting strips must be changed together. Equipment qualification testing was performed.	WCAP-8687 Supplement 2- E47C Addendum 4 PCE-3586 NIS Drawer Assembly Dwgs
Power Range B Analog Meters A10354D – later version which has a slightly lower zero-adjust location.	Manufacturer updated product.	Same function. Minor acceptable changes in fit and form.	RRAS-NPI-07-032

**Summary of Changes for Watts Bar Unit 2 Nuclear Instrumentation System (NIS)**

<b>CHANGE (HW or SW)</b>	<b>WHY Change was Required</b>	<b>PROCESS/BASIS for Change being Acceptable</b>	<b>Documentation</b>
Card Cages 6661E17 6661E18 10041E05	Original manufacturer out of business.	New custom made card cages are the same fit, function, and qualification level. Insignificant form changes.	WCAP-8687 Supplement 2-E47C Addendum 4 6661E17, 6661E18, 10041E05
Isolation Transformer 2384A21H01	Manufacturer discontinued product.	Replacement has same fit, function and qualification levels. New vendor builds to print from same procurement spec.	2384A21 CDI-2375
DL-21 Op-Amp Modules 2384A26H02	Proactive measure to prevent potential bistable card intermittent false tripping	No change in fit, function, or qualification levels. Insignificant change in form. Additional component testing performed.	EQLR-134 2384A26 RCA-08-095-M006
Discrete Component Changes (Resistors, Capacitors, Diodes, Transistors, etc.)	Parts became obsolete.	Any replacement component used since the original design is a fully form, fit, and functional replacement. Any parts change due to obsolescence is controlled under the Westinghouse drawing control system and any spare parts are controlled under the Westinghouse Commercial Parts Dedication process. MIL-SPEC and JEDEC parts are used where possible.	NIS Drawing Package for Watts Bar Units 1 & 2. The same drawing set applies to both Watts Bar Units 1 and 2. Drawing notes are used to document current and previously used parts.
Timer Scaler E&L Instruments 1530/ST101	Manufacturer discontinued product.	This is non-safety. The replacement is the same fit and function. Insignificant form changes.	6051D52
Audio Amplifier 6086D45G01	Manufacturer discontinued product.	This is non-safety. Custom Westinghouse replacement has no change in form, fit, or function.	6086D45
Power Range Uncompensated Ion Chamber Detector WL-24154	After qualification of original WL-23686 detector, the manufacturer changed the part number to WL-24154.	This was an administrative change only. The part itself did not change.	WCAP-8687 Supplement 2-E08A

**ATTACHMENT 2**

**Thermo Fisher Scientific Letter dated March 12, 2010**



The world leader  
in serving science

March 12, 2010

Mr. Aaron Trelease  
Watts Bar Authority PO Box 800- EQB 1F  
Spring City, TN 37381

Dear Mr. Trelease:

The purpose of this letter is to acknowledge that the software and firmware installed in the Thermo Fisher Shutdown Margin Monitor 900602-101 for Watts Bar Unit 2 is identical to that of Shutdown Margin Monitor 900238-101 installed in Watts Bar Unit 1.

Please let us know if further clarification is required in this matter.

Sincerely,

Marcelo Echeverria  
Project Manager – Nuclear Products

Tel: (858) 882-1265

<b>BECHTEL POWER CORPORATION</b>							Job Number: 25402					
<b>SUPPLIER DOCUMENT REVIEW STATUS</b>												
<b>STATUS CODE:</b>												
1	<input checked="" type="checkbox"/>	Work may proceed.					3	<input type="checkbox"/>	Rejected. Revise and resubmit.			
1C	<input type="checkbox"/>	Work may proceed. Editorial comments need only be incorporated if revised for other purposes.					4	<input type="checkbox"/>	Review not required. Work may proceed.			
2	<input type="checkbox"/>	Revise and resubmit. Work may proceed subject to incorporation of changes indicated.					PO 75148					
Permission to proceed does not constitute acceptance or approval of design details, calculations, analysis, test methods, or materials developed or selected by the Supplier and does not relieve the Supplier from full compliance with contractual obligations.												
Reviewed by	Arch	Civil	CS	Elect	Mech	MET	PD	Constr	Startup	STE		
	N/A	N/A	AT	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Status By:	Aaron Trelease						DATE	3/30/2010				

**ATTACHMENT 3**

**Power Point Presentation from January 13, 2010 Meeting with NRC  
on  
Solid State Protection System (SSPS)**

# Watts Bar Unit 2 NRC I&C Meeting

**SSPS**

January 13, 2010

# SSPS

- **SSPS System Designs (Watts Bar Unit 1 and Watts Bar Unit 2)**
  - There are no differences in design of SSPS between Unit 1 and Unit 2 at Watts Bar.
  - The table indicates the major cabinet material used in the system by part number:

Cabinet Assembly	Unit 1	Unit 2
Cabinet	1052E52H01	1052E52H01
Input Relay Panel	1046F28H01	1046F28H01
Output relay Panel	6057D79H01	6057D79H01
Master Relay Panel	6056D59G01	6056D59G01
Power Supply Assembly (PSA)	2374A07G01	
PSA Replacement	5D63760G01	5D63760G01
Logic Test Panel	1046F36G01	1046F36G01
Test Relay Panel	1046F40G01	1046F40G01
Input Relays	2384A28G01	2384A28G01
Master Relays	2384A28G03	2384A28G03
Slave Relays (latch)	AR440AR/ARLA	AR440AR/ARLA
(replacement)	MDR-4121-1	MDR-4121-1
Slave Relay	AR440AR	AR440AR
(replacement)	MDR-4103-1	MDR-4103-1
Universal Logic	6056D21G01	6056D21G01
Safeguards Driver	6056D32G01	6056D32G01
Under Voltage Driver	6101D27G01	6101D27G01
Semi-Automatic Tester	6056D33G01	6056D33G01
Clock Counter	6056D27G01	6056D27G01
Decoder	6056D25G01	6056D25G01
Isolation	1049F37G01	1049F37G01
Memory	6056D30G01	6056D30G01

# SSPS System Changes

- **System Power Supply**
  - The single largest replacement component is the system power supplies.
  - The original part 2374A07G01 was discontinued by the manufacturer in the late 1990's.
  - Westinghouse designed and qualified a replacement power supply (5D63760G01) in 2000.
  - This replacement supply has been sold as a replacement part since 2000 and is in use in numerous SSPS systems.
  - The new power supply was qualified and documented in EQLR-036 Rev. 0, September 2000.
  - The replacement supply is a fit and functional replacement.
  - The replacement power supply uses power supply modules and changes from a 30% efficient supply to a 70% efficient supply.
  - This results in a smaller AC load for the same DC output and load.

# SSPS System Changes

- Test Switches in the Output Bay
  - The test switches in the output bay to support master/slave relay testing are different.
  - The original test switch is obsolete and the replacement is a functional, fit replacement.
  - The form of the new switch is slightly different from the original switch.
  - The ring tongue connections of the original switch are replaced with compression connections on the new switch.
  - The new switch is qualified for use and documented in EQLR-063 Rev. 0 April 2000.

# SSPS System Changes

## ● Printed Circuit Boards

- The components used on the currently designed boards are the same components, but may be manufactured by different manufacturers.
- Most of these changes are the results of business buyouts by other companies.
- In those cases where components are no longer available, Westinghouse has switched to Military Specified (MilSpec) components supplied by MilSpec qualified vendors.
- Original PCBs were manufactured by Westinghouse I & C division in Baltimore. This was transferred to Pittsburgh in 1996. Current PCBs are manufactured using the original art work and commercially dedicated.

# SSPS System Changes

- MC660 series IC devices used on the circuit boards
  - The original logic devices are obsolete
  - Westinghouse purchases new devices as ML600TC1 series devices.
  - These devices are one hundred percent pre-screened.
  - The pre-screening process is based on MIL STD 883A testing of IC devices.
  - Once installed on new manufactured circuit boards, the boards are tested for operation, burned-in for 100 Hrs. @ 100 degree C, and functionally tested for operation before packaging and shipment.
  - Note: all repairs and new manufactured boards delivered to plants have been using the ML600TC1 devices since 2007.

# SSPS System Changes

- **Board Manufacturing**
  - The newly manufactured circuit boards currently being manufactured do use solder mask as a mitigation strategy for the formation of Tin Whiskers.
  - The application of solder mask to the circuit board has no affect on board function or operation.
  - The original designed boards did not use any type solder mask or board coating to mitigate the formation of Tin Whiskers.
  - This process was changed as a result of TB05-4.
  - This change makes the new manufactured boards look different from the original supplied boards.

# SSPS System Changes

- **Board Card Edge Connectors**
  - The newly manufactured boards use a different card edge connector.
  - The original card edge connector was discontinued 1985.
  - In 1985 a replacement connector was qualified for use.
  - The company changed names in 2005 and a replacement connector was qualified for use.
  - The replacement connector is documented as part of a new designed SSPS board and documented in EQLR-127

# SSPS System Changes

- **AR and MDR Relays**
  - There may be MDR-4121-1 relays installed into the output bay of the SSPS in place of AR440AR / AR880AR relays with an ARLA mechanical latch.
  - The ARLA latch is obsolete and the qualified replacement is the MDR-4121-1 MDR relay.
  - See Westinghouse Technical Bulletins TB77-10 and TB82-3 for issues with ARLA Latch and qualified replacements.

# SSPS System Changes

- **Design Changes Summary**

- It is the conclusion of Westinghouse SSPS Engineering that there are no changes between the design of Watts Bar Unit 1 SSPS and Watts bar Unit 2 SSPS that affects the operation of the Unit 2 SSPS.
- Any differences are the results of obsolete component replacements or enhanced manufacturing processes that were not available at the time of the original
- manufacture of the system.
- The replacement parts currently used in the manufacture of SSPS have been evaluated under the Parts Change Evaluation process and, if the part was not a form, fit, functional replacement, the part was qualified for use under a separate qualification program.

**ATTACHMENT 4**

**Excerpts of Environmental Qualification (EQ) Documents  
for  
Safety-Related Rosemount Transmitters**

BINDER NO. <u>WBNEQ-XMTR-001</u>	PLANT <u>WBN</u>	UNIT(S) <u>1</u>	R <u>27</u>	R
BINDER TITLE: <u>BARTON 764</u>	COMPUTED <u>AWL</u>	DATE <u>9/23/86</u>	<u>Rev 4/3/07</u>	
<u>LOT 7 AND 4</u>	CHECKED <u>BDM</u>	DATE <u>9/23/86</u>	<u>Rev 4/10/07</u>	

A. DOCUMENTATION

Equipment Description Refer to TAB A

Vendor/Manufacturer Westinghouse/Barton

Equipment Model No. (s) 764 Lot 7  
764 Lot 4 (Upgraded to Lot 7)

QUALIFICATION REPORTS

- (1) Title/Number/Revision WCAP-8687, Supp. RIMS NEB 840807 362  
2-EQTR-E03A, Revision 2\* DATE 3/83
- (1) (a) Title/Number/Revision WCAP-8687, Supp 2 RIMS B45 851203 353  
EO3A (Addendum 1) Barton Differential DATE 4/85  
Pressure Transmitters Qualification  
Group A
- (2) Title/Number/Revision WCAP-8587, Supp. RIMS B45 851203 352  
1-EQDP-ESE-3A, Revision 5 DATE 04/85
- (3) Title/Number/Revision WCAP-8587 - RIMS NEB 840724 354  
Methodology Revision 6 RIMS NEB 840724 353  
DATE 3/83

OTHER (ANALYSIS, VENDOR DATA, ETC.)

- (4) QRN 67142
- (5) Deleted by Rev. 19
- (6) QRN 68872
- (7) QRN 67188
- (8) Deleted by Rev. 19
- (9) QRN 68873

\*All references in TAB B are to this test report unless otherwise noted.

BINDER NO.	WBNEQ-XMTR-004	PLANT	WBN	UNIT(S)	1	
BINDER TITLE	BARTON 763 LOT 7	COMPUTED	AWL	DATE	9/23/86	R 21 R R21 3/17/85
		CHECKED	BDM	DATE	9/24/86	R21 3/18/85

A. DOCUMENTATION

Equipment Description Pressure Transmitter  
Vendor/Manufacturer Westinghouse/Barton  
Equipment Model No. (s) 763 Lot 7, 763A  
763 Lot 2 Upgrade

QUALIFICATION REPORTS

- |      |                       |   |      |                |
|------|-----------------------|---|------|----------------|
| (1)  | Title/Number/Revision | WCAP-8687, Supp. 2 -                                    | RIMS | NEB 840807 359 |
|      |                       | EQTR-E01A, Revision 2*.                                 | DATE | March, 1983    |
| (2)  | Title/Number/Revision | WCAP-8587, Supp. 1 -                                    | RIMS | NEB 840807 355 |
|      |                       | EQDP-ESE-1A, Revision 4.                                | DATE | March, 1983    |
| (2a) | Title/Number/Revision | WCAP-8587, Supp. 1 -                                    | RIMS | T49 950322 849 |
|      |                       | EQDP-ESE-1A, Revision 5.                                | DATE | March, 1995    |
| (3)  | Title/Number/Revision | WCAP-8587, Revision 6                                   | RIMS | NEB 840724 354 |
|      |                       | "Methodology."  | DATE | March, 1983    |
| (4)  | Title/Number/Revision | WCAP-8687, Supp. 2 -                                    | RIMS | B25 880812 006 |
|      |                       | E21A Revision 2 (See binder WBNEQ-XMTR-001,<br>TAB D-3) | DATE | March, 1983    |
| (5)  | Title/Number/Revision | WCAP-8687, Supp. 2 -                                    | RIMS | T49 950322 848 |
|      |                       | E01A Addendum 1, Revision 0                             | DATE | March, 1995    |

OTHER (ANALYSIS, VENDOR DATA, ETC.)

- (6) QRD's: 88124, 88331
- (7) QRN's: 43423, 68872, 74911, 74962, 79863
- (8) Westinghouse Auditable Link Document EQAL-WAT Rev 5 (B26 890612 929)
- (9) WBNAPS2-109 R7, Material Aging Calculation for Barton Model 763 Transmitters (WBNEQ-XMTR-004)
- (10) EQ Binder WBNEQ-CSC-004
- (11) DCN 52134-A

\*All references referred to in TAB B are to this test report (TAB D) unless otherwise noted.

BINDER NO. <u>WBNEQ-XMTR-007</u>	PLANT <u>WBN</u>	UNIT(S) <u>1</u>	
BINDER TITLE <u>PRESSURE</u>	COMPUTED <u>EEM</u>	DATE <u>6/5/92</u>	R <u>9</u> R
<u>TRANSMITTERS MODEL 1153D, 1154,</u>	CHECKED <u>AFM</u>	DATE <u>6/5/92</u>	<u>RSC 4/23/07</u>
<u>AND REMOTE SEAL MODEL 1159</u>			<u>RSC 4/23/07</u>

A. DOCUMENTATION

Equipment Description Pressure Transmitter & Remote Seal with Capillary  
Vendor/Manufacturer Rosemount Inc.  
Equipment Model No.(s) 1154DP4RG, 1153AD6RB & 1154DP5RB - Transmitter  
1159C15A - Remote Seal

QUALIFICATION REPORTS

- (1) Title/Number/Revision Qualification Report for RIMS S22 021001 002  
Pressure Transmitters Rosemount Model 1153 DATE 07/13/2000  
Series D/ Rosemount Report D8300040/Revision E
- (2) Title/Number/Revision <sup>1</sup>Qualification Report for RIMS B43851002511  
Pressure Transmitters Rosemount Model 1153 DATE 08/25/83  
Series D/ Rosemount Report D8300040(Appendix B)/  
Revision A

<sup>1</sup>Qualification Report Reference (2) includes several test reports. These test reports will be referenced within the binder as follows:

- (2a) Rosemount Report 108220A Revision A Date 11/5/82
- (2b) Rosemount Report D8300010 Revision A Date 3/07/83
- (2c) Rosemount Procedure 18214C Revision B Date 9/15/82
- (2d) Rosemount Report D8300055 Revision A Date 5/05/83
- (3) Title/Number/Revision Qualification Report for RIMS S22 021001 003  
Pressure Transmitters Rosemount Models 1153 DATE 06/09/1998  
Series B and D, Output Code "R"/Rosemount Report  
D8300131/Revision C
- (4) Title/Number/Revision Qualification Report for RIMS T49911231803  
Water Filled Remote Seal System, Rosemount DATE 09/08/83  
Model 1159/Rosemount Report D8300151/Revision D
- (5) Title/Number/Revision Qualification Report for RIMS S22 021001 001  
Pressure Transmitters Rosemount Model 1154/ DATE 07/18/2000  
Rosemount Report D8400102/Revision F
- (5a) Title/Number/Revision Qualification Test Procedure RIMS S22 021001 007  
for Modified Temperature Compensated Units, DATE 06/17/1998  
Model 1154 (procedure followed for test documented  
in D8400084 which is App. A in Report D8400102  
/Rosemount Report D8400004/Revision C

BINDER NO. <u>WBNEQ-XMTR-007</u>	PLANT <u>WBN</u>	UNIT(S) <u>1</u>	R <u>9</u> R
BINDER TITLE:			
<u>PRESSURE TRANSMITTERS</u>	COMPUTED <u>EEM</u>	DATE <u>2/28/91</u>	<i>DK 4/20/87</i>
<u>MODEL 1153D, 1154, and</u>			
<u>REMOTE SEAL MODEL 1159</u>	CHECKED <u>AFM</u>	DATE <u>1/28/92</u>	<i>REC 4/23/07</i>

QUALIFICATION REPORTS (cont.)

