



HITACHI

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Proprietary Notice

This letter forwards proprietary information in accordance with 10 CFR 2.390. Upon the removal of Enclosure 2, the balance of this letter may be considered non-proprietary.

MFN 08-168

Docket No. 52-010

May 2, 2008

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Subject: **Response to Portion of NRC Request for Additional Information Letter No. 141 Related to ESBWR Design Certification Application – RAI Numbers 7.1-75, 7.1-76 and 7.1-79**

Enclosure 1 contains GEH's response to the subject NRC RAIs transmitted via the Reference 1 letter.

Enclosure 2 contains GEH proprietary information as defined by 10 CFR 2.390. GEH customarily maintains this information in confidence and withholds it from public disclosure. A non-proprietary version is provided in Enclosure 3.

The affidavit contained in Enclosure 4 identifies that the information contained in Enclosure 2 has been handled and classified as proprietary to GEH. GEH hereby requests that the information of Enclosure 2 be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390 and 9.17.

If you have any questions or require additional information, please contact me.

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

DCB
NK

Reference:

1. MFN 08-041, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 141 Related To ESBWR Design Certification Application*, January 15, 2008

Enclosures:

1. MFN 08-168 - Enclosure 1 - Response to Portion of NRC Request for Additional Information Letter No. 141 Related to ESBWR Design Certification Application – RAI Numbers 7.1-75, 7.1-76, and 7.1-79
2. MFN 08-168 - Enclosure 2 – Response to Portion of NRC Request for Additional Information Letter No. 141 Related to ESBWR Design Certification Application RAI Number 7.1-76 - GEH Proprietary Information
3. MFN 08-168 - Enclosure 3 - Response to Portion of NRC Request for Additional Information Letter No. 141 Related to ESBWR Design Certification Application RAI Number 7.1-76 - GEH Non-Proprietary Version
4. Affidavit – David H. Hinds

cc:	AE Cubbage	USNRC (with enclosures)
	RE Brown	GEH/Wilmington (with enclosures)
	DH Hinds	GEH/Wilmington (with enclosures)
	GB Stramback	GEH/San Jose (with enclosures)
	eDRF Sections	0000-0080-4839 RAI 7.1-75
		0000-0080-4862 RAI 7.1-76
		0000-0080-4991 RAI 7.1-79

MFN 08-168

Enclosure 1

**Response to Portion of NRC Request for
Additional Information Letter No. 141 Related to
ESBWR Design Certification Application –
RAI Numbers 7.1-75, 7.1-76, and 7.1-79**

NRC RAI 7.1-75

Staff understands that GEH intends the submitted SMP and SQAP to be umbrella or template type documents. The submitted LTRs provide high level planning information (i.e. roadmap) and describe the process that GEH will use to develop / approve the various software systems and applications needed for ESBWR. It is the staff's understanding that these are not "implementation plans". Please confirm staff's understanding of the documents' purpose, and provide additional clarification of the purpose in the LTRs.

In addition, the names of these two LTRs correspond to names specified in Branch Technical Position 7-14 (BTP 7-14) - both the current revision and the previous revision. However, the LTRs have different purpose from that intended by the BTP. The BTP 7-14 documents are part of a set of documents; while the LTR documents actually include these other BTP 7-14 referenced documents as their constituent parts. Please rename these LTRs to more precisely reflect their use as templates or process descriptions in order to reduce the potential for confusion or misunderstanding. Also, please confirm that the implementation plans, when developed, will follow the same document flow (i.e., SMP and SQAP encompassing all the BTP 7-14 referenced documents for specific implementations.)

GEH Response

The Submitted License Topical Reports (NEDO-33245 and NEDO-33226) contain high level planning documents