

July 5, 2011

Mr. Ronnie L. Gardner, Manager  
AREVA NP Inc.  
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Lynchburg, VA 24506-0935

SUBJECT: SAFETY EVALUATION REPORT REGARDING ANP-10272P, "SOFTWARE PROGRAM MANUAL FOR TELEPERM XS SAFETY SYSTEMS TOPICAL REPORT"

Dear Mr. Gardner:

By letter dated December 21, 2006 (NRC Agency-wide Document Access and Management System (ADAMS) Accession No. ML063610098), as supplemented by letters dated May 22, 2007 (ADAMS Accession No. ML071440320), July 19, 2007 (ADAMS Accession No. ML072040021), October 26, 2007 (ADAMS Accession No. ML073030253), January 24, 2008 (ADAMS Accession No. ML080280125 ), and May 29, 2008 (ADAMS Accession No. ML081560314) AREVA NP (AREVA) submitted for U.S. Nuclear Regulatory Commission (NRC) staff review Topical Report (TR) ANP-10272, "Software Program Manual for TELEPERM XS Safety Systems Topical Report" (ADAMS Accession No. ML063610100). By letter dated December 10, 2010, the NRC safety evaluation (SE) regarding our approval of ANP-10272 was provided for AREVA assessment of potential issues of sensitivity and factual errors. By electronic mail with enclosures dated January 17, 2011 (ADAMS Accession No. ML110600984) AREVA commented on the security-sensitive, non-public SE in areas of perceived factual errors and clarity. The NRC staff's disposition of AREVA's comments on the initial SE is addressed in the attachment to the final SE enclosed with this letter. The enclosed SE supersedes that version transmitted to you in the NRC December 10, 2010, letter.

The NRC staff has found that ANP-10272, Revision 3, of which a public version is on file under ADAMS Accession No. ML103000074, is acceptable for referencing in licensing applications for reactors which utilize AREVA's Teleperm XS Digital Protection System to the extent specified and under the limitations delineated in the TR and in the enclosed final SE. The final SE defines the basis for NRC staff acceptance of the TR.

<p>Document transmitted herewith contains sensitive unclassified information. When separated from the enclosures, this document is "DECONTROLLED."</p>
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R. Gardner

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NRC acceptance applies only to material provided in the subject TR. The NRC staff does not intend to repeat their review of the acceptable material described in the TR. When the TR appears as a reference in license applications, the NRC staff review will ensure that the material presented applies to the specific plant involved. License amendment requests that deviate from this TR will be subject to a plant-specific review in accordance with applicable review standards. In accordance with the guidance provided on the NRC website, the NRC staff requests that AREVA publish accepted proprietary and non-proprietary versions of this TR within 3 months of receipt of this letter. The accepted versions shall incorporate this letter and the enclosed final SE after the title page. The accepted versions shall include an "-A" (designating accepted) following the TR identification symbol.

If future changes to the NRC's regulatory requirements affect the acceptability of this TR, AREVA and/or licensees referencing it will be expected to revise the TR appropriately, or justify its continued applicability for subsequent referencing.

If you have any questions, please contact me at (301) 415-3361 or [Getachew.Tesfaye@nrc.gov](mailto:Getachew.Tesfaye@nrc.gov).

Sincerely,

*/RA Joseph Colaccino for/*

Getachew Tesfaye, Senior Project Manager  
EPR Projects Branch  
Division of New Reactor Licensing  
Office of New Reactors

Docket No.: 52-020

Enclosures:

- 1) Non-Security-Related version of the Final SE
- 2) Security-Related version of the Final SE

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R. Gardner

- 2 -

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**ADAMS Accession Nos.**

PUBLIC DOCUMENTS:

Package: ML110630068

Final SE (public version) ML11801119

Cover Letter: ML110660036

NON-PUBLIC DOCUMENTS:

Final SE (security-related version) ML110660025

NRO-002

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<b>DATE</b>	06/07/2011	07/05/2011		

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ATTACHMENT TO SAFETY EVALUATION