(6)	<u>Title/Number/Revision Remote Seal Qualification Test Procedure for 1153 Series B &amp; D/Rosemount Report D8200024/Revision F</u>	RIMS	<u>B74 890826 501</u>
		DATE	<u>08/16/1983</u>
(6A)	<u>Title/Number/Revision Qualification Report for Models 1153/1154 Damping Option-N0037/Rosemount Report D8800053/Revision E</u>	RIMS	<u>S22 021001 004</u>
		DATE	<u>07/18/2000</u>
(6B)	<u>Title/Number/Revision Type Test for Models 1153/1154 Damping Option/Rosemount Report D8800060/Revision B</u>	RIMS	<u>S22 021001 005</u>
		DATE	<u>05/22/1991</u>
(6C)	<u>Title/Number/Revision Qualification Report for Output Code R Op Amp Replacement/Rosemount Report D9900005/Revision B</u>	RIMS	<u>S22 021001 006</u>
		DATE	<u>04/09/2001</u>
(6D)	<u>Title/Number/Revision Qualification Test procedure for Output Code R Op Amp Replacement (procedure followed for test documented in D9900005)/Rosemount Report D9900004/Revision B</u>	RIMS	<u>S22 021001 008</u>
		DATE	<u>06/29/2000</u>
(6E)	<u>Title/Number/Revision Supplemental Test Plan for Output Code R Op Amp Replacement (Test Plan followed for test documented in D9900005)/Rosemount Report D9900090/Revision c</u>	RIMS	<u>S22 021001 009</u>
		DATE	<u>05/30/2000</u>

OTHER (ANALYSIS, VENDOR DATA, ETC.):

A. DOCUMENTATION (Continued)

- (7) Category and Operating Times:  
 System 77, WBNOSG4-021 R6 (B26 931027 373)  
 System 30, WBNOSG4-008 R26 (B26 970228 128)  
 System 01, WBNOSG4-004 R22 (B26 971007 300)
- (8) Environmental Data Drawings:  
 47E235-81 R5  
 47E235-44 R7  
 47E235-42 R11
- (9) Demonstrated accuracy calculation O-LT-77-134 R2 (B18 930222 251)
- (10) RG 1.97 Category I and Type E2 required range and accuracy, WBNOSG4-111 R13 (B26 971121 302)
- (11) Telecopy from Rosemount to TVA applicability of test reports and instruction manual (T49 911219 809)
- (12) WBNAPS2-153 R2 Material Aging Calculation for Rosemount Model 1153 Series D Transmitters

BINDER #:WBNEQ-IPT-003	PLANT: WBN	UNIT(s): 1, 2	PAGE: B-1 of 26
WEED INSTRUMENT - DTN2010 SERIES PRESSURE TRANSMITTERS			REV #: 0

A. DOCUMENTATION

Equipment Description Pressure Transmitters

Vendor/Manufacturer Weed Instrument

Equipment Model No. (s) DTN2010 Series

QUALIFICATION REPORTS:

(1) Title/Number/Revision	<u>Qualification Test</u>	RIMS	<u>W87 040331 002</u>
	<u>Report for Environmental and Seismic</u>		
	<u>Qualification of Weed Model DTN2010 Pressure</u>	DATE	<u>12/2002</u>
	<u>Transmitters / RCM Technologies Report 16690-</u>		
	<u>QTR/ Revision 00</u>		

OTHER (ANALYSIS, VENDOR DATA, ETC.):

(2) 47E235 - (Series) Environmental Data Drawings:

47E235-56 R8 El. 713 Room A19  
47E235-57 R6 El. 713 Room A19 (HELB Profiles)

(3) Category and Operating Times Calculations:

<u>System</u>	<u>Calculation</u>	<u>Rims No.</u>
68	WBNOSG4-017 R17	T95 080825 806

(4) Demonstrated Accuracy Calculation (Later).

(5) Calculation (Later), R0, EQ Calculation for Weed Pressure Transmitters (WBNEQ-IPT-003) (RIMS Later).

Note: Documents listed above are used throughout this binder for equipment qualification. The revision levels and Records and Information Management System (RIMS) numbers, as listed above, need not be repeated in other sections of the binder. This listing includes only those documents which are essential to qualification and accordingly should not be considered a complete listing of binder references.

Note: Throughout this EQDP, references are made to the test report(s) listed in Section A, "Qualification Reports". Unless otherwise noted, references are addressed as follows:

- (1) - Refers to the first entry under Section A of Tab B, "Qualification Reports."
- p. - Refers to a page number, or sheet, within a referenced report; and
- pp. - Refers to a series of page numbers, or sheets, within a referenced report;
- App. - Refers to an Appendix within the referenced report.

The format of referenced tabs will be Tab X/X-y with the X-y being a subsection (subtab) within the main section (Tab X). For example, C/C-1 refers to subtab C-1 of Tab C.

BINDER #: WBNEQ-XMTR-008	PLANT: WBN	UNIT(s): 1 & 2	PAGE B-1 of 36
ROSEMOUNT -- MODEL 1154 SERIES H TRANSMITTERS			REV #: 0

A. DOCUMENTATION

Equipment Description      Pressure Transmitter Series H

Vendor/Manufacturer        Rosemount

Equipment Model No. (s)    1154DH4, 1154DH5, 1154HH5, 1154H9

QUALIFICATION REPORTS:

(1) <u>Title/Number/Revision</u> <u>Qualification Report</u>	RIMS	<u>(Later)</u>
<u>For Rosemount Model 1154 Series H Pressure</u>	DATE	<u>07/17/2000</u>
<u>Transmitters / Rosemount Report D8700096/</u>		
<u>Revision I</u>		
(2) <u>Title/Number/Revision</u> <u>Type Test Report</u>	RIMS	<u>Note 1</u>
<u>For Rosemount Model 1154 Series H Pressure</u>	DATE	<u>10/23/98</u>
<u>Transmitters / Rosemount Report D8700097</u>		
<u>(Appendix 2) / Revision D</u>		
(3) <u>Title/Number/Revision</u> <u>Qualification Test</u>	RIMS	<u>Note 2</u>
<u>Procedure Model 1154 Series H Pressure</u>	DATE	<u>6/19/98</u>
<u>Transmitter / Rosemount Procedure D8700072/</u>		
<u>Revision D</u>		
(4) <u>Title/Number/Revision</u> <u>Beta Contribution</u>	RIMS	<u>(Later)</u>
<u>During Radiation Exposure Model 1153 Series D</u>	DATE	<u>10/27/82</u>
<u>Transmitter / Report 9823A / Revision A</u>		

Note 1    The test report is included as Appendix 2 of Rosemount Test Report D8700096 (Report 1). However, since portions of the report are used for the basis of qualification and, in order to clarify the references, of this EQDP; the test report will be treated as a separate entity.

Note 2    The test report is included as Appendix 5 of Rosemount Test Report D8700097 (Report 2). However, since portions of the report are used for the basis of qualification and, in order to clarify the references, of this EQDP; the test report will be treated as a separate entity.

OTHER (ANALYSIS, VENDOR DATA, ETC.):

(5) Category and Operating Times:

System 01, WBNOSG4-004, R24 (RIMS T95 080616 802)  
System 03, WBNOSG4-005, R25 (RIMS T95 080825 814)  
System 30, WBNOSG4-008, R28 (RIMS T95 080619 805)  
System 68, WBNOSG4-017, R17 (RIMS T95 080825 806)  
System 72, WBNOSG4-019, R14 (RIMS T95 080825 811)

(6) Environment Data Drawings:

47E235-42, R11  
47E235-44, R07  
47E235-45, R08  
47E235-48, R09  
47E235-56, R08  
47E235-70, R06  
47E235-76, R09

**ATTACHMENT 5**

**Summary of Changes for Rod Control System**

**Presented in**

**January 13, 2010 NRC Meeting**

### Summary of Changes for Rod Control System

CHANGE (HW or SW)	WHY Change was Required	PROCESS/BASIS for Change being Acceptable	Documentation (completed? if not estimated date)
Regulation card, lift (6D30113G04)	The new design includes redundancy and accordingly an additional output has been provided to actuate the non-urgent alarm if desired, to indicate a failure and transfer to the on-board redundant circuits.	Same form, fit, and function	4A48968; WBT-D-0947
Alarm card (6D31106G01)	The redesigned Alarm card adds new test points, LEDs including an LED that shows a power supply has failed, and it also has triple redundancy. A missing AC voltage and group select relay malfunction detector that senses loss of voltage to the movable gripper multiplexing transformers to prevent drop of a group of rods has been added.	Same form, fit, and function	4A49135; WBT-D-0947
Failure detector card (6D30539G01)	The redesigned Failure Detector card adds new test points, LEDs, and it also has triple redundancy.	Same form, fit, and function	4A48981; WBT-D-0947
Bank overlap Decoder card (6D30535G01)	Redesigned using the readily available CMOS logic family as a result of the original part becoming obsolete.	Same form, fit, and function. All voltage levels, thresholds, and drive levels of the original design have been duplicated.	4A48983; WBT-D-0947
Bank Overlap Display Driver card (2D82872G01)	Redesigned using the readily available CMOS 4000 series logic family as a result of the original part becoming obsolete.	Same form, fit, and function. All voltage levels, thresholds, and drive levels of the original design have been duplicated.	4A48969; WBT-D-0947
Slave Cyclor Decoder, Lift (2D39972G01)	Redesigned using the readily available HC logic family as a result of the original part becoming obsolete.	Same form, fit, and function. All noise levels, thresholds, and drive levels of the original design have been duplicated.	4A48966; WBT-D-0947

### Summary of Changes for Rod Control System

CHANGE (HW or SW)	WHY Change was Required	PROCESS/BASIS for Change being Acceptable	Documentation (completed? if not estimated date)
Slave Cyclor Decoder, Stationary (2D39972G02)	Redesigned using the readily available HC logic family as a result of the original part becoming obsolete.	Same form, fit, and function. All noise levels, thresholds, and drive levels of the original design have been duplicated.	4A48966; WBT-D-0947
Slave Cyclor Decoder, Moveable (2D39972G03)	Redesigned using the readily available HC logic family as a result of the original part becoming obsolete.	Same form, fit, and function. All noise levels, thresholds, and drive levels of the original design have been duplicated.	4A48966; WBT-D-0947
Slave Cyclor Logic (2D82868G01)	Redesigned using the readily available CMOS logic family as a result of the original part becoming obsolete.	Same form, fit, and function. All noise levels, thresholds, and drive levels of the original design have been duplicated.	4A48973; WBT-D-0947
Supervisory Logic 1 (6D30534G01)	Redesigned using the readily available CMOS logic family as a result of the original part becoming obsolete.	Same form, fit, and function. All voltage levels, thresholds, and drive levels of the original design have been duplicated.	4A48986; WBT-D-0947
Supervisory Buffer Memory (2D82869G01)	Redesigned using the readily available CMOS logic family as a result of the original part becoming obsolete.	Same form, fit, and function. All noise levels, thresholds, and drive levels of the original design have been duplicated.	4A48972; WBT-D-0947
Supervisory Data Logging (2D82870G01)	Redesigned using the readily available CMOS logic family as a result of the original part becoming obsolete.	Same form, fit, and function. All voltage levels, thresholds, and drive levels of the original design have been duplicated.	4A48971; WBT-D-0947
Load Resistor Kit (2A10018)	It was determined that the load resistor was needed to ensure minimum load on the power supply.	Installed to ensure minimum load on the power supply	Drawing 2A10018; WBT-D-1407
+15 PS1, PS4 (4A9206G01)*	Change made because of the benefits of the new power supply. Tools are not required to replace power supply module. Housings are permanently installed.  Over voltage protector is included.	Same form, fit, and function	Drawing 4A9206; WBT-D-1739

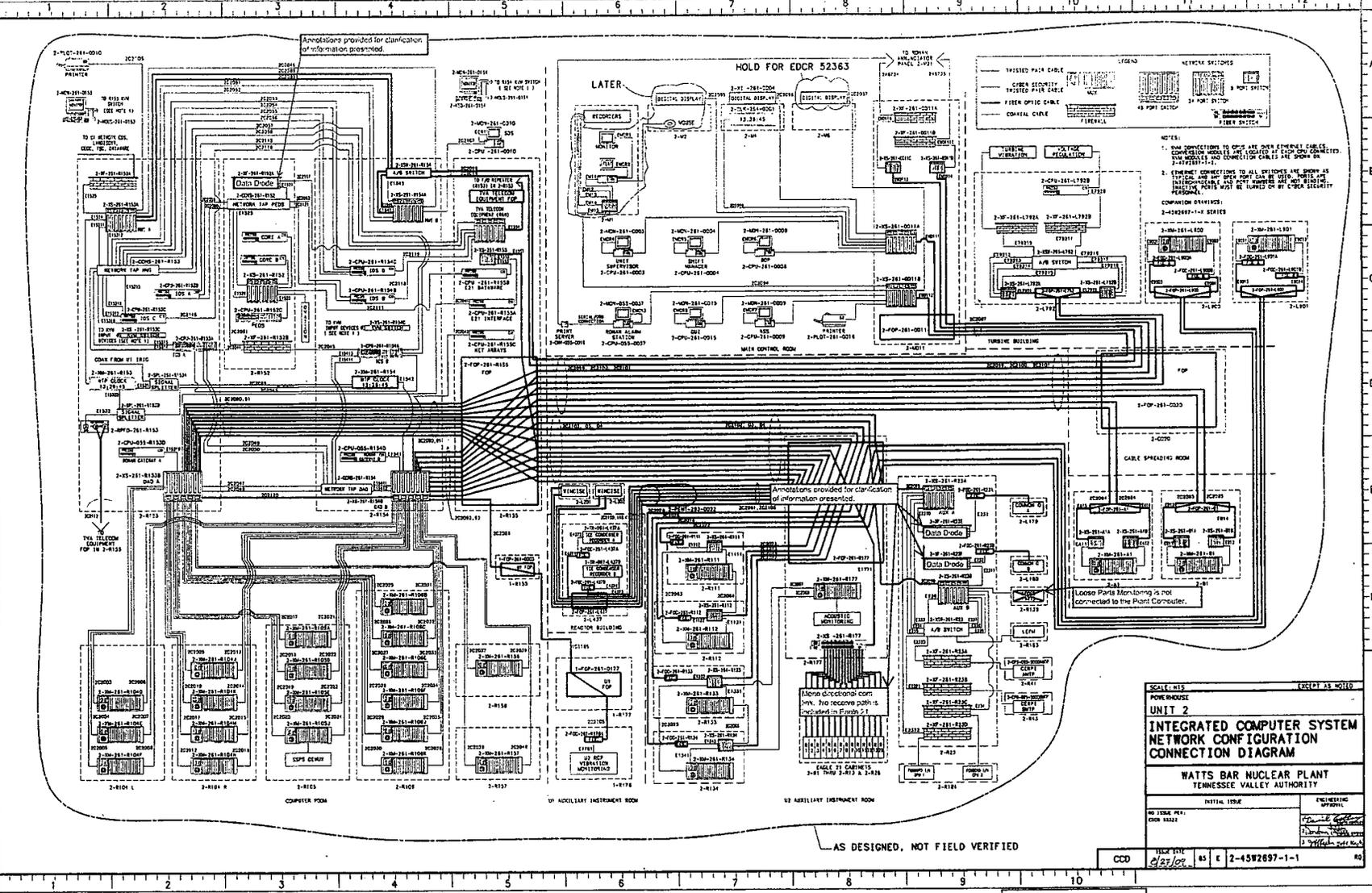
### Summary of Changes for Rod Control System

CHANGE (HW or SW)	WHY Change was Required	PROCESS/BASIS for Change being Acceptable	Documentation (completed? if not estimated date)
(-15) PS2, PS5 (4A9207G01)*	Change made because of the benefits of the new power supply. Tools are not required to replace power supply module. Housings are permanently installed.  Over voltage protector is included.	Same form, fit, and function	Drawing 4A9207: WBT-D-1739
+24 PS1, PS2 (4A9204G01)*	Change made because of the benefits of the new power supply. Tools are not required to replace power supply module. Housings are permanently installed.  Over voltage protector is included.	Same form, fit, and function	Drawing 4A9204: WBT-D-1739
(-)24 PS3, PS4 (4A9205G01)*	Change made because of the benefits of the new power supply. Tools are not required to replace power supply module. Housings are permanently installed.  Over voltage protector is included.	Same form, fit, and function	Drawing 4A9205: WBT-D-1739

**ATTACHMENT 6**

**Revised Markup of ICS Plan Drawing**

A  
B  
C  
D  
E  
F  
G  
H



CAD MAINTAINED DRAWING

SCALE: NTS  
POWERHOUSE  
**UNIT 2**  
**INTEGRATED COMPUTER SYSTEM**  
**NETWORK CONFIGURATION**  
**CONNECTION DIAGRAM**  
WATTS BAR NUCLEAR PLANT  
TENNESSEE VALLEY AUTHORITY

INITIAL ISSUE  
NO TYPED REV.  
DRAWN BY: [Signature]  
CHECKED BY: [Signature]

CCD FILE NO: 2-4592897-1-1

**ATTACHMENT 7**

**NEDP-8, "Technical Evaluation for Procurement of Materials and Services"**



**NPG Standard  
Department  
Procedure**

**TITLE**  
**Technical Evaluation for Procurement  
of Materials and Services**

**NEDP-8**  
**Rev. 0014**  
**Page 1 of 70**

Quality Related       Yes       No

Effective Date      07-22-2009

Responsible Peer Team/Working Group: Engineering

Approved by:      Kent W. Brown for Karl Nesmith      7/22/09  
Corporate Functional Manager      Date

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### Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0	11-14-97	All	<p>Initial issue. This Nuclear Engineering Department Procedure supersedes TVA Nuclear Standard STD-10.5, Standard Engineering Procedure SEP-9.5.7, and SSP-10.5, (SSP-10.05A and 10.05B for WBN) from all three active nuclear sites.</p> <p>The effectivity for Bellefonte Nuclear Plant (BLN) will be established by BLN.</p>
1	8/27/98	2, 4-5, 10-12, 18-20	<p>Revised Section 3.5.12 to change section header title and Section 3.5.12.B to include transfer of Indeterminate Materials; this revision implements corrective action for WBP980723.</p> <p>Minor/editorial changes.</p>
2	02-12-99	2, 14	<p>Incorporated corrective action from BFN 98-011691-000 to add clarification to Sections 3.3.6.B.4 and 3.3.6.B.5.</p>
3	03-05-99	2-6, 9, 12, 14-18, 21, 24, 26-29, 52-58	<p>Incorporated corrective actions from CHPER970103 added Appendix G, Section 3.2, CHPER980093 added enhancements to Section 3.3.6.B.8; corrective actions from CHPER980001 added Appendix H, Section 3.3.14, providing instructions for PEG processes, remainder of Appendixes G and H added for procedure enhancement; added procurement requirement for Year 2000 Compliance; and clarified the definition of "safety function." Updated references and minor changes throughout.</p>
4	1/19/01	2-4, 9-18, 20, 24, 28, 31, 34, 39, 40, 51-60	<p>Incorporate corrective action from BFPER 00-001305-000 revised Section 3.3.3.A, deleted paragraph 3.3.3.B.1 and renumbered the remaining paragraphs, deleted paragraph 3.3.3.E; CHPER 00-000023-000 added Section 3.3.6.B.10; TROI Item No. CRP-ENG-00-16 added enhancements to Section 3.4.1.J; CHPER 00-000111-000 added enhancements to Section 3.5.1.B.2; revised Appendix F in its entirety; updated references and minor changes throughout.</p>

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**Revision Log**

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
5	3/19/01	2, 9, 41	Revised Section 3.3.2.D.1 to add discussion concerning adverse changes to design function and revised Form 5A to add an additional question on same subject.
6	7/9/01	2-6, 9, 10, 13-18, 21, 23, 25-27, 29, 38, 51-60, 62	Revised Section 3.3.2.D to provide guidance on administrative revisions for replacement parts; added Piece-part and revised Administrative Change in Section 5.0 Definitions. Revised Sections 3.2.1, 3.2.3 and Appendix A to address general responsibilities regarding review for checking and verification, eliminated the definition of design verification. Incorporated changes to support the implementation of PassPort system.
7	4/1/2002	2, 3, 10, 14, 20	Revised Section 3.3.2.D and added Section 3.3.3.C.4 to add OE reviews for equivalency evaluations and for QA level 2 dedications respectively for WB PER 01-012568-000; revised Section 3.5.5 to enhance direction for the cobalt/stellite reduction program.
8	11/3/03	3, 6, 8-13, 16, 19, 23, 31, 38, 40, 43, 44, 62, 63	Revised Section 3.3.2.B.1 to refer to NEDP-4 for host component classification, revised Section 3.3.3.C.3.a.(2) to include Section 3.3.3.C.3.a.(3), relocated Section 3.3.6.B to Section 3.3.2.E, added Section 3.3.6.A.3 for CORP PER 02-000378-000 and added a new Section 3.3.6.B, revised Section 3.5.3 to clarify ASME Section XI requirements for BFN PER 00-003395-000, added Section 3.5.16 to add clarification for processing PDS for BFN PER 02-006559-000, revised Appendix B for clarification, revised Appendix C for BFN PER 02-008178-000 for administrative and clarification purposes, revised Appendix H, Sections 3.3.8 and 3.3.15 for clarification.
9	5/10/04	3, 20, 54	Revised Section 3.5.5. Added references to Business Support Library (BSL).

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**Revision Log**

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
10	9/1/04	3, 5, 10, 12, 19, 25-28, 30, 55	Revised to incorporate SQN site specific revision 9S1 to implement ISFSI. The ISFSI definition in Section 5.0 was revised to support the corrective action of SQN PER 61105. Revised Sections 3.3.3.A.1, 3.5.2.B, 3.5.2.C, and the definition of Seismic/Structural Qualification and added Section 3.5.2.D to clarify and to address the use of tools for seismic review/qualification based on PER 00563.
11	02/03/05	3, 16, 20, 62, 64	Revised Section 3.3.6.B to clarify PDS content based on SQN PER 60199. Deleted requirement for RADCON review from Section 3.5.5. Revised Appendix H, Section 3.3.2 for clarification of EDMS acronym and Sections 3.3.14 and 3.3.15 for clarification based on implementation of APEDS Version 8.0.
12	09/12/05	3, 30	Minor/editorial change. Added reference to SPP-9.2 to definition of "10CFR50.49 Equipment and Items" for EQ program guidance. Corrective action for PER 88367 which resulted from SA CRP-ENG-05-002.

**Revision Log**

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
13	01/05/09	All  5, 8, 20, 23, 57, 62, 65  9, 13, 15-16, 18-20, 23, 24, 26, 31-33, 35, 44, 45, 47, 56, 59	<p>This document has been converted from Word 95 to Word 2002 (XP) using Rev. 12.</p> <p>Minor/editorial revision to change TVAN to Nuclear Power Group (NPG), and to add section 6.0 Requirements and References.</p> <p>Revised Section 3.1 for clarification. Revised Section 3.3.2D as corrective action for PERs 110695 and 147090. Revised Section 3.3.2D and Form 5A as corrective action for PERs 146713 and 147017. Revised Section 3.3.2E for clarification as an enhancement for PER 130997. Relocated Section 3.3.3B.2 to Section 3.3.2E.11. Revised Section 3.3.4B.2 for clarification and Section 3.3.4B.2 and Form 3 to add QA level 2 services as corrective action for PER 139649. Revised Sections 3.4.1D and 3.4.1F for clarification. Revised Section 3.5.5 to clarify applicability. Revised Section 3.5.9B for clarification. Deleted unnecessary information from Section 3.5.12. Updated various definitions in Section 5.0. Revised Appendix A, item R to clarify definition of temporary as corrective action for PER 88126. Revised Appendix E to correct previous omissions. Deleted references to Curator from Appendix F.</p>

**Revision Log**

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
14	07/22/09	6, 9-10, 14, 20-21, 23, 26, 32, 34-38, 40, 48, 62-67, 69- 70	<p>Minor/editorial revision to change Catalog ID to Item Number and change PassPort to Supply Change Information system</p> <p>Deleted section on "Preparation of Spare Parts Bills of Materials" (3.3.5); "Preparation of Procurement Data Sheet (PDS)" renumbered from 3.3.6 to 3.3.5</p> <p>Revised Section 3.3.2.D.1 for clarification</p> <p>Revised Section 3.5.2.B to provide more specific instructions for compliance with NEDP-9</p> <p>Section 5.0 added definition for Plant Feature; revised definition for Seismic/Structural Qualification to match NEDP-9; removed definition of PassPort</p> <p>Appendix C Form 2D deleted line for TIIC NO./Description and QA Level</p> <p>Deleted Appendix for Identification of Replacement Items Instructions (Appendix F)</p> <p>Revised section 6.0 to incorporate the external Requirements and References document.</p>

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## 1.0 PURPOSE

- A. This procedure establishes the requirements to perform technical evaluations and to determine quality requirements for the specification and procurement of materials, equipment and nonpersonal services.
- B. This procedure is applicable to all TVA Nuclear Power Group (NPG) personnel, including contractors, involved in the procurement process. This procedure shall be implemented at all NPG sites and locations.

## 2.0 SCOPE

The following activities are within the scope of this procedure:

- A. Preparation of procurement specifications, technical evaluations and determination of Technical and Quality Assurance (QA) requirements for procurements of new or replacement material and equipment as requested.
- B. Specification of technical and quality requirements for nonpersonal services.
- C. Determination of technical requirements, critical characteristics, and method of acceptance for the procurement and dedication of Commercial Grade Items (CGI) for use as basic components.
- D. Specification of acceptance method, criteria, attributes, etc., of items procured for use on safety-related and quality-related host components. For procurement purposes within this procedure, 10CFR72 Important to Safety Category A and B components will be treated as safety related, Important to Safety Category C components will be treated as quality related and Not Important to Safety components will be treated as non-quality related in accordance with NEDP-4.
- E. Evaluation of like-for-like, alternate, or substitute replacement items for installed equipment and materials.
- F. Disposition of nonconforming materials which may arise during receipt of materials and equipment.
- G. Evaluation of items for potential use or upgrade in safety related or quality related host components.
- H. Other technical evaluations can include: QA level changes, TVA Item Identification Code (TIIC/Item Number) description changes, part number changes, effects of specification changes, shelf life extensions, material transfers, and return to stock credit evaluations.

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### 3.0 INSTRUCTIONS

#### 3.1 Procurement Inputs

- A. Requests for permanent plant materials and equipment and nonpersonal services are reviewed by Engineering to establish technical and quality requirements unless an approved Technical Evaluation (TE)/Procurement Data Sheet (PDS) already exists.
- B. The procurement inputs are:
  - 1. Material Request or TVA Procurement Request Form initiated by Engineering for permanent plant materials, equipment, or engineering and installation services for which a need is identified during the design or design change process. (Reference SPP-4.1, "Procurement of Material, Labor and Services")
  - 2. Material Request or TVA Procurement Request Form initiated by plant personnel to identify materials, items or nonpersonal services for which a need has been identified and authorized. (Reference SPP-4.1)
- C. Material Requests or TVA Procurement Requests that identify the host equipment as non-quality-related may be processed without Engineering review. Likewise, TIICs/Item Numbers for QA 0 items may be processed without Engineering review unless information in the Supply Chain Information Management system (s) indicates otherwise.

**NOTE**

The **requesting** organization is responsible for ensuring the correct item for the application is specified on the Material Request, Procurement Request Form, etc.

### 3.2 Responsibilities - Preparation, Review and Approval

#### 3.2.1 General Responsibilities

- A. NEDP-3, "Drawing Control" and NEDP-10, "Design Output" describe the general requirements that apply for preparing, checking, verifying and approving output documents. NEDP-5, "Design Document Reviews" defines the responsibilities for performing design document reviews. The responsibilities that apply to the preparation and review of the Engineering Procurement output are detailed in 3.2.2 and 3.2.3.
- B. Changes to the technical or quality requirements of an Engineering Procurement package require the same review and approval as the original output. Changes such as quantity or monetary changes do not require a change to the package.

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**NOTE**

Design output of an Engineering Procurement Package is defined as engineering technical and quality characteristic only (e.g. does not include Commodity Code, etc.).

**3.2.2 Preparation**

The assigned procurement engineer is responsible for ensuring the technical and quality requirements for the item specified are correct and consistent with the design basis for the procurement of the item, and for preparing output that is complete and accurate.

**3.2.3 Review**

An independent review is required for Engineering Procurement output for safety-related items and nonpersonal services and for those items and services where TVA identified quality-related programs require independent review. This review should not duplicate any independent review performed on key design documents used to provide input. This review shall verify that the applicable technical, quality and documentation requirements are specified, and the applicable requirements of this procedure have been addressed and that the requirements for the checking and verification functions described in NEDP-5 have been completed.

**3.3 Preparation of Engineering Procurement Output**

**3.3.1 Technical Evaluation Process**

- A. The technical evaluation process establishes the technical and quality procurement requirements as well as acceptance criteria for the procurement of an item. The technical evaluation also assures that applicable design basis requirements, such as, seismic, 10CFR50.49, and ASME Code are maintained through appropriate testing, inspection, documentation, or quality programs.
- B. Engineering Procurement outputs shown in Appendix C represent the evaluations performed by Engineering personnel and provide the basis for procurement requirements and acceptance criteria for the materials, equipment, or nonpersonal services identified in the evaluations. Output samples are shown in Appendix C. PEG (Procurement Engineering Group) package instructions are shown in Appendix H.
- C. The Automated Procurement Engineering Data System (APEDS) is the primary tool used by Engineering to produce procurement output.

**3.3.2 Technical Evaluation of Items (Materials, Components, or Spare Parts)**

- A. General
  - 1. Perform an engineering evaluation of all requests for changing the QA Level of stock material.

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**3.3.2 Technical Evaluation of Items (Materials, Components, or Spare Parts)  
(continued)**

2. Material Requests or Purchase Requests evaluated as QA Level 0 by Engineering may be returned with a coversheet (Appendix C) or suitable alternative vehicle with a reason stating why further Engineering evaluation is not required.
3. Indicate either revision level or issue date or state "use latest revision level" on any controlled document referenced in Engineering Procurement output.
4. Identify known unique identifiers (UNID) if applicable, in the output, for replacement item(s) being evaluated or identify general use for commodity item(s).
5. If the Engineering Procurement evaluation envelopes more than one UNID, the evaluation shall be based on the most severe known application.

**B. Determining Host Component and Item Safety Classification**

**1. Host Component Safety Classification Evaluation Process**

Host component safety classifications should be obtained from existing Q-list information. When the Q-list does not provide the details needed, the host component safety classification should be determined using the process outlined in NEDP-4, "Q-List and UNID Control."

**2. Item Safety Classification Evaluation Process**

**a. Item Safety Classification for Safety Related Host Components**

Classify the items in a safety-related host component according to the following process:

- (1) Identify the item's design function(s), including any known safety functions [see Appendix D for Listing of Typical Equipment Safety Functions (ESF)].
- (2) Were any known safety functions of the item identified? (Yes or No)
  - If yes, classify the item as safety related.
  - If No, postulate failures of the item and go to (3).
- (3) Does the item have a credible failure mode? (Yes or No) [see Appendix D for Credible Failure Modes (CFM)]
  - If yes, go to (4).
  - If no, provide an engineering justification for why the item has no failure mode and classify the item as quality related.

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**3.3.2 Technical Evaluation of Items (Materials, Components, or Spare Parts)  
(continued)**

- (4) Will the item's postulated failures affect the host component's safety related function? (Yes or No)
  - If yes, classify the item as safety related.
  - If no, provide an engineering justification for why the failures do not affect the safety function and classify the item as quality related

**b. Item Safety Classification for Quality Related Host Components**

Classify the items in a quality related host component according to the following process:

- (1) Does the applicable augmented Quality Assurance Program invoke procurement document control requirements? If no, the item is nonquality related. If yes, go to (2) below.
- (2) Is the item required for the host component to carry out its quality related function? If no, go to (3) below. If yes, the item is quality related.
- (3) Could the item's credible failure mechanism affect the host component's quality related functions? If no, the item is nonquality related. If yes, the item is quality related.

**C. Procurement Quality Levels**

- 1. For items determined to be safety related, assign a QA Level of either 1 or 2, according to the following:
  - a. Those items that are supplied to TVA as qualified for basic component use are QA Level 1.
  - b. Those items that are supplied to TVA as commercial grade and dedicated by TVA for use as basic components are QA Level 2.
- 2. QA Level 3 items are:
  - a. Non-safety related that are part of a safety related host component or,
  - b. Augmented quality with unique engineering or regulatory requirements. Reference NEDP-4.
  - c. Identified in design output documents or site procedures as QA Level 3.

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### 3.3.2 Technical Evaluation of Items (Materials, Components, or Spare Parts) (continued)

#### D. Performance of Replacement Item Equivalency Evaluation

Perform a Replacement Item Equivalency Evaluation when differences are identified between the original item and the replacement item. Evaluate operating experience in accordance with the Operating Experience (OE) Program and document results in the Equivalency Evaluation.

The equivalency evaluation process meets the intent of the applicability and screening review described in NEI 96-07, Revision 1, "Guidelines for 10CFR 50.59 Implementation," and SPP-9.4, "10CFR50.59 Evaluations of Changes, Tests, and Experiments", NEI 96-07, Revision 1 Appendix B, "Guidelines for 10CFR 72.48 Implementation", and SPP-9.9, "10CFR72.48 Evaluations of Changes, Tests, and Experiments for Independent Spent Fuel Storage Installation (ISFSI)". The performance of the equivalency evaluation satisfies these requirements and no additional 10CFR50.59 and/or 10CFR72.48 documentation is required. The process verifies that the equivalent change does not constitute an adverse change to the design function.

1. If the identified differences for a replacement piece-part item do not affect any external TVA interfaces to the host component, and if the differences do not result in a change in component function or a TVA specified attribute, and do not constitute an adverse change, affected TVA and vendor drawings can be revised to document the replacement piece-part data by the administrative change process in NEDP-3. The acceptability of the replacement piece-part item is within the manufacturer's design responsibility, however, the manufacturer's determination of acceptability should be obtained and be documented in the equivalency evaluation.

If the Equivalency Evaluation cannot justify the differences identified, then the procurement must be specified in accordance with SPP-9.3, "Plant Modifications and Engineering Change Control." However, Material Equivalency and Generic Substitution Engineering Documentation Changes per SPP-9.3 may be based on Equivalency Evaluations for alternate replacement items, performed by this procedure. The Equivalency Evaluation for an EDC may per performed by either Procurement Engineering or Design Engineering.

2. Part number changes for host components or replacement piece-parts not satisfying the above requirements, which affect approved vendor or TVA drawings or other design output, shall be performed in accordance with SPP-9.3.
3. Part number changes for piece-parts or hosts not involving differences in form, fit, function, or materials can be documented on TVA or vendor drawings in accordance with the administrative change process in NEDP-3.

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3.3.2 Technical Evaluation of Items (Materials, Components, or Spare Parts)  
(continued)

**NOTE**

Certain Original Equipment components and items are still available from the Original Equipment Manufacturer (OEM) or a successor. When a component or item is procured from the OEM or successor who still maintains 10CFR21 responsibility and a TVA approved 10CFR50 Appendix B QA program or equivalent and the component or item being procured is offered as direct replacement for the original equipment and specified in the procurement document as such, an Equivalency Evaluation is not required to be performed by Engineering. Instead, an evaluation for a like-for-like replacement is performed.

4. For Class IE components which are classified as "Essentially Mild" (EM) for Equipment Environmental Qualification, an equivalency analysis shall be performed in accordance with the following steps:
  - a. Determine if the host component is classified as EM by reviewing the Enterprise Maintenance Planning and Control (EMPAC) database.
  - b. Evaluate the equivalent EM component and determine if the component contains any of the following materials:
    - (1) Fuses
    - (2) Thermal overload relays
    - (3) Molded-case circuit breakers which are thermally actuated
    - (4) Metal-oxide-semiconductor (MOS) technology
    - (5) PIN diodes
  - c. Document in technical evaluation if equivalent component does not contain above materials.
  - d. Transmit material specifications of equivalent component to Site Lead Electrical Engineer for evaluation and disposition if component contains above materials.
  - e. PDSs for EM host components shall contain requirements for the vendor to communicate any exceptions/changes to TVA before executing the order.

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**3.3.2 Technical Evaluation of Items (Materials, Components, or Spare Parts)  
(continued)**

- E. Specify the following, as applicable, in the technical evaluation for transfer to the PDS:
1. Technical requirements including applicable design, identification, fabricating, calibration, cleaning, erecting, installing, testing, maintaining and repairing requirements to be fulfilled by the supplier. Specify codes and standards by title and dates in such a way as to clearly set forth the applicable document and requirement. When applicable, ensure plant system functional and physical interface evaluation responsibilities are clearly delineated in specifications for systems or partial systems to be designed and furnished by a contracted supplier.
  2. Receipt inspection requirements.
  3. Requirements for 10 CFR Part 21 and/or a QA program applicable to items and nonpersonal services being procured.
  4. As appropriate, the right of access of TVA or its designated representative to the supplier's and supplier's subcontractor facilities and records for source surveillance and/or source verification, or include a requirement for QA audits/surveys.
  5. For QA Level 1 items/services, requirements between the supplier and TVA for the identification, control and disposition of items and/or nonpersonal services that do not meet procurement requirements. Establish that TVA approval is required before proceeding with contractual activities on items which have a recommended disposition of "accept-as-is" or "repair."
  6. Vendor/supplier/subcontractor/manufacturer documentation to be prepared, retained by the supplier and/or submitted for review and approval to TVA (e.g., vendor manuals, drawings, test reports, special process instructions, COC, shelf life, preventative maintenance requirements, etc.).
  7. Bid review instructions, required condition of bid, special conditions and information to be submitted with the bid.
  8. Packing/shipping/handling, storage, marking, shelf life and preventive maintenance requirements, etc., as required.
  9. Tagging requirements as follows:
    - a. 10CFR50.49 - Any item that has been evaluated as acceptable for use in a 10CFR50.49 application or as part of a 10CFR50.49 device. Items identified by a site as exempt from this requirement do not require this tagging (see SPP-4.4, Appendix A).
    - b. Conditionally Dedicated Commercial Grade Items - Items requiring a functional test before acceptance.
    - c. Any special tagging requirements as applicable.

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**3.3.2 Technical Evaluation of Items (Materials, Components, or Spare Parts)  
(continued)**

**NOTE**

An expiration date may be assigned to a PDS by Engineering if deemed necessary.

10. As appropriate, requirements for the Supplier to incorporate the appropriate quality assurance program requirements on subvendors and subcontractors in subtier procurement documents.
11. When utilizing CGI acceptance and dedication by third party qualifiers (TPQ), specify the critical characteristic requirements or the specific application requirements to the TPQ.

**3.3.3 Acceptance of Items (Materials, Components, or Spare Parts)**

**A. General**

1. Acceptance requirements, as appropriate, are identified by engineering on the PDS for verification during Receipt Inspection to provide reasonable assurance that the technical and quality procurement requirements of an item have been met. EPRI NP-5652, NP-6406, NP-6629, EPRI TR 102260, and EPRI TR 112579 provide additional guidance on acceptance requirements.
2. The above requirements are specified within the PDS and are to be verified during Receipt Inspection in accordance with SPP-4.2, "Material Receipt and Inspection". These requirements are not intended to limit the scope of the standard ANSI N45.2.2 inspections and verifications as normally performed under SPP-4.2, but are to augment those requirements.
3. Identify the source or basis for any sampling plan specified (Reference SPP-4.2).

**B. QA Level 1 Items**

1. Specify any documentation which must be supplied with the item and include requirements to ensure the documentation is traceable to the material.

**C. QA Level 2 Items**

1. Document the acceptance requirements for QA Level 2 items by selecting one or more of the acceptance methods shown below and specifying the acceptance requirements.
2. Select Critical Characteristics Of Acceptance (CCA) (see Appendix E for Typical Critical Characteristics) for CGI based upon the item's safety functions and postulated failure modes.
3. Determine CGI Acceptance Methods (Reference: EPRI NP-5652)
  - a. Method 1, Special Tests and Inspection

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**3.3.3 Acceptance of Items (Materials, Components, or Spare Parts)  
(continued)**

- (1) For any inspections or special tests, specify criteria for acceptance and include any necessary tolerances.
- (2) For item(s) to be conditionally dedicated, specify the pre or post installation test requirements on the Test/Verification Requirements output document (Appendix C). Specify details regarding test conditions, parameters to be monitored and methods to be used as appropriate. Do not use pre or post installation testing as the sole basis for accepting a commercial grade item for dedication.

b. Method 2, Commercial Grade Survey

- (1) Use current Acceptable Suppliers List (ASL) suppliers for commercial grade items if possible.
- (2) Request a survey for suppliers of commercial grade items which are not on the ASL.
- (3) Evaluate existing commercial grade survey reports to determine CCA are adequately controlled by the supplier's commercial grade program.
- (4) Request a Certificate of Conformance (COC) to verify that the appropriate supplier controls were implemented.

c. Method 3, Source Verification

Include source verification and hold point requirements as external notes to the Engineering Procurement outputs as required.

d. Method 4, Acceptable Supplier/Item Performance Record

- (1) Establish a supplier/item performance record which demonstrates:
  - Successful acceptance of the item in the past using methods 1, 2, or 3, and,
  - Satisfactory, plant-specific performance of the item.
- (2) Identify utility or industry-wide data to evaluate supplier/item performance.
- (3) Provide a basis for determining that the performance record substantiates the acceptability of the item.
- (4) Provide a statement in the technical evaluation attesting to the acceptability of the item.
- (5) Do not use supplier/item performance records as the sole basis for accepting a commercial grade item for dedication.

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**3.3.3 Acceptance of Items (Materials, Components, or Spare Parts)  
(continued)**

4. Evaluate operating experience in accordance with the OE Program and document results as part of the dedication.

**D. QA Level 3 Items**

Base the acceptance requirements for QA Level 3 items upon augmented quality program requirements, plant-specific commitments and requirements, and the item's design function. Reference NEDP-4.

**3.3.4 Specification and Acceptance of Nonpersonal Services**

**A. General**

Specify in this evaluation the appropriate technical and quality requirements for nonpersonal services being provided for an item or plant systems.

**B. Evaluating Nonpersonal Services**

1. Determine the safety classification of the item and/or system for which the nonpersonal services are intended.
2. Determine and specify the QA Level of the nonpersonal service according to the following:
  - a. If the nonpersonal service affects the safety related function of a basic component and is performed under a vendor's QA Program approved by TVA, the nonpersonal service is QA Level 1.
  - b. If the nonpersonal service could affect the safety related function of a basic component, and can be dedicated as a commercial grade service by TVA, the nonpersonal service is QA Level 2.
  - c. If the nonpersonal service could affect the safety related function of a basic component, and can be performed under TVA's QA program, the nonpersonal service is QA Level 3.
  - d. If the nonpersonal service is to be performed on a quality-related item/system, the nonpersonal service is QA Level 3 or as specified in NEDP-4.
  - e. If the nonpersonal service is to be performed on a nonquality-related item/system, the nonpersonal service is QA Level 0.
3. Determine and specify methods and/or criteria to be used to verify the acceptability of the nonpersonal service.

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### 3.3.4 Specification and Acceptance of Nonpersonal Services (continued)

#### C. Materials

1. If permanent plant equipment or consumable items, such as chemicals or expendable products are to be furnished under a nonpersonal service contract, define the technical and QA requirements for each item to be furnished.
2. If the items required for a QA Level 1, 2, or 3 repair contract cannot be identified when the PDS is prepared, specify a requirement that when the need for an item is identified, Engineering will be informed so that an evaluation on the needed item can be performed.

### 3.3.5 Preparation of Procurement Data Sheet (PDS)

#### A. General

1. The PDS includes the necessary technical and quality requirements for procuring an item or nonpersonal service. Attachments may be included as necessary.
2. Multiple PDS(s) may reference a technical evaluation as the source which supports the determination of the technical and quality requirements identified on a specific PDS if the following criteria are satisfied:
  - a. The set of parameters and boundary conditions identified in the technical evaluation envelop those pertaining to the item under consideration, and
  - b. The intended use of the item being evaluated would not perform a function different than those described and considered in the technical evaluation.
3. When a technical evaluation (TE) is revised, all PDSs tied to that TE should be revised or placed into a revision status in a timely manner (i.e., within 20 working days).

- B. Information from Section 3.3.2E is automatically populated into the PDS by APEDS. All technical and quality requirements and inspection criteria should be included in the TE and auto populated into the PDS. The "additional information" section of the PDS is intended for information only and should not contain technical and quality requirements that are to be communicated between the supplier and TVA or receipt inspection requirements.

### 3.4 Other Evaluations

Apply the technical evaluation process to document changes to the technical and quality requirements of items in stock or to perform unique evaluations. See Appendix G for instructions on special considerations. These other evaluations may include the following:

- A. QA level changes to existing material.
- B. TIIC/Item Number description changes.
- C. Effects of a specification change.

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### 3.4 Other Evaluations (continued)

- D. Shelf life extensions for 10CFR50.49 (EQ) material. Other shelf life material evaluations may be performed by site shelf life coordinators.
- E. Review of items for potential use or upgrade in safety related or quality related host components.
- F. Review of material transfers between TVA sites.
  - 1. For safety-related material transfers to a TVA site from within TVA, perform a review of applicable documentation from the supplying organization to determine if the item meets all technical, quality and documentation requirements. Include in the documentation to be reviewed, the receipt inspection records of the supplying organization to provide verification that the item was received under a QA program and was acceptable at receipt. All documentation supporting the item's acceptability should be retrievable either in hard copy or through RIMS, with document RIMS numbers referenced in or copies of the documents included in the transfer package.
  - 2. Request the supplying organization to provide a copy of applicable maintenance and modification records if the item is being removed from an installed location. Review these records to determine if the item's qualification or ability to perform the intended function has been degraded.
  - 3. No further Engineering evaluation is required for materials being transferred from one NPG site to another NPG site,
    - a. Which have been evaluated by a Generic Engineering Procurement package and,
    - b. Have been successfully receipt inspected at another NPG site and,
    - c. The requesting site's facility is identified on the TIIC/Item Number in the Supply Chain Information Management System with the Generic indicator set in the Supply Chain Information Management System. Note: Both facilities (the sending and receiving) must have the Generic indicator set.
- G. Review of Return to Stock Credit, when requested, to determine if the item being credited is acceptable for restocking.
- H. Receipt nonconformances (evaluated as required).
- I. Technical reviews of vendor submittals.
- J. Bid evaluations for technical and quality requirement exceptions or when required by the PDS. Bid exceptions to TVA Standard Specifications should be coordinated with appropriate design engineering disciplines, resulting in revised PEG output if acceptable.

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### 3.5 Special Consideration Issues

#### 3.5.1 Procurement of Equipment for 10CFR50.49 Applications

##### A. Procurement of 10CFR50.49 Items Not Qualified to NUREG 0588, Category I.

Replacement equipment used in 10CFR50.49 applications must be qualified to the requirements of IEEE Standard 323-1974, and NUREG 0588, Category I unless there are sound reasons to the contrary for the use of replacement equipment previously qualified NUREG 0588, Category II as described by U.S. NRC Regulatory Guide 1.89.

**NOTE**

If any of the Regulatory Guide 1.89 (Reference SPP-9.2, "Equipment Environmental Qualification (EQ) Program" reasons are used, transmit the justification and documentation to the Site Lead Electrical Engineer for an independent review and approval.

##### B. Evaluation of In-Stock Items for 10CFR50.49 Applications

###### 1. Include in the technical evaluation the following elements, as applicable:

- a. Availability and completeness of certification and qualification documents from the replacement item's manufacturer or qualifier,
- b. Differences in qualification testing between original and replacement items,
- c. Differences in item specification and description between original and replacement items,
- d. Safety classification of replacement item versus required safety classification,
- e. QA Level of replacement item versus required QA Level, and
- f. Acceptability of replacement item manufacturer's QA program versus required QA program.
- g. Storage requirements are in accordance with EQ Binder Specifications.

###### 2. Procurement activity that obtains a 10CFR50.49 component differently than through original qualification process will be treated as a substitution versus a like-for-like replacement. New qualification to demonstrate testing and/or certification/qualification of the new component(s) must be reviewed and documented in accordance with SPP-9.2, Section 3.5.D.3.

#### 3.5.2 Seismic/Structural Qualification (S/SQ)

- ##### A. Determine the required seismic category for the item(s) to be procured from the material or procurement request, EMPAC, system design criteria, or other design output documents.

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**3.5.2 Seismic/Structural Qualification (S/SQ) (continued)**

- B. S/SQ of seismic Category I and I(L) (Browns Ferry Class I and II) plant features shall comply with NEDP-9, "Seismic/Structural Qualification" and applicable NPG plant Civil Engineering Design Criteria and corporate Civil Engineering Design Standards. Specifically, S/SQ of seismic Category I and I(L) alternate replacement items shall be maintained in accordance with NEDP-9 section 3.1.1 and the bases for compliance with DS-C1.2.11 shall be identified in Equivalency Evaluation (Forms 5 and 5A). S/SQ of design changes (i.e., modifications) to seismic Category I and I(L) plant features shall be performed in accordance with NEDP-9 section 3.2.
- C. Obtain, if necessary, and include in the PDS, the appropriate standard specification, design criteria and/or seismic response spectra, if S/SQ is performed by the vendor.
- D. NEDP-9 S/SQ requirements for design change and replacement items should be addressed by the most economically available approach, consistent with plant schedule limitations and efficient resource allocation. This includes potential use of Seismic Qualification Reporting and Testing Standardization (SQURTS) databases or testing, DS-C1.2.11, "Maintaining Seismic/Structural Qualification - Replacement Items" Insensitive and Rugged Replacement Items Lists, All Plants S/SQ Approval Memos, and DG-C1.2.7, "Seismic/Structural Qualification of Selected Mechanical and Electrical Components."

**3.5.3 ASME Section III (or equivalent) Components**

- A. Prepare/include a Certified Design Specification in accordance with NEDP-10 when procuring ASME components that are required to meet ASME Section III Criteria.
- B. Include the applicable code year and addenda.
- C. Replacement parts to be procured for ASME Section III components should be specified to the original contract requirements and do not require new Certified Design Specifications.
- D. Ensure requirements are specified in accordance with SPP-9.1, "ASME Section XI" for nonpersonal services on ASME Section XI components.

**NOTE**

For USAS B31.1 plants, PEG shall ensure all procurements for identified Section XI applications require vendor to provide documentation to prove items being furnished meet the design requirements imposed by the procurement document. The normal expectation is that the vendor-supplied documentation includes material test reports and a certification that the supplied material conforms to the requirements of the Purchase Specification. For all procurements being made from the original equipment manufacturer for replacement parts for Section XI applications, the documentation required to be furnished with each item being procured, as a minimum, shall be a Certificate of Conformance that the supplied item meets or exceeds the requirements of the original contract.

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#### **3.5.4 Welding Requirements**

For procurement requests for equipment or components that require welding during the fabrication process welding operations should be performed in accordance with G-29 requirements or vendor requirements that have received TVA approval. Vendor specified welds should be detailed on drawings and submitted to TVA.

#### **3.5.5 Cobalt/Stellite Reduction Program**

When specified by the requirements for new designs, procurement requirements for valves and valve internals should be evaluated in accordance with Engineering Specification N1M-007, Cobalt Reduction for BFN, or if the valve is located in a system that interfaces directly with the Reactor Coolant System (RCS) for SQN and WBN, every effort should be made to obtain the new valve or replacement internals with non-Stellite (non-cobalt) hardfacing. Hardfacing should be done with NOREM, Nitronic 60, or other suitable non-cobalt alternatives. Stellite is a concern in systems with a flow path to the reactor. Stellite contains a high percentage of stable cobalt 59, which when subjected to neutron bombardment in the reactor, becomes transmuted into radioactive cobalt 60. This radioisotope is a high energy gamma ray emitter and is the primary contributor to personnel radiation dose at NPG plants.

#### **3.5.6 Obsolescence/Surplus Market**

Consider alternate replacements through the original equipment manufacturer or authorized distributor for procurement of obsolete items, where practicable, as a preference to procurement from the surplus market. If surplus market is used, it may be necessary to establish product performance through traceability to Original Equipment Manufacturers, or performance of special pre-installation tests and inspections.