Staff Resolution of AREVA NP Comments

Cmt No.	Pg No.	Sect No,#	Comment	AREVA Proposed Resolution	Disposition
1	1	1.0	Need to also include in the discussion the SPM TR Rev 3 submittal.	Add SPM Rev3 to sentence along with ADAMS number	Correction incorporated
2	1	1.0	Latest Rev of SPM is 3 not 2	Correct SPM revision level	Correction incorporated
3	1	1.0	Revise sentence to read "...limited <b>to the</b> planning phases of....."	Correct wording	Correction incorporated
4	1	1.0	AREVA may use project specific plan, Operating Instructions (department plans) or a combination of both in order to implement a project. The generic Department plans were submitted to the NRC to support this review. In other cases the SPM itself serves as the plan where no other information is needed (e.g., Management Plan).	Clarify	This section has been reworded to read, " <i>The staff understands that the plans outlined in this SPM will be put into effect via implementing procedures which will incorporate generic and project-specific planning activities. These implementing procedures are to be made available to the NRC so conformance with the SPM can be verified. This confirmatory review may be performed as an audit or as an inspection activity.</i> "
5	1	1	Include generic department plan in the discussion for clarification.	Clarify	Changes only made to Comment 4 section.
6	8	3.2.1	Include generic department plan in the discussion for clarification.	Clarify	Changes only made to Comment 4 section.

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<b>Cmt No.</b>	<b>Pg No.</b>	<b>Sect No.</b>	<b>Comment</b>	<b>AREVA Proposed Resolution</b>	<b>Disposition</b>
7	16	3.2.3	Unclear as to what the staff means by a reduction of in process audits shifting the burden of QA unto functional tests and audits. The list of items reviewed is not all inclusive. The reviewer must look at Section 11.9 of the SPM as referenced in the section) to see all the reviews V&V performs, including reviews of the Code Document generated from SPACE. The NRC states in the SER that SPACE is approved to generate code for SR applications. As such this would not be deemed as reduction or limitation.	Reword	Paragraph reworded. Last two sections abbreviated to read, <i>“To ensure a high-quality software development life cycle process, functional tests and functional audits are to be performed.”</i>
8	17	3.2.3	Reword as follows: “The V&V group traces the customer requirements from the SPM System Requirements Specification (SysRS) <del>development stage through the completion of its</del> System Description Document (SysDD) and incorporation into the Software Requirements Document (SRS).”	Reword	Correction incorporated as-proposed
9	17	3.2.3	Sentence difficult to understand, reword as follows: “SPM Section 5.10.1 describes the <del>states that it has</del> access control for the project database, and that the Software Supervisor is responsible for data backup procedures, schedules, and archiving.”	Reword	Correction incorporated as-proposed

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10	18	3.2.3	Statement, "Changing the SQAP would involve changing the SPM" is misleading. Only changes to the SQAP that modify critical attributes contained in the SPM would require a modification of the SPM itself. The follow on discussion should also be clarified.	Clarify	<p>This section has been clarified to read " <i>IEEE Std 730-2002, Section 4.16 asks for SQAP change procedure and history. A licensee referencing the SPM would be required to submit implementing procedures that impact the SPM to the staff for review in the context of the amendment. Similarly, COL applicants are required to address implementing procedure changes to the NRC-approved SPM (ANP-10272-A).</i>"</p> <p>Further, the last line of this paragraph has been amended to read, "<i>The applicant or licensee is to make available implementation and design outputs as described in BTP 7-14, sections B.2.2 and B.2.3,</i>" to allow for inspection/audit activities in support of assessment of this material.</p>

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ATTACHMENT TO SAFETY EVALUATION

<b>Cmt No.</b>	<b>Pg No.</b>	<b>Sect No.</b>	<b>Comment</b>	<b>AREVA Proposed Solution</b>	<b>Disposition</b>
11	20	3.2.5	The Software Installation section of the SPM (7) does more than just describe AREVA support of customers. It discusses the vendor applicable portions of the SW Installation such as SW Generation and Download, Maintenance Laptop usage, and V&V efforts during these activities. Figure 3-3 of the SPM includes the SW Installation Plan as an applicable part of the SPM. The SER should cover and discuss these elements.	Include discussion of AREVA SW Installation Activities	The omission has been corrected. The software installation plan materials had been submitted and reviewed. This plan's acceptance and the necessary related materials to be made available to address ASAs 4.2 and 4.11 are related to BTP-7-14, Section B.3.1.5.