#### **3.5.7 Materials**

When applicable, specify certification and/or testing for halogens and low melting point metals and their compounds in accordance with the latest version of the applicable PF Specification from G-29.

#### **3.5.8 Nuclear Source Material**

Procure nuclear source material in accordance with SPP-5.6, "Controlling Byproduct and Source Material" and applicable site procedures.

#### **3.5.9 Vendor-Supplied Information**

- A. Typical vendor-supplied information requiring review and disposition may consist of drawings, manuals, test procedures, welding procedures, test reports, qualification reports. Drawings should include complete assembly drawings, including subcomponents, on which analysis and tests are based. When applicable, vendors should furnish certified equipment performance data, based upon analysis or test, at the time of equipment procurement.
- B. Process reviews for interface and approval as required. Process vendor manuals according to SPP-2.5, "Vendor Manual Control."

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**3.5.9 Vendor-Supplied Information (continued)**

- C. Based on results of the technical evaluation, vendor supplied documents may be stamped in accordance with the following:
  - 1. Accepted for Use (AU)
  - 2. Approved (A)
  - 3. Approved with Corrections as Noted (ACN)
  - 4. Information Only (IO)
  - 5. Information Only with TVA Comments (IC)
  - 6. Returned for Correction (RC)
  
- D. Transmit review comments and submittal status to the vendor and distribute internally, assigning document status as appropriate in accordance with C, above. Transmit copies of "Approved" documents to the Document Control Section. Retain "ACN" drawings until final drawing is approved.
  
- E. Place copies of approved or accepted vendor documents in the record system in accordance with SPP-2.4, "Records Management." Technical documents should be finalized before declaring contract submittals complete and allowing contract closure.

**3.5.10 Electromagnetic Interference (EMI) Testing Requirements**

Electronic and electromechanical components should be evaluated for electromagnetic interference. Ensure SS-E18.14.01, "Electromagnetic Interference (EMI) Testing Requirements for Electronic Devices," is identified and/or included in the Engineering Procurement package when applicable. If evaluation to only portions of SS-E18.14.01 is required, ensure those portions are adequately identified.

**3.5.11 Evaluations Involving Chemicals**

Activities relating to the specification and use of chemicals shall comply with the requirements of SPP-5.3, "Chemistry Control" and site specific instructions. When applicable, specify certification and/or testing for halogens and low melting point metals and their compounds in accordance with the latest version of the applicable PF Specification from G-29.

**3.5.12 Transfers and Indeterminate Materials**

- A. For safety-related material transfers from non-licensed units or transfer of Indeterminate Materials (SPP-4.2), Engineering shall evaluate the materials to address industry regulatory issues including 10CFR21 notices, NERs and NRC Notices/Bulletins, in the Technical Evaluation, and review to assure that "as originally procured" the component meets the intended use requirements. Additionally, the review shall include but not be limited to:
  - 1. Previous and current shipping and storage conditions, as applicable.

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### 3.5.12 Transfers and Indeterminate Materials (continued)

2. Traceability to original procurement contract, existing tag information including previous TIICs/Item Numbers, heat numbers, etc. and confirmation that required CMTRs or COCs are available.
  3. Need and definition of re-inspection requirements including shelf life acceptability and further tests or analysis and that outstanding discrepancies are identified including unsatisfactory inspection reports.
  4. Confirmation that QA program requirements and Part 21 were imposed as appropriate and approved and that vendor was on the ASL at award.
  5. Previous issue history and changes since fabrication/delivery regarding process improvements or design basis changes which may alter original acceptability.
- B. Ensure items to be installed that have been removed from equipment not in service (e.g., the Sequoyah Fifth Diesel Generator) have not been degraded due to storage conditions. These items may require special receipt inspections or functionality testing to provide reasonable assurance of acceptability for safety-related service.

#### WBN Only

### 3.5.13 Fuses and Circuit Breakers - WBN Only

Fuses and circuit breakers should be procured and stocked at minimum QA Level 3, unless a specific evaluation considering Regulatory Guide 1.75 is performed. Those procured as QA level 3 shall include a restriction such as "Not for use in class 1E circuits" or similar statement to prevent its use in safety-related applications.

### 3.5.14 TIIC/Item Number Checks

When requested prior to the issuing of material, engineering reviews the safety classification of the host and, based on host equipment safety function and failure mode and effect analysis, determines acceptability of the TIIC/Item Number QA level. Engineering provides assistance to material requester for obtaining the proper material if the TIIC/Item Number Check results in an unacceptable request for the application.

### 3.5.15 Counterfeit Detection

- A. Apply acceptance requirements imposed to detect counterfeit, substandard, and fraudulent items only to those items which are susceptible to these types of anomalies. These may include high volume "black box" type electrical components, items such as relays that can be refurbished or rebuilt and offered as new, or items purchased from distributors.

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### 3.5.15 Counterfeit Detection (continued)

- B. For items which are susceptible to counterfeiting or documentation falsification and to preclude receiving substandard or fraudulent items, consider additional acceptance activities to detect these types of anomalies. This may include the performance of material tests to confirm material specifications using durometers, hardness testers, alloy analyzers, etc., and sending samples to testing facilities for certification testing. Another approach would be to specify that items normally procured from distributors be shipped direct from the manufacturer or other qualified source.

### 3.5.16 Vendor-Supplied Dimensions

The PDS should ensure that vendor-supplied critical dimensions taken in the plant are processed in accordance with plant procedures for second party verification or the vendor-supplied data/drawings are reviewed and approved by Engineering prior to use.

## 4.0 RECORDS

### 4.1 QA Records

All Technical Evaluations and PDS for safety-related and quality-related items and nonpersonal services are considered Quality Assurance Records and are retained in accordance with SPP-2.4.

### 4.2 Non-QA Records

None

## 5.0 DEFINITIONS

**Accepted For Use (AU)** - A stamp used to indicate a status given to vendor manuals and similar documents including certain procedures when TVA design interface is not directly affected. The stamp indicates a cursory review of the information in the document was made by Site Engineering, but the technical adequacy of the document will be verified through its use. The stamp does not preclude a TVA review or the return of comments to the vendor.

**Acceptable Suppliers List (ASL)** - A listing of suppliers with acceptable quality assurance programs approved by TVA and their agents which meet various qualification levels for providing nuclear quality/safety-related items or services.

**Acceptance** - The employment of methods to produce objective evidence which provides reasonable assurance that the item received is the item specified (EPRI NP-5652).

**Acceptance Criteria** - Specified limits placed on characteristics of an item, process, or service defined in codes, standards, and other procurement documents. (NP-6629)

**Acceptance Method** - Methods employed to produce objective evidence which provides reasonable assurance that an item received conforms to specification requirements.

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## 5.0 DEFINITIONS (continued)

**Active Component** - A component in which mechanical or electrical change of state is required to occur for the component to perform its safety related function. (NP-6406, NP-6629, TR 102260)

**Alternate Replacement** - The replacement of an item not identical to the original. These items require an equivalency evaluation to assure that the design function will be maintained. (NP-6406, NP-6629, TR 102260)

**Approved (A)** - A stamp used to indicate that a vendor document was reviewed and found to meet the technical and contractual requirements of TVA's contract with the vendor. An "Approved" status assigned by TVA to vendor documents authorizes the vendor to proceed (after receiving the prints marked "Approved" from TVA) with fabrication of the equipment or material covered by the documents. However, this approval does not relieve the supplier of their total responsibility for the correctness of design, details, and dimensions. Any work done or material ordered by the vendor before receiving the marked "Approved" prints from TVA is at the risk of the vendor.

**Approved With Corrections As Noted (ACN)** - A stamp used to indicate that a vendor drawing was reviewed and found to comply with the design basis in TVA's contract with the vendor. The stamp is used when drawing deficiencies are specific in nature. The required corrections can be marked directly on the document (i.e. specific drawing or wording changes), or specific comments may be written in the acknowledgment letter. However, this approval does not relieve the vendor of their total responsibility for the correctness of design, details, and dimensions. Documents marked "Approved with Corrections Noted" authorize the vendor, on receipt of these prints from TVA, to proceed with the fabrication of the equipment or material covered by the drawings as corrected. Any work done or material ordered by the vendor before receiving these documents from TVA is at the risk of the vendor. The vendor must correct the documents and resubmit reproducible copies of them to TVA for approval.

**Automated Procurement Engineering Data System (APEDS)** - A standardized software system used by all Engineering to produce output in order to automate the Engineering Procurement process and capture the output into a relational database.

**Basic Component** - A 10CFR Part 50 facility structure, system, component, or part thereof necessary to assure (1) the integrity of the reactor coolant pressure boundary, (2) the capability to shut down the reactor and maintain it in a safe shutdown condition, or (3) the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in Paragraph 100.11 of Title 10, Chapter 1, Code of Federal Regulations - Energy (10CFR 100.11). A 10CFR Part 72 facility SSC or part thereof necessary to assure that the basic nuclear safety criteria for the design of an ISFSI installation is met shall (1) maintain subcriticality, (2) prevent the release of radioactive material above acceptable amounts, (3) ensure radiation rates and doses do not exceed acceptable levels and (4) maintain retrievability of the stored radioactive materials (10CFR72.104, NEI 96-07 Appendix B). In all cases, "Basic Component" includes safety-related design, analysis inspection, testing, fabrication, replacement of parts, or consulting services that are associated with the component hardware whether these services are performed by the component supplier or others (10 CFR21.3).

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5.0 DEFINITIONS (continued)

A safety related item procured either safety related or as a commercial grade item which has been accepted and dedicated for a safety related application. This term is synonymous with "safety related component" (TR-102260, NP-6406, NP-6629) An important to safety item procured either important to safety or as a commercial grade item which has been accepted and dedicated for a important to safety application. This term is synonymous with "important to safety component".

**Bounding Conditions** - Parameters which envelop the normal, abnormal, and accident conditions an item is expected to meet during its lifetime in the plant (e.g., temperature, humidity, radiation, seismic response spectra, etc.). (NP-6406, NP-6629, TR 102260)

**Certificate of Compliance** - A written statement, signed by a qualified party, attesting that items or services are in accordance with specified requirements and accompanied by additional information to substantiate the statement. (ANSI N45.2.10-1973, TR 102260)

**Certificate of Conformance** - A written statement, signed by a qualified party, certifying that the items or services comply with specific requirements. (ANSI N45.2.10-1973, TR 102260)

**Commercial Grade Item (CGI)** - A structure, system or component, or part thereof that affects its safety function, that was not designed and manufactured as a basic component. Commercial grade items do not include items where the design and manufacturing process require inprocess inspections and verifications to ensure that defects or failures to comply are identified and corrected (i.e., one or more critical characteristics of the item cannot be verified). (10 CFR Part 21).

**NOTE**

APEDS Forms contain the following criteria which is conservative.

An item satisfying all three of the following criteria: (1) not subject to design or specification requirements that are unique to nuclear facilities; and (2) used in applications other than nuclear facilities; and (3) is to be ordered from the manufacturer or supplier on the basis of specifications set forth in the manufacturer's published product description (e.g., a catalog).

**Class 1E** - The classification of the electrical equipment and systems that are essential to emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal, or otherwise are essential in preventing significant release of radioactive material to the environment. (IEEE 308, 323, 344, 380, 384, 603, NP-6895)

**Classification** - A documented technical evaluation process that results in the determination of an item's or service's safety classification, design requirements (including EQ and seismic), and QA requirements. (TR-102260)

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## 5.0 DEFINITIONS (continued)

**Conditional Acceptance/Dedication** - The process of implementing Pre or Post-Installation testing requirements. Conditional acceptance occurs when Engineering specifies pre or post-installation testing as an acceptance method for an item in an engineering evaluation. These items are released to the field after completion of all acceptance activities except pre or post installation testing, acceptance of the item is not complete, nor may the host be declared operable until the required testing is complete. This process is called conditional dedication for commercial grade items. TVA identification (tagging) of conditional accepted/dedicated items include the phrase "Functional Testing Required" or similar phrase.

**Credible Failure Mechanism** - The manner by which an item may fail, degrading the item's ability to perform the component/system function under evaluation (IEEE STD 500-1984; EPRI NP- 6406, TR 102260).

**Critical Characteristics for Acceptance** - Identifiable and measurable attributes/variables of a commercial grade item, which once selected to be verified, provide reasonable assurance that the item received is the item specified. (EPRI NP-5652, TR 102260)

### NOTE

Critical characteristics for acceptance are a subset of critical characteristics for design.

**Critical Characteristics for Design** - Those properties or attributes which are essential for the item's form, fit, and functional performance. These are identifiable and/or measurable attributes of a replacement item which will provide assurance that the replacement item will perform its design function. (EPRI NP-5652, NP-6406, NP-6629, TR 102260)

**Critical Parts** - Those parts of host component, (e.g., Probabilistic Safety Analysis (PSA), plant availability, technical specification and selected Regulatory Guide components) required to sustain reliable operation of the host component, but not necessarily the safety function. These parts are either wear parts or parts which maintenance/manufacturer recommend as replacement parts based on operating experience.

**Dedication** - An acceptance process undertaken to provide reasonable assurance that a CGI to be used as a basic component will perform its intended safety function and, in this respect, is deemed equivalent to an item designed and manufactured under a 10CFR50 Appendix B QA Program and 10CFR72 Subpart G as applicable.

This assurance is achieved by identifying the critical characteristics of the item and verifying their acceptability by inspections, test, or analysis performed by the purchaser or third party dedicating entity after delivery, supplemented as necessary by one or more of the following: CG Surveys, product inspections or witness at holdpoints at the manufacturers facility, and analysis of historical records for acceptance performance. (10CFR Part 21)

**Engineering Analysis** - A process of mathematical or other logical reasoning that leads from stated premises to the conclusion concerning specific capabilities of equipment and its adequacy for the application. (IEEE STD 323-1974)

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## 5.0 DEFINITIONS (continued)

**Engineering Procurement Package** - The technical evaluation prepared by Engineering which documents the technical and quality requirements for the procurement of an item or an engineering evaluation.

**Failure Modes and Effects Analysis** - An evaluation of an item's credible failure mechanisms and their effect on their host system or component function. (EPRI NP-6406, NP-6629, TR 102260)

### **Form, Fit, Function, or Materials -**

- **Form** - The shape, outline, or configuration of an item (e.g., a 20 foot section of 12 inch schedule 40 pipe).
- **Fit** - The suitability or adaptability of an item to satisfy a specific application (e.g., a switchgear selected for its ability to distribute power to a specific number of loads).
- **Function** - The normal or characteristic action of an item (e.g., a pump required to move 100 gallons per minute).
- **Materials** - The substances an item is made from (e.g., the composition of cable insulation used in a harsh environment).

**Generic Engineering Procurement Package** - A package which consists of the documents prepared by Engineering during the process of generating the technical and quality requirements for the procurement of an item. Generic packages contain generic evaluations which envelop a wide range of technical and quality requirements for pre-engineered commodities, such as conduit and fittings, bolts, nuts, terminal lugs, fuses, etc., or for a specific item/component used at multiple sites.

**Host (or Parent) Component** - The lowest level of assembly or device of which the item is a part, for which design/qualification documentation typically exists. The host may consist of a single component or an assembly of several components. (EPRI NP-7484)

**Identical Item** - The same part, make and model, which exhibits the same technical and physical characteristics. (EPRI NP-6406, NP-6629, NP-7484, TR 102260)

**Important to Safety (ITS) 10CFR72** - A function or condition required to store spent nuclear fuel safely; to prevent damage to spent nuclear fuel during handling and storage, and to provide reasonable assurance that spent nuclear fuel can be received, handled, packaged, stored and retrieved without undue risk to the health and safety of the public. See NEDP-4 for definition of Important to Safety Category A, B, and C SSC's.

**Independent Spent Fuel Storage Installation (ISFSI)** - A facility designed, constructed and licensed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage in accordance with 10CFR72. An ISFSI which is located on the site of another facility licensed under 10CFR Part 72 or 10CFR Part 50 and which share common utilities and services with that facility or is physically connected with that other facility may still be considered independent.

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**5.0 DEFINITIONS (continued)**

**Information Only (IO)** - A stamp used to indicate the status given to documents supplied by the vendor to give immediate general information about some material or equipment that the engineer may require. The stamp indicates that no detailed technical review of the document was performed. Normally, this stamp is used only to acknowledge receipt of the document by TVA and to distribute it to the affected groups and to the files for information.

**Information Only With TVA Comments (IC)** - A stamp used to indicate that TVA has suggested changes to be made to a vendor document which normally receives an "IO" status.

**Independent Review** - Review completed by personnel not having direct responsibility for the work function under review, regardless of whether they operate as a part of an organizational unit or as individual staff members. (ANSI N18.7-1976).

**Item** - Any level of unit assembly, including structures, systems, subsystems, subassembly, component, part, or material. (ANSI N45.2.10-1973, EPRI NP-6404, NP-6408, NP-6629, NP-7484, TR 102260)

**Like for Like Replacement** - The replacement of an item with an identical item. (EPRI NP-6629, TR 102260)

**Nonpersonal Services** - The performance by a supplier of activities such as design, fabrication, inspection, non-destructive examination, repair, or installation.

**NOTE**

As used in this procedure, services is not applicable to personal services and consulting contracts.

**Non-Quality Related** - Those structures, systems, and components which are not part of the TVA Quality Assurance Program. The 10CFR50 Appendix B, 10CFR72 Subpart G, ANSI N45.2 or quality assurance special programs do not apply to items in this classification. (See definition of Quality Related)

**Original Item** - An item which came as part of the structure or installed equipment. The installed structure/equipment is the licensing design baseline including any subsequent design or licensing commitment changes.

**Passive Component** - A component in which mechanical or electrical change of state is not required to occur for the component to perform its safety related function. (EPRI NP-6406, NP-6629, TR 102260).

**Piece-Part**- A sub-component part of an original equipment package, obtained as a replacement item for maintenance purposes.

**Plant Feature** - A nuclear power plant structure, system, component, or equipment item. (NEDP-9)

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## 5.0 DEFINITIONS (continued)

**Procurement Engineering Group (PEG)** - An Engineering organization consisting of qualified engineers, responsible for receiving approved procurement requests and preparing documents which contain the technical and quality assurance requirements, including commercial grade dedication requirements for procurement of materials, equipment, parts or nonpersonal service.

**Procurement Specification** - Engineering specification containing technical and quality requirements for the procurement of an item or service.

**Quality Assurance Level** - Quality Assurance Levels are for internal TVA use, only to receive, handle, and issue an item. They do **not** determine procurement or engineering requirements.

**Quality Assurance Level 1** - The TVA procurement classification assigned to items that are basic components or to services (training, design, inspection, testing, consulting, installation, etc.) which may affect the safety related function of basic components and are obtained through a safety related procurement. The vendor assumes 10CFR21 responsibility.

**Quality Assurance Level 2** - The TVA procurement classification assigned to items/services that are basic components and are obtained as commercial grade and dedicated by TVA for safety related applications. TVA assumes responsibility for meeting the requirements of 10CFR21 upon successful completion of dedication activities for QA Level 2 items/services.

**Quality Assurance Level 3** - The TVA procurement classification applied to quality related items which are not safety related or services which meets one or more of the following conditions:

- A. If the nonpersonal service could affect the safety related function of a basic component, and can be performed under TVA's QA program.
- B. If the nonpersonal service is to be performed on a quality-related system.

**Quality Assurance Level 0** - The TVA procurement classification assigned to nonquality-related items and services.

**Quality Related (QR)** - Quality-related in this procedure is used to indicate an item is part of a safety related component, but does not perform a safety related function or is an item with unique engineering or regulatory requirements or is addressed in procedures or engineering documents as QA Level 3. With respect to the TVA Nuclear Quality Assurance Plan, those items which are quality related, but not safety related.

**Replacement Item** - An item which replaces an original or installed item (either identical or alternate) for which an equivalency evaluation is performed to assure that interfaces, interchangeability, safety, fit and function are not adversely affected or contrary to regulatory requirements. (EPRI NP-6406, NP-7484, TR 102260)

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**5.0 DEFINITIONS (continued)**

**Returned For Correction (RC)** - A stamp used to indicate that a vendor document was reviewed and found not to comply with the design basis in TVA's contract with the vendor. The stamp is used when drawing deficiencies are general in nature and may or may not be specifically marked on the drawing. A print marked "Returned for Correction" **does not** authorize the vendor to proceed with fabrication or ordering of material. The vendor must correct the document and submit a reproducible of the corrected document to TVA for approval.

**Safety Classification** - An item's functional classification is either safety related (SR), non-quality related (NQR), or quality related (QR). (EPRI NP 6406, NP 6629, TR 102260)

**Safety Function** - The piece part or subcomponent has a safety function if its failure or malfunction will prevent the host/equipment/system from performing the satisfactory accomplishment of its safety-related function during or following design basis accidents and transients.

**Safety Related** - Those Structures, Systems, and Components that are necessary to ensure:

- A. The integrity of the reactor coolant pressure boundary.
- B. The capability to shut down the reactor and maintain it in a safe condition.
- C. The capability to prevent or mitigate the consequences of an incident which could result in potential off-site exposures comparable to those specified in 10 CFR 100. (TVA-NQA-PLN89-A).

**Seismic/Structural Qualification** - The process of verifying and documenting that Category I and I(L) (Browns Ferry Class I and II) plant features are capable of withstanding design basis loading conditions in conformance with applicable plant design criteria. Qualification is by analysis, test, experience, or a combination thereof in accordance with plant design basis commitments. (NEDP-9)

**Spare Parts Bill of Material (BOM)** - A detailed parts list tied to UNIDs prepared to the detail that maintenance is performed. The parts list may be complete or partial based on Engineering replacement parts evaluation.

**Substitute Replacement** - See "Alternate Replacement."

**10 CFR 50.49 Equipment and Items** - Equipment identified in the controlled 10 CFR 50.49 list, items or components of that equipment, and maintenance materials and items specifically identified by part number or material type in the EQ Binders. Refer to SPP-9.2 for guidance on the EQ program.

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**6.0 REFERENCES**

**6.1 Source Documents**

**6.1.1 Business Requirements**

3.3.3C, Response to NRC Violation 88-07-01 and NRC Inspection Report 50-327/88-07 and 50-328/88-07, L44 880628 801

3.5.1.B, NCO86326189

3.3.3.B.3, Memo (NRC Inspection Report 50-390/94-201), A00 941219 004

3.4.1.J, Response to NRC IE Notice 88-069, 88-091500170

3.3.6.B.6, NCO920030409, MSC-00445, NCO920030410, MSC-00446

3.3.1.A, NCO880293006

3.5.9.B, NCO920048045, 390/86-02-01

Appendix C, Form 8, NCO950022004

3.5.13, IFI 390,391/92-24-01

3.5.10, NCO920030410, IE Notice 94-020

3.5.9.A, 390/82-82 55E-0538

3.3.6.B.1, Response to NRC Violation 50-327,328/91-26-03, NCO920013001

3.5.15, IE Notice 90-057

3.5.14, NCO920131001

Requirements Documents, 50-390/94-201

3.3.1.A, CATD 80104-WBN-01

3.3.1.A, CATD 80104-NPS-03

3.3.1.A and 3.3.6.B.3, CATD 80104-WBN-02

3.3.1.A and 3.3.3.A.3, GL83-28 PAC/AQ GLT-0071

3.3.1.A, NUREG 0588, WBRD 50-390/81-66

3.3.3.C.3.C, CDR-390/82-17

3.3.6.B.6, 390/82-82, 55E0538

3.3.6.B.6 and App. C, NCO920030409

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**6.1.1 Business Requirements (continued)**

3.3.6.B.6, NCO920030410

Requirements Documents, NCO950022002

3.3.1.A, NCO880293006

**6.1.2 Requirements Documents**

10CFR21, "Reporting of Defects and Noncompliance"

10CFR50, Appendix B, Criterion IV, "Procurement Document Control" and VII, "Control of Purchased Material and Equipment and Services"

10CFR50.49, "Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants"

ANSI N18.7/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants"

ANSI N45.2, "Quality Assurance Program Requirements for Nuclear Power Plants"

ANSI N45.2.10, "Quality Assurance Terms and Definitions"

ANSI N45.2.11, "Quality Assurance Requirements for the Design of Nuclear Power Plants"

ANSI N45.2.13, "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants"

Nuclear Quality Assurance Plan, TVA-NQA-PLN89-A

NUMARC Nuclear Power Program Improvements, NUMARC 90-13, October 1990

**6.2 Developmental References**

ANSI N45.2.2, "Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants"

EPRI NP-5638, "Guidelines for Preparing Specifications for Nuclear Power Plants" (NCIG-04)

EPRI NP-5652, "Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications" (NCIG-07)

EPRI NP-6406, "Guideline for the Technical Evaluation of Replacement Items in Nuclear Power Plants" (NCIG-11)

EPRI NP-6408, "Guideline for Establishing, Maintaining and Extending the Shelf Life Capability of Limited Life Items" (NCIG-13)

EPRI NP-6629, "Guideline for the Procurement and Receipt of Items for Nuclear Power Plants" (NCIG-15)

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**6.2 Developmental References (continued)**

EPRI NP-6630, "Guideline for Performance Based Supplier Audits" (NCIG-16)

EPRI NP-6895, "Guideline for the Safety Classification of Systems, Components, and Parts Intended for Use in Nuclear Power Plants" (NCIG-17)

EPRI NP-7218, Project Q1010-07, June 1992, "Guideline for the Utilization of Sampling Plans for Commercial Grade Item Acceptance" (NCIG019)

EPRI NP-7484, "Guideline for the Seismic Technical Evaluation of Replacement Items for Nuclear Power Plants"

EPRI TR-102260, "Supplemental Guidance for the Application of EPRI Report NP-5652 on the Utilization of Commercial Grade Items"

EPRI TR-112579, "Critical Characteristics for Acceptance of Seismically Sensitive Items (CCASSI)"

IEEE-323-1974, "Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations"

IEEE-344-1975, "Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations"

IE Notice 87-66, "Inappropriate Application of Commercial Grade Components"

Mechanical Design Standard, DS-M18.2.18, "Standardized Procurement Notes"

NEP-5.1, "Design Output"

SPP-2.4, "Records Management"

SPP-2.5, "Vendor Manual Control"

TVAN STD-3.2, "Augmented QA Program"

TVAN STD-3.3, "Q-List Use and Control"

TVAN STD-3.4, "Corrective Action Program"

TVAN STD-5.3, "Controlling Byproduct and Source Material Sources"

TVAN STD-6.5, "Electrical Equipment Environmental Qualification (EQ) Program"

TVAN STD-6.9, "Repair/Replacement of ASME Section XI Components"

SPP-4.1, "Procurement of Material and Services"

SPP-4.2, "Material Receipt and Inspection"

SPP-4.3, "Handling and Storage of Materials and Spare Parts"

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**6.2 Developmental References (continued)**

SPP-4.4, "Material Issue, Control and Return"

TVAN STD-13.1, "Chemistry Program"

TVAN STD-13.2, "Chemical Traffic Control (CTC) Program"

Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)"

Regulatory Guide 1.64, "Quality Assurance Requirements for the Design of Nuclear Power Plants"

Regulatory Guide 1.89, "Environmental Qualification of Certain Electrical Equipment Important to Safety for Nuclear Power Plants"

Regulatory Guide 1.123, "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants"

NEDP-5, "Design Verification"

NEDP-9, "Seismic/Structural Qualification"

TVAN STD-9.3, "Plant Modification & Design Change Control"

Standard Specification SS-E18.14.01, "Electromagnetic Interference (EMI) Testing Requirements for Electronic Devices"

NEI 96-07, Revision 1, "Guidelines for 10 CFR 50.59 Implementation"

SPP-9.4, "10CFR50.59 Evaluations of Changes, Tests, and Experiments"

NADP-3, "Managing the Operating Experience Program"

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**QA Level 0 Exemption List**

When ordering items on the following list, Engineering evaluation of the Material Request is not required. The following items are considered QA Level 0.

- A. Administrative, communication, tools, tool room, first aid, office, janitorial and warehouse equipment and associated supplies.
- B. Transportation vehicles and ground maintenance equipment including lawn mowers, tractors, rakes, shovels, hoes, agricultural supplies, etc., spare parts, fuel and services associated with these items.
- C. Reference and training material including textbooks, handbooks, standards, professional publications, reports, technical manuals, and operating manuals.
- D. Clothing and protective clothing, including coveralls, hoods, overshoes, shoe covers, rubber gloves, cloth gloves, bubble suits, plastic suits, lab coats, and aprons.
- E. Respiratory protective equipment, including self contained breathing apparatus, air purifying respirators, air line respirators, associated support equipment and spare parts, and refilling testing of bottles and tanks.
- F. Laboratory equipment and accessories, chemical reagents, and standardized solutions.
- G. Expendable laboratory supplies including glassware, beakers, poly bottles, disposable containers, shipping cartons, plastic bags, hoses, stirrers and spatulas, and towels.
- H. Health Physics expendable supplies, including signs, tags, labels, poly bags, barrier rope, shielding materials, step-off pads, vapor barrier paper, sheet plastic, poly bottles, smears, air sampling media (filters and cartridges), planchets, batteries, etc.
- I. Health Physics fixed and portable instrumentation, including accessories spare parts and calibration (not including primary and secondary NBS Standards) for the above, and response check sources.
- J. Computer equipment, spare parts, and repair services for general office use computers (i.e., PCs)
- K. Health Physics and Chemistry Consultant Agreements.
- L. Laboratory services, well water sampling and analysis.
- M. Meters and test equipment and associated spare parts, not to include calibration services.
- N. Lumber, nails, wood screws, temporary structure building materials, and packaging materials.
- O. Materials, parts, components, and services for the office buildings, office trailers, and other buildings outside of the protected area.
- P. Concrete, gravel, asphalt, sand, dirt, etc., for general use in nonsafety-related applications.

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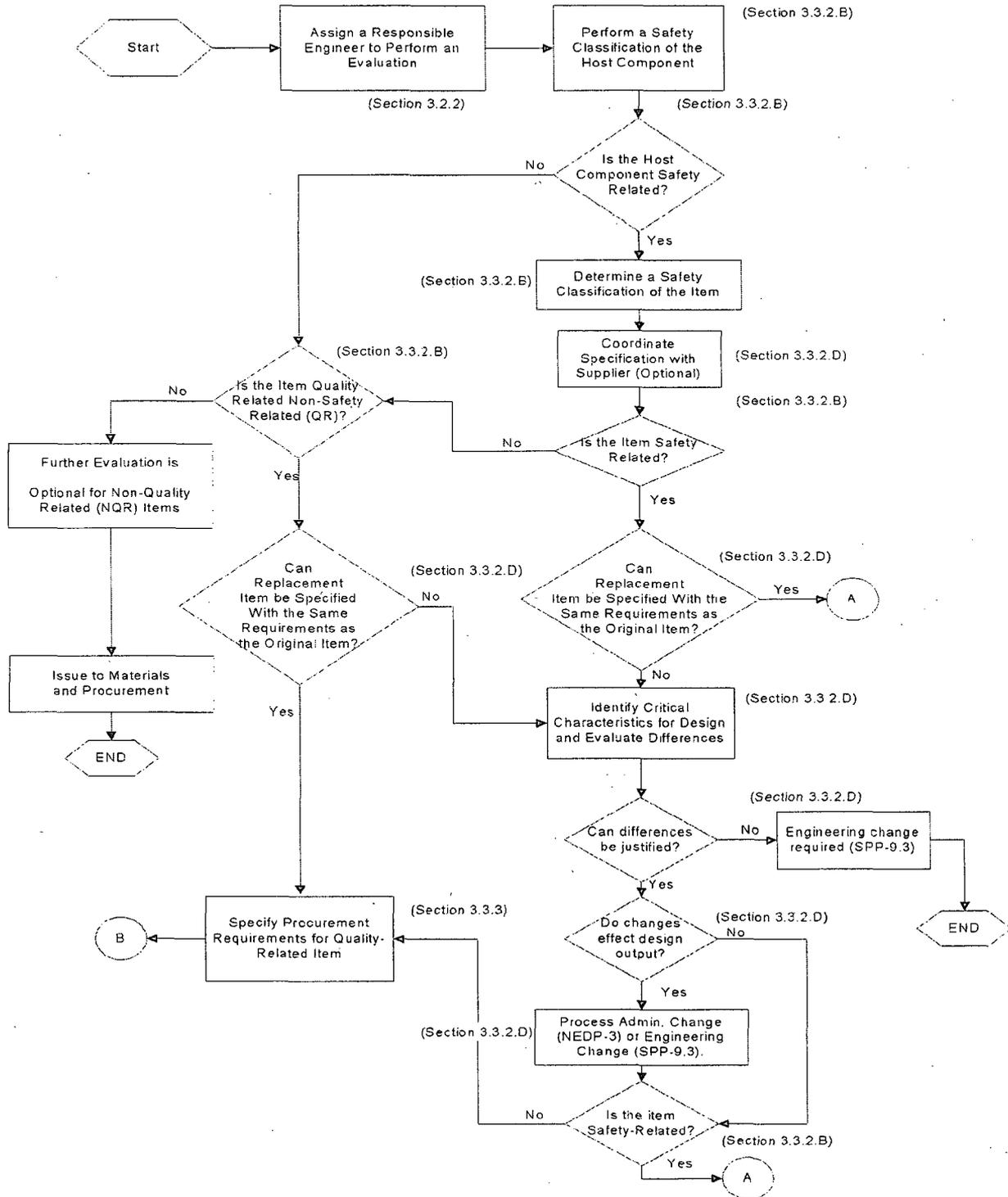
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**QA Level 0 Exemption List**

- Q. Simulator assemblies, parts, or other simulator material
- R. Temporary Equipment/Items, electrical or mechanical (i.e., non-permanent plant equipment). Equipment/items that directly interface with permanent plant equipment while under normal operating conditions are not considered to be temporary.
- S. Permanent plant materials, components, and spare parts requested for nonquality-related plant applications. Procurement/Material requests that identify the host equipment as nonquality-related may be processed without Engineering evaluation. Likewise, TIIcs/Item Numbers for QA 0 items may be processed without Engineering evaluation unless information in the Supply Chain Information Management system(s) indicates an Engineering evaluation is required.