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Cmt No.	Pg No.	Sect No.	Comment	AREVA Proposed Resolution	Disposition
12	24	3.2.9	The secure develop environment is discussed in the SPM and accepted by the SPM SER. Reword sentence to clarify the separation of development and operational environments and the need for additional information concerning the <u>operational</u> environment. Furthermore, it is unclear as to why the SDOE is discussed in the SSP section as the BTP guidance and IEEE-1228 is focused on the security risk upon malfunction of the digital system as the initiating event. RG 1.152 is the source of SDOE discussions and is covered in App A of the SER.	Reword or remove discussion	Reworded to read: “ <i>The staff has approved the secure development environment in Appendix A of this Safety Evaluation Report. Applicant or licensee is to address the operational environment risks, and is to make such information available for the staff’s evaluation in accordance with BTP 7-14, B.3.1.9.4..</i> ”
13	24	3.2.10	Reword “worked on” to “prepared.” SPM uses the terminology “prepared” and this holds a different meaning than “worked on.” For example Independent reviewers of Design may prepare test documents.	Reword	Correction incorporated
14	24	3.2.10	The AREVA Condition Reporting system is also used to capture and track problems detected during testing.	Clarify	Reworded to read, “ <i>Problems captured in the test log are addressed using the Open Item process. SPM Section 3.5.2 describes the Open Item Process. AREVA NP Condition Reports are used to capture and track problems encountered during testing.</i> ”
15	25	3.2.10	Typo change “list” to “lists”	Correct	Corrected as identified

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<b>Cmt No.</b>	<b>Pg No.</b>	<b>Sect No.</b>	<b>Comment</b>	<b>AREVA Proposed Resolution</b>	<b>Disposition</b>
16	25	3.2.10	Reword statement, “The NRC has not approved any tools for Application Software validation testing.” with statement ,“The SPM makes mention of an NRC-approved testing tool, however, this testing tool has not been approved and is currently under separate staff review” as is used in the SER Section 3.2.12.	Reword	Revised as recommended.
17	25	3.2.10	This section generically states IEEE standards. It should mention the standards specifically just as other sections of the SER do.	Reword	Revised to read, “ <i>The Software Verification and Validation Plan adequately addresses the V&amp;V planning guidance in BTP 7-14, and based on the AREVA NP commitment to meeting the IEEE Std 1012-1998, with the exception cited above, and IEEE Std 7-4.3.2-2003, Clauses 5.3.1.1, 5.3.3, and 5.3.4.</i> ”
18	29, 30, 31	3.3	Conclusion for the following SER Appendix A sections are missing: 2.2.1.2.1, 2.2.2.2, 2.5.1.2	Add missing statements	Conclusion statements added.
19	29	3.3 #9	Section references should be 2.2.1.3.2 not 2.2.3.2	Correct	Revised as recommended.