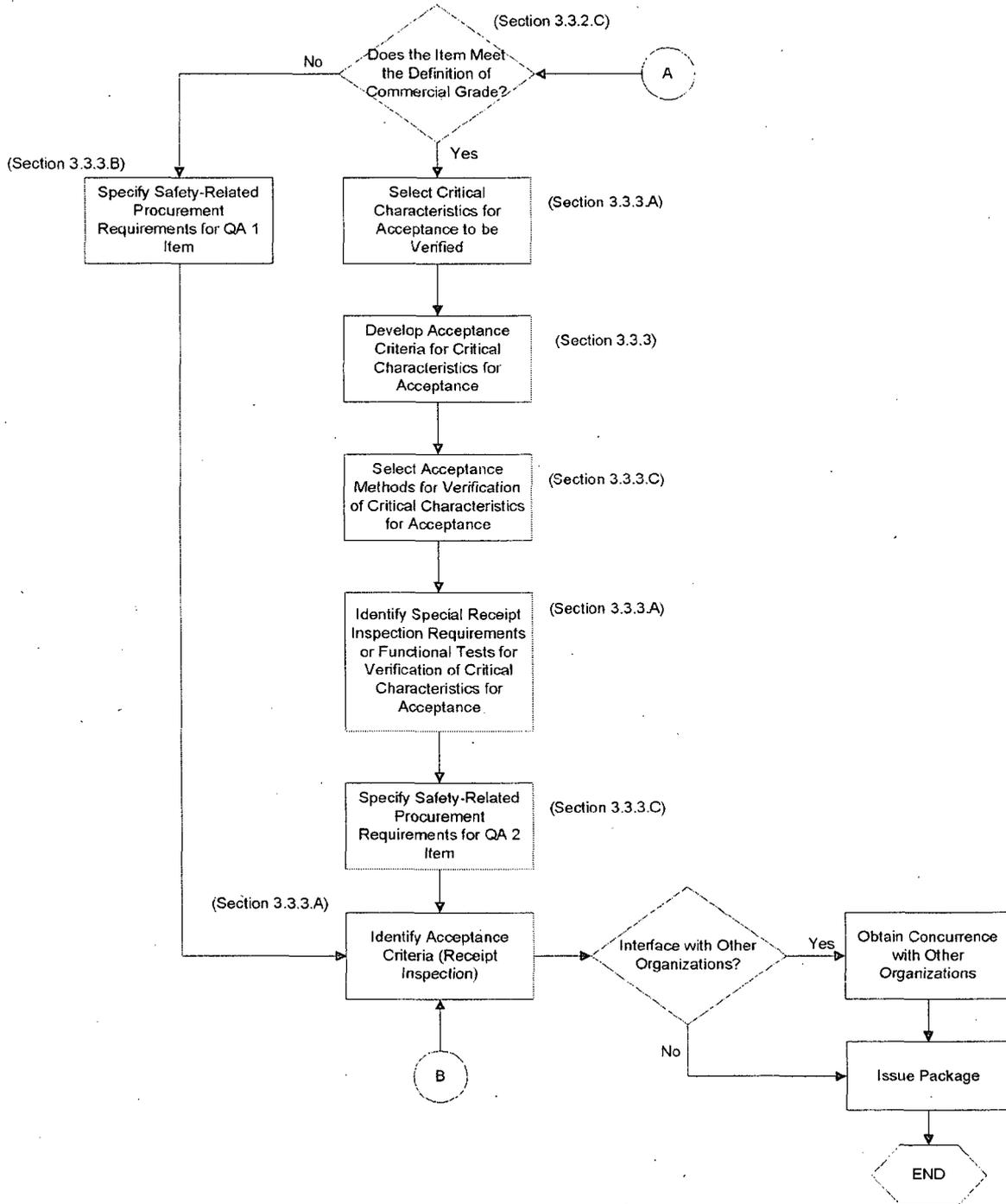
Appendix B  
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Technical Evaluation Process Flowchart



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Technical Evaluation Process Flowchart



**Appendix C  
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**Sample Output Documents**

**FORM 1 - COVER SHEET**

**PKG NO:  
PAGE NO:**

RIMS NO:	REV. NO:
SUPERSEDED RIMS NO:	QA LEVEL:
TRACKING NO:	
REASON FOR REVISION:	
SUBJECT:	
REFERENCE:	
PREPARED BY:	DATE:
REVIEWED BY:	DATE:
APPROVED BY:	DATE:

**DISTRIBUTION:**

- RIMS
- MATERIAL & PROCUREMENT
- 

- NUCLEAR PROCUREMENT
- NUCLEAR STORES

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**Sample Output Documents**

**FORM 2 - TECHNICAL EVALUATION**

<b>SAFETY CLASSIFICATION EVALUATION</b>		PKG NO:
<b>HOST EQUIPMENT/COMPONENT DATA:</b>		PAGE NO:
If the component is uniquely addressed in SE/NE output documents (i.e., Design Change Package, G-spec, EMS Q-List) or is a whole component, complete HOST EQUIPMENT/COMPONENT DATA and N/A ITEM DESCRIPTION & ITEM FUNCTION		
<b>HOST EQUIPMENT/COMPONENT (WORST CASE) UNID NO:</b>	<b>HOST EQUIPMENT/COMPONENT TIIC NO:</b>	
<b>HOST EQUIPMENT/COMPONENT (WORST CASE) DESCRIPTION:</b>		
<b>HOST SAFETY CLASSIFICATION:</b> <input type="checkbox"/> SAFETY RELATED <input type="checkbox"/> NON-QUALITY RELATED <input type="checkbox"/> QUALITY RELATED <input type="checkbox"/> SEISMIC I <input type="checkbox"/> SEISMIC I(L) <input type="checkbox"/> PAM <input type="checkbox"/> CLASS 1E <input type="checkbox"/> ASME SEC III CLASS _____ <input type="checkbox"/> 10 CFR 50.49                      EQ BINDER NO:                                      REV:		
<b>BASIS FOR SAFETY CLASSIFICATION:</b>		
<b>REFERENCES:</b> (TVA dwgs, Q-list, system criteria, etc.)		
<b>ITEM DATA:</b>		
<b>ITEM(S) DESCRIPTION:</b>		
<b>ITEM DESIGN FUNCTION(S):</b> (Including Known Safety Function)		

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**Sample Output Documents**

**FORM 2A - TECHNICAL EVALUATION**

<b>ITEM DATA CONT</b>		PKG NO:
<b>ITEM CLASSIFICATION BASED ON FUNCTION:</b>		PAGE NO:
<input type="checkbox"/> SAFETY RELATED		
<input type="checkbox"/> NOT SAFETY RELATED PROVIDE BASIS ONLY IF HOST IS SR		
<b>POSTULATED FAILURE MODE OF ITEM:</b>   		
<b>AFFECTS OF POSTULATED FAILURES ON COMPONENT SAFETY FUNCTIONS::</b>   		
<b>BASIS:</b>   		
<b>REFERENCES:</b>   		
<b>ITEM SEISMIC REQUIREMENT:</b> <input type="checkbox"/> SEISMIC I <input type="checkbox"/> SEISMIC I(L) <input type="checkbox"/> N/A		
<b>REMARKS:</b>   		
<p align="center"><b>ITEM QUALITY LEVEL DETERMINATION</b></p>		
<b>ITEM IS SAFETY RELATED, AND</b>		
<input type="checkbox"/> WILL BE PROCURED AS SAFETY RELATED - PROCURE ITEM QA LEVEL 1		
<input type="checkbox"/> WILL BE PROCURED AS COMMERCIAL GRADE - PROCURE ITEM QA LEVEL 2		
<p align="center"><b>OR</b></p>		
<b>ITEM IS NOT SAFETY RELATED, AND</b>		
<input type="checkbox"/> IS PART OF A SAFETY RELATED COMPONENT OR IS A QUALITY RELATED ITEM WITH UNIQUE ENGINEERING OR REGULATORY REQUIREMENTS OR IS ADDRESSED IN SITE PROCEDURES OR NE OUTPUT DOCUMENTS AS QA LEVEL 3 - PROCURE ITEM QA LEVEL 3		
<input type="checkbox"/> DOES NOT MEET QA LEVEL 3 REQUIREMENTS - PROCURE AS QA LEVEL 0		

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**Sample Output Documents**

**FORM 2B - TECHNICAL EVALUATION**

<b>COMMERCIAL GRADE DETERMINATION</b>			PKG NO:
			PAGE NO:
TRUE	FALSE	QUESTION	
		Critical characteristics can be verified during the dedication process.	
NOTE: IF THE ANSWER TO THE ABOVE QUESTION IS TRUE, THE ITEM MAY BE PROCURED AS CGI, QA LEVEL 2. IF THE ANSWER IS FALSE, THE ITEM MUST BE PROCURED AS QA LEVEL 1.			
<b>VERIFICATION OF CRITICAL CHARACTERISTICS</b>			
<b>CRITICAL CHARACTERISTIC</b>	<b>ACCEPTANCE CRITERIA</b>	<b>ACCEPTANCE METHODS (NOTE 1)</b>	<b>SOURCE OF DATA (REFERENCE)</b>
<b>REMARKS:</b>			
NOTE 1: METHOD 1 - Special Tests and Inspections; METHOD 2 - Commercial Grade Survey of Supplier; METHOD 3 - Source Verification; METHOD 4 - Acceptable Supplier/Item Performance Record			

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Sample Output Documents

**FORM 2C - TECHNICAL EVALUATION**

<b>PROCUREMENT TECHNICAL, QUALITY AND ACCEPTANCE REQUIREMENTS</b>		PKG NO:
		PAGE NO:
<b>EXTERNAL NOTES AND ATTACHMENTS</b>		
QUALITY ASSURANCE PROGRAM		
EXCEPTIONS/NONCONF/RIGHTS OF ACCESS		
CODES/STANDARD/SPECS		
VENDOR SUBMITTALS & DOCUMENTATION		
IDENTIFICATION & MARKING		
PACKAGE/SHIP/HANDL/STORG		
TVA EXTERNAL ADMIN		
SERVICE CONTRACTS		
ADDITIONAL EXTERNAL NOTES		
EXTERNAL ATTACHMENTS		
<b>INTERNAL NOTES AND ATTACHMENTS</b>		
TVA INTERNAL NOTES		
ADDITIONAL INTERNAL NOTES		
INTERNAL ATTACHMENTS		
<b>ADDITIONAL REQUIREMENTS</b>		
YES	NO	DOCUMENT
		OTHER EVALUATION
		SPECIAL RECEIPT INSPECTION
		CONDITIONAL DEDICATION TEST
PROCUREMENT SOURCES:		
ADDITIONAL INFORMATION:		

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**Sample Output Documents**

**FORM 2D - TECHNICAL EVALUATION**

			PKG NO:
			PAGE NO:
<b>INSPECTION ATTRIBUTE</b>		<b>INSPECTION REQUIREMENT</b>	
<b>NOMENCLATURE</b>	<b>N/A</b>	<b>STD</b>	<b>SPECIAL REQUIREMENTS</b>
PHYSICAL DAMAGE			
IDENTIFICATION & MARKING			
MANUFACTURER DOCUMENTATION			
PROTECTIVE COVERS/SEALS			
COATING/PRESERVATIVES			
INERT GAS BLANKET			
CLEANLINESS			
DESICCANT			
WORKMANSHIP			
TAGGING/POST INSPECTION			
PHYSICAL PROPERTIES			
LUBRICANTS AND OILS			
ELECTRICAL INSULATION			
DIMENSIONS			
WELD PREPARATION			
SIZE/SHAPE			
SPECIAL INSPECTION			
SPECIAL HANDLING/STORAGE			
SOURCE SURVEILLANCE/INSPECTION			
SHELF LIFE			
TRACEABILITY			
HARDNESS TESTING			
TVA APPROVAL OF DOCUMENTATION			
<b>NOTES:</b>			

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**Sample Output Documents**

**FORM 3 - SERVICES**

	PKG NO:
	PAGE NO:
<b>DESCRIBE EQUIPMENT/UNID NO. IMMEDIATELY AFFECTED BY THE SERVICE:</b>	
<b>IDENTIFY SAFETY FUNCTIONS FOR THE ABOVE:</b>	
<b>REFERENCE:</b>	
<b>ITEM/SYSTEM IS SAFETY RELATED:</b>	
<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	SERVICE IS PERFORMED UNDER THE VENDOR'S QUALITY ASSURANCE PROGRAM APPROVED BY TVA - <b>PROCURE SERVICE QA LEVEL 1.</b>  SERVICE IS COMMERCIAL GRADE AND DEDICATED BY TVA - <b>PROCURE SERVICES QA LEVEL 2.</b>  SERVICE IS PERFORMED UNDER THE AUSPICES OF TVA'S QUALITY ASSURANCE PROGRAM - <b>PROCURE SERVICES QA LEVEL 3.</b>  SERVICE IS PERFORMED AT A VENDOR'S FACILITY WITH NO TVA APPROVED QUALITY ASSURANCE PROGRAM AND ACCEPTABILITY OF THE SERVICE THROUGH INSPECTION OR VERIFICATION OF THE ITEM UPON RECEIPT BY TVA - <b>PROCURE SERVICE QA LEVEL 3.</b>
<b>OR</b>	
<b>ITEM/SYSTEM IS NOT SAFETY RELATED:</b>	
<input type="checkbox"/>  <input type="checkbox"/>	SERVICE IS PERFORMED ON A QUALITY RELATED ITEM/SYSTEM - <b>PROCURE SERVICE AS QA LEVEL 3.</b>  SERVICE IS PERFORMED ON A NON-QUALITY RELATED ITEM/SYSTEM - <b>PROCURE SERVICE QA LEVEL 0.</b>

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**Sample Output Documents**

**FORM 4 - OTHER EVALUATIONS**

<b>EVALUATION FOR:</b> This form shall not be used to document Equivalency Evaluation that conflicts with Design Output Documents.	PKG NO:
	PAGE NO:
<input type="checkbox"/> QA LEVEL CHANGE <input type="checkbox"/> TIIC DESCRIPTION CHANGE <input type="checkbox"/> OTHER	<input type="checkbox"/> 10CFR50.49 <input type="checkbox"/> AFFECTS OF SPECIFICATION CHANGE <input type="checkbox"/> SHELF LIFE EXTENSION
<b>PURPOSE:</b>  	
<b>ASSUMPTIONS:</b>  	
<b>ANALYSIS:</b>  	
<b>CONCLUSION:</b>  	





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**Sample Output Documents**

**FORM 6 - PROCUREMENT DATA SHEET**

RIMS NO:		TOTAL PAGES:
SUPERSEDED		REV NO:
TECHNICAL EVALUATION PKG NO:		PDS EXPIRATION DATE:
TECHNICAL EVALUATION RIMS NO:		
PKG NO:	QA LEVEL:	PAGE NO:
TIIC NO:		SOLE SOURCE: <input type="checkbox"/> YES <input type="checkbox"/> NO
MAILING LIST:	QA PROGRAM IMPOSED:	<input type="checkbox"/> YES <input type="checkbox"/> NO
PROPOSED SUPPLIER:		
ITEM INTENDED END USE:		
ITEM DESCRIPTION:		
MANUFACTURER/VENDOR:		PART NO:
EXTERNAL NOTES & ATTACHMENTS:		
QA PROGRAM & VENDOR SUBMITTALS/DOCUMENTATION:		
INTERNAL NOTES & ATTACHMENTS:		
ADDITIONAL INFORMATION:		
PREPARED BY:		DATE:
REVIEWED BY:		DATE:
APPROVED BY:		DATE:

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**Sample Output Documents**

**FORM 7 - RECEIPT VERIFICATION/INSPECTION REQUIREMENTS**

					PKG NO:
					PAGE NO:
<b>TIIC NO./DESCRIPTION:</b>				<b>QA LEVEL:</b>	
<b>INSPECTION ATTRIBUTE</b>			<b>INSPECTION REQUIREMENT</b>		
<b>NOMENCLATURE</b>	<b>N/A</b>	<b>STD</b>	<b>SAT</b>	<b>UNSAT</b>	<b>SPECIAL REQUIREMENTS</b>
PHYSICAL DAMAGE					
IDENTIFICATION & MARKING					
MANUFACTURER DOCUMENTATION					
PROTECTIVE COVERS/SEALS					
COATING/PRESERVATIVES					
INERT GAS BLANKET					
CLEANLINESS					
DESICCANT					
WORKMANSHIP					
TAGGING/POST INSPECTION					
PHYSICAL PROPERTIES					
LUBRICANTS AND OILS					
ELECTRICAL INSULATION					
DIMENSIONS					
WELD PREPARATION					
SIZE/SHAPE					
SPECIAL INSPECTION					
SPECIAL HANDLING/STORAGE					
SOURCE SURVEILLANCE/INSPECTION					
SHELF LIFE					
TRACEABILITY					
HARDNESS TESTING					
TVA APPROVAL OF DOCUMENTATION					
<b>NOTES:</b>					





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**Listing of Typical Equipment Safety Functions (ESF)  
and Credible Failure Modes (CFM)**

<b>ESF</b>	<b>DESCRIPTION</b>
Maintain Pressure Integrity	Mechanical function. Required to prevent the escape or entry of an unacceptable leakage rate or quantity of fluid past the pressure boundary. Applies to both active and passive equipment, inclusive of items containing a fluid.
To Open	Mechanical Function. Active components are normally closed and are required to perform a mechanical movement to achieve and maintain an open position, thereby allowing the minimum design flow.
Remain Open	Mechanical Function. Passive components are normally open and are required to maintain an open position, allowing the minimum design flow.
To Close, Isolate	Mechanical Function. Active components are normally open and are required to perform a mechanical movement to achieve and maintain a closed position, thereby stopping process flow (absolute sealing is not considered part of this function).
Remain Closed, Isolate	Mechanical Function. Passive components are normally closed and are required to maintain a closed position, thereby stopping process flow (absolute sealing is not considered part of this function).
Provide Directional Control	Mechanical Function. Active and passive components are required to govern the direction of process fluid or gas movement, determined by the operating parameters of the system.
Actuate/Modulate	Mechanical Function. Active components are required to perform continuing mechanical movement (e.g., a component which modulates position to regulate flow).
Maintain Structural Integrity	Mechanical Function. Active and passive components are required to maintain their structural form. Component does not collapse, disassemble, or disintegrate. Failure of a part confined internally to the component does not constitute a violation of structural integrity.