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Cmt No.	Pg No.	Sect No.	Comment	AREVA Proposed Resolution	Disposition
20	30	3.3 #16	Wording in this conclusion is confusing. Suggest rewording for clarity.	Clarify	Revised as #18 to read, <i>“The description of how the AREVA NP internal independent V&amp;V will verify the effective implementation of secure operational environment design features is adequate. This V&amp;V process will ensure the transformation of secure operational environment design configuration items from the TXS-Specific application design specifications is correct, accurate, and complete. (2.4.1.2).”</i>
21	31	3.3	Missing conclusion reference to Section 3 of SER App. A	Add reference link	Revised as recommended.
22	31	3.4	SPM Appendix D has been deleted in Rev 3. The corresponding section of the SER should be deleted	Delete Section	Section deleted
23	33	4.8	The secure develop environment is discussed in the SPM and accepted by the SPM SER. Reword sentence to clarify the separation of development and operational environments and the need for additional information concerning the <u>operational</u> environment.	Reword	Revised to read, <i>“Applicant or licensee is to address the operational environment risks, and is to make such information available for the staff’s evaluation in accordance with BTP 7-14, B.3.1.9.4.”</i>
24	33	4.10	SER Appendix A Section 2.1.3.1 uses “operational environment” in its conclusion. Delete “development and” to match	Delete wording	Revised as recommended.

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25	34	5.0	SER is written at a very high level and many details are not discussed. Suggest clarifying sentence.	Clarify	Section 5.0 is a summary conclusion section. The safety conclusion details are in the various plan evaluation sections. Last paragraph has been revised to read, <i>“For the reasons set forth above, the staff finds ANP-10272 acceptable for referencing in a plant-specific application provided that the application demonstrates those limits and conditions addressed in Section 4 of this evaluation are met. In addition, the specific scope of the staff’s review, and acceptance of design aspects described in ANP-10272, is discussed in Section 3 of this evaluation.”</i>

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<b>Cmt No.</b>	<b>Pg No.</b>	<b>Sect No.</b>	<b>Comment</b>	<b>AREVA Proposed Resolution</b>	<b>Disposition</b>
26	38	App A 2.1.1. 2	Use wording in ASAI 4.12 that clarifies that operational environment analysis would need to be reviewed not the SDOE analysis.	Clarify	Revised to read, “ <i>The staff finds the secure operational environment features identified for the preliminary design concepts acceptable in addressing the criterion within Regulatory Position C.2.1 of RG 1.152, Revision 2 to identify safety system SDOE capabilities. However, the final secure operational environment analysis that supports the integrity and reliability capabilities for TXS-specific applications is to be made available for staff audit/inspection for any application that references the SPM.</i> ”
27	45	App A 2.2.1.2. 2	Bold “ASAI 4.1”	Bold statement	Statement bold formatted for consistency
28	49	App A 2.3.1.1. 2	Bold “ASAI 4.10”	Bold statement	Statement bold formatted for consistency

ATTACHMENT TO SAFETY EVALUATION

Cmt No.	Pg No.	Sect No.	Comment	AREVA Proposed Resolution	Disposition
29	53	App A 2.4.1.2	<p>Wording in this conclusion discussing V&amp;V process is confusing.</p> <p>“In addition, the staff finds the description of how the AREVA NP internal independent V&amp;V process will verify the effective Implementation of secure operational environment design requirements to ensure that the transformation of these design configuration items from the system design specification are correct, accurate, and complete.”</p> <p>Suggest rewording for clarity.</p>	Clarify	<p>Revised to read, “<i>In addition, the staff finds the description of how the AREVA NP internal independent V&amp;V process will verify the effective implementation of secure operational environment design requirements is adequate. This V&amp;V process ensures that the transformation of these design configuration items from the system design specification are correct, accurate, and complete. However, applicants or licensees are to make available for audit/inspection the output of the design and implementation of TXS-specific application software to verify that the transformation of secure operational environment design configuration items from the application software design specification are correct, accurate, and complete to address Regulatory Position C.2.4.1 of RG 1.152, Revision 2.</i>”</p>
30	54	App A 2.4.2. 1	<p>Section “TXS Platform” is missing the section numbering. It should be “2.4.2.1”</p>	Correct	Correction incorporated

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31	56	App A 2.4.2. 1	Re-number “TXS-Specific Application” Section “2.4.2.1” to “2.4.2.2”	Correct	Correction incorporated
32	60	App A 2.5.1. 1	Rev 3 of the SPM adds this clarification by footnote and the reference to the letter is not needed.	Delete reference	Reference deleted

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(Revised 05/19/2011)

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ENCLOSURE 2

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