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Listing of Typical Equipment Safety Functions (ESF)  
and Credible Failure Modes (CFM)

ESF	DESCRIPTION
Changes State	Electrical Function. Changes state to perform a control function. State changes include normally energized to de-energized, normally de-energized to energized state. Modulate between these states. Examples of devices which change state to function include relays, circuit breakers, and solenoid valve operations.
Transform/Supply Energy	Electrical Function. Applies to those components required to provide voltage/current to appropriate power levels for use by other components.
Provide Signal	Electrical Function. Applies to components which generate or transmit a process signal used for control or indication purposes. Applies to transmitters, elements, and signal conditioners.
Provide Control	Electrical Function. Applies to those components whose primary function is to control other components. This function is typically accomplished through a change in contact position(s) and applies to switches.
Provide Filtering	Mechanical or Electrical Function. Passive components required to remove particles or debris from process fluid or gas.
Provide Motive Force	Mechanical or Electrical Function. Active components required to provide motive force, to start and commence performance of an operation, continuing such operation as required.
Provide Indication	Mechanical or Electrical Function. Required to provide indication, either local or remote, to operations or maintenance.
Provide/Pressure Flow	Mechanical Function. Active components are required to provide minimum design pressure/flow of process fluid or gas through component movement.
Containment Isolation	Mechanical Function. Active or passive components are required to be closed for containment isolation (not to be used as a replacement of component function to close, isolate).

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**Listing of Typical Equipment Safety Functions (ESF)  
and Credible Failure Modes (CFM)**

<b>ESF</b>	<b>DESCRIPTION</b>
Combustible Gas Control	Mechanical Function. Required to prevent the build up of volatile fluids within containment.
Blend	Mechanical Function. Applies to blenders or mixers which combine ingredients, chemicals, by mixing.
Provide Support/Secure	Mechanical Function. Required to restrict movement or provide damping to insure dynamic stability.
Maintain Circuit Integrity	Electrical Function. Maintain intact electrical state such that design current flow is accomplished through component and excess current flow, caused by shorting, does not occur. Components which must distribute/allow rated current flow include buses, distribution panels, fuses and circuit breakers. Function applies to all electrical components to prevent excess current flow, shorts.
Electrical Isolation	Electrical Function. Applies to those components which prevent excess current flow, usually caused by short circuit, from propagating through the circuit and impairing the operation of other components. Components with this function are typically used to isolate non-class 1E circuit failures from Class 1E circuits.
 <b>CFM</b>	
Fracture	Separation of a solid accompanied by little or no macroscopic plastic deformation.
Corrosion	The gradual deterioration of a material due to chemical or electrochemical reactions, such as oxidation, between the material and its environment.
Erosion	Destruction of materials by the abrasive action of moving fluids, usually accelerated by the presence of solid particles carried with the fluid.
Open Circuit	An electric circuit that is unintentionally broken so that there is no complete path for current flow.

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**Listing of Typical Equipment Safety Functions (ESF)  
and Credible Failure Modes (CFM)**

<b>CFM</b>	<b>DESCRIPTION</b>
Short Circuit	An abnormal connection by which an electric current is connected to the earth, or to some conducting body usually resulting in excessive current flow.
Blockage	Clogging of a filtering medium resulting in the inability to perform its purification function or blockage of flow.
Seizure	Binding of a normally moving item through excessive pressure, temperature, friction, jamming.
Unacceptable Vibration	Mechanical oscillations produced are beyond the defined permissible limits due to unbalancing, poor support, or rotating at critical speeds.
Loss of Properties	A loss of mechanical and physical properties of a material due to exposure to high temperature, radiation exposure.
Excess Strain	Under the action of excessive external forces the material of the part has been deformed or distorted.
Mechanical Creep	From prolonged exposure to high temperature and stress, the object will show a slow change in its physical (shape and dimension) and mechanical characteristics.
Ductile Overload	Structural failure characterized by collapse and/or metal tearing accompanied by appreciable gross plastic deformation.

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**Listing of Typical Critical Characteristics for  
Item Functions Impacting Host Safety Functions**

**PHYSICAL CHARACTERISTICS**

Balance	Capacitance	Cloud point	Coating
Color	Composite material hardness	Concentration	
Conductivity	Continuity	Density/specific gravity	Dielectric strength
Dimensions (to within manufacturer's tolerance)	Drop Point	Ductility	Durometer hardness
Elasticity			
Fatigue resistance	Flammability	Flash Point	General configuration or shape
Homogeneity	Impedance	Inductance	Leachable halogen content
Load rating	Luminescence	Material of construction	Melting Point
Mounting	NIL-Ductility	Oil/Water separation	Permeability
Plating	Polarity	Pour Point	Purity
Resilience	Resistance	Shear Strength	Solubility
Spring constant	Surface finish	Surface hardness	Temperature
Tensile strength	Thermal Conductivity	Torque	Viscosity
Wall Thickness	Weight		

**PERFORMANCE CHARACTERISTICS**

Accuracy	Bias Current	Burn-in endurance	Calibration
Chatter	Current rating	Cycle time	Dead band width
Filter rating	Flow rate	Gain	Horsepower
Input/Output voltage	Interrupt rating	Interrupting current	Leakage
Load rating	Open/Closure time	Operability (fail, open/close, stroke)	Operating range
Performance during under voltage conditions	Pick-up/Drop-out voltage	Power rating	Pressure drop
Pressure rating	Radiation rating	Repeatability	Run out
Rotational direction	Set point stability (no drift)	Speed	Temperature Rating
Time/Current response	Voltage rating	Endurance	Relief range

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**Appendix F  
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**Identification of Replacement Items Instruction**

Appendix F deleted by Revision 14.

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**Obsolete Items, TIIC/Item Number Consolidation, Generic Procurement  
TIICs/Item Numbers, and Material Upgrade Instructions**

**1.0 PURPOSE**

The purpose of this instruction is to establish the procurement methodology to be used for treatment of obsolete spare parts, TIIC/Item Number consolidation, generic procurement TIICs/Item Numbers, and material upgrades. Results of this process are documented in a PEG package (TE, PDS, OTHER, etc.) and executed accordingly by the Material Management Service (MMS) organizations.

**2.0 SCOPE**

Applies to NPG Engineering personnel including contractors assigned to the Procurement Engineering Groups in Corporate and at all sites.

**3.0 INSTRUCTION**

**3.1 Obsolete Items**

- A. Determine if a spare part/component is obsolete by verifying that item can no longer be purchased through the OEM or OES, and vendor/manufacturer communication indicates item is obsolete.
- B. For obsolete items requiring design document change. See Section 3.3.2D.
- C. If a replacement to the obsolete items is available and design documents are not impacted, prepare a procurement document with an alternate item Equivalency Evaluation for the new item.

**3.2 TIIC/Item Number Consolidation**

- A. Determine if TIIC/Item Number consolidation is possible by checking the item's technical and quality basis. Verifying multiple TIICs/Item Numbers for the same part number with the Supply Chain Information Management system will aid the process. The multiple TIICs/Item Numbers may be at the same site or at various sites and with varying QA levels.

**NOTE**

The Material Management Service (MMS) or other organizations may provide input to PEG and request TIIC/Item Number consolidation evaluations considering the economics of engineering and warehousing costs.

- B. Consolidate duplicate component/part TIICs/Item Numbers. Proceed with the consolidation as follows:

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**Obsolete Items, TIIC/Item Number Consolidation, Generic Procurement  
TIICs/Item Numbers, and Material Upgrade Instructions**

**3.2 TIIC/Item Number Consolidation (continued)**

1. Prepare or reference a Technical Evaluation and/or use other evaluation to provide instructions for the consolidation. This evaluation document is the basis for the TIIC/Item Number consolidation and documents that all items in the consolidated TIIC/Item Number have the same evaluated technical/quality requirements and includes all necessary information authorizing the material retagging and consolidation.
2. A statement may be added to the TIIC/Item Number being discontinued similar to "Material may be transferred to TIIC/Item Number (Number) per PEG Evaluation".
3. A statement may be added to the existing TIIC/Item Number similar to "Material to be transferred into this TIIC/Item Number from TIIC/Item Number (Number) per PEG Evaluation."

**NOTES**

- 1) When there is uncertainty about TIICs/Item Numbers to use for consolidation, it may be more appropriate to cancel the existing TIICs/Item Numbers and build a new generic TIIC/Item Number.
- 2) Part numbers for both TIICs/Item Numbers (assuming they are different) must be carried into the new or remaining TIIC/Item Number.
- 3) Site concurrence is required before consolidating noncommodity site-specific TIICs/Item Numbers.
- 4) Do not consolidate TIICs/Item Numbers of different QA levels without evaluating site-specific requirements.

**3.3 Generic Procurement TIICs/Item Numbers**

Consider creating a Generic TIIC/Item Number when PEG identifies two (2) OR more sites have a design basis allowing use of the same item or it is a commodity item.

**NOTE**

Generic TIICs /Item Numbers are normally used for commodity type materials. Special precautions should be made when considering the following for Generic use: Materials required to be tested per a PF spec, fuses, ASME components, direct charge or DCN material, seismic sensitive electrically active devices, parts required to be certified to specific contracts and EQ components. In addition, if a site has no previous use history for the item do not build a generic TIIC/Item Number for that site.

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**Obsolete Items, TIIC/Item Number Consolidation, Generic Procurement  
TIICs/Item Numbers, and Material Upgrade Instructions**

**3.3 Generic Procurement TIICs/Item Numbers (continued)**

- A. Select the TIIC/Item Number to be generic or build a new TIIC/Item Number.
- B. Prepare or reference a Technical Evaluation for all applicable sites.  
Include material consolidation and tagging instructions, as applicable.
- C. Prepare a generic PDS and Update the Catalog system.
- D. Contact corporate PEG (Generic TIIC/Item Number owner) for assistance in resolving Generic TIIC/Item Number discrepancies and they will make changes as necessary.

**3.4 Material Upgrades**

- A. When identical material is stocked at different QA levels, consider upgrading the lower QA level material when the higher QA level material is not available.
- B. Prepare or reference a TE/Other evaluation supporting the upgrade, all TIICs/Item Numbers and contracts (where required) included in the upgrade must be evaluated in the PEG package supporting the upgrade. Ensure that clear instructions, e.g., adequate tagging, etc., are given to materials personnel.

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**PEG Package Preparation**

**1.0 PURPOSE**

The purpose of this instruction is to establish an overall chronology and guidelines for preparing a PEG package, including use of the Automated Procurement Data Systems (APEDS) modules/components.

**2.0 SCOPE**

Applies to NPG Engineering personnel including contractors assigned to the Procurement Engineering Group (PEG) to prepare, review and approve PEG packages at corporate and all sites. This instruction provides guidance for consistency in the generation of typical PEG packages. Refer to the APEDS Users Guide for maneuvering and use of the APEDS database and computer software.

**3.0 INSTRUCTION**

**3.1 New Procurement**

- A. Identify if the item being procured is a QA or non-QA purchase.
- B. If non-QA, then prepare a response to the Material Management Service (MMS) organization as appropriate to indicate a non-QA purchase.
- C. If QA purchase, then identify and/or build a TIIC/Item Numbers, if predetermined there is not an existing PDS. Utilize a current PDS (Procurement Data Sheet) or a TE (Technical Evaluation) if available.

If no PDS is present for the item or changes need to be made:

- 1. Update Supply Chain Information Management and identify an applicable TE or generate a new TE.
- 2. Generate a PDS for the TIIC/Item Numbers.
- 3. PDS for a TIIC/Item Number item with the "For Procurement" field check in APEDS will update Supply Chain Information Management with the technical and quality requirements from the PDS when the PDS is issued. Non-TIIC/Item Number item or when the "For Procurement" field is not checked in APEDS transmit the package to the MMS Organization or other designated organization.

**3.2 Typical PEG Requests**

PEG Package content will vary depending on type of request. Identified below are typical situations.

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**PEG Package Preparation**

**3.2 Typical PEG Requests (continued)**

A. New procurements:

Material Requests, TVA form 40553/SPP-4.1-1, "Procurement Request" (previously TVA form 2652, or 10606)

B. Vendor external inquiries:

1. Bid Evaluation
2. Vendor Substitution
3. Vendor Exception
4. Vendor Drawing/Document Approval
5. Vendor Inquiry

C. TVA internal inquiries:

1. QA level change
2. TIIC/Item Number description change
3. No bid/bid rejection
4. Shelf life evaluation requests
5. Material HOLD review
6. OSD&D (Over, Short, Damaged and Discrepant) or RUR (Receiving Unsatisfactory Reports)
7. Vendor Manual changes
8. TIIC/Item Number checks
9. Return to Stock Credit evaluations
10. TIIC/Item Number maintenance
11. Material transfers (intersite and intrasite)
12. Obsolete equipment evaluations
13. TIIC/Item Number consolidations
14. Indeterminate material evaluations

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**PEG Package Preparation**

**3.3 PEG Package APEDS Output Forms and Descriptions**

**NOTE**

The APEDS program is a verified QA system and database used to provide Engineering requirements. It is used by PEG to produce PEG packages. APEDS documents the technical and quality requirements of an item in an electronic database for use by the PEG preparer and the issued copy is the auditable trail for this design output.

**3.3.1 Response Memo, APEDS Form**

Used for transmitting the PEG product to requester and to provide specific administrative instructions summarizing results of the PEG evaluation.

**3.3.2 Coversheet, APEDS Package Component, FORM 1**

Used as a cover sheet for the complete PEG package, including input and supporting data. It allows for all signatures, Electronic Document Management System (EDMS) requirements, and distribution.

**3.3.3 Generic Coversheet, APEDS Package Component, FORM 1A**

Same as cover sheet except it allows for multiple site concurrence.

**3.3.4 TE, Host Safety Classification, APEDS Package Component, FORM 2**

Part of Technical Evaluation to identify the host safety classification and end use applications.

**3.3.5 TE, Item Safety Classification, APEDS Package Component, FORM 2A**

Part of Technical Evaluation that determines the item safety classification, and documents the basis for that determination.

**3.3.6 TE, Commercial Grade Determination, APEDS Package Component, FORM 2B**

Part of Technical Evaluation that determines the piece part's commercial grade dedication applicability. It also provides for the identification of critical characteristics used for acceptance of the item. (Applicable to QA level 2 items only).

**3.3.7 TE, Technical And Quality Requirements, APEDS Package Component, FORM 2C**

Part of Technical Evaluation to identify the technical and quality external and internal notes necessary for the item purchase. Notes with pre-established technical and/or quality requirements reside in an electronic database. These notes auto populate to the PDS.

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**PEG Package Preparation**

**3.3.8 TE, Inspection Requirements, APEDS Package Component, FORM 2D**

Part of Technical Evaluation identifying routine receipt inspection attributes along with any special requirements.

**3.3.9 TE, Associated Unid List, APEDS Package Component, FORM 2E**

Part of Technical Evaluation identifying specific end use applications. Verification of this list is extremely important because these applications designate the part's end use. An enveloping condition of these applications is the basis for the item's safety classification.

**3.3.10 Services, APEDS Package Component, FORM 3**

Part of the Technical Evaluation to determine the non-personal services safety classification.

**3.3.11 Other Evaluations, APEDS Package Component, FORM 4**

A stand alone form used for a diversity of material issues such as QA level changes, TIIC/Item Number description changes, administrative part number changes, 10CFR50.49 applicability review, specification justification changes, shelf life issues, material transfers, etc. This form is most useful to resolve issues with a documented analysis or when existing PEG documentation is available substantiating the evaluation.

**3.3.12 Equivalency Evaluations, APEDS Package Component, FORM 5**

A stand alone form used for documenting an Engineering Equivalency evaluation where critical design characteristics are required to be demonstrated as equivalent.

**3.3.13 Engineering Evaluations, APEDS Package Component, FORM 5A**

A continuation form for the Equivalency Evaluation identifying required changes in design documents.

**3.3.14 Procurement Data Sheet (PDS), APEDS Package Component, FORM 6**

A form that is populated based on a TIIC/Item Number and an approved PEG TE package. It contains all the necessary information required for the purchase. PDSs issued in APEDS Version 8.0 or later that are sent electronically to EDMS will contain reference to the TE latest revision only and will not actually display the purchase information in EDMS. This form is intended for use by the MMS Organization for the purpose of procuring the item/services when needed. Do not identify a TIIC/Item Number in the TIIC/Item Number # field if the PDS is for activities other than to procure i.e. transfer, upgrade, etc., (a variant PDS).

Appendix H  
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PEG Package Preparation

**NOTE**

To prohibit the potential to generate duplicate active PDSs, a variant PDS must not have a TIIC/Item Number associated to the TIIC/Item Number field.

**3.3.15 PDS Inspection, APEDS Package Component, FORM 7**

A continuation sheet to the PDS that is auto populated identifying routine receipt inspection attributes and special requirements as specified in the PEG TE package. PDSs issued in APEDS Version 8.0 or later that are sent electronically to EDMS will contain reference to the TE latest revision only and will not actually display these attributes and requirements in EDMS.

**3.3.16 PDS Special Receipt Inspection, APEDS Package Component, FORM 8**

A PDS Access Only form intended to identify unique receipt inspection requirements for dedication of an item. This form is not auto populated from the TE, but rather must be manually completed by PEG engineer and be in agreement with the TE.

**NOTE**

To prohibit the potential to generate duplicate active PDSs, a variant PDS must not have a TIIC/Item Number associated to the TIIC/Item Number field.

**3.3.17 PDS Pre-Operational Tests/Verification, APEDS Package Component, FORM 9**

A PDS access only form intended to identify any pre-operational testing or action requirements. This form is not auto populated from the TE, but rather must be manually completed by PEG engineer and be in agreement with the TE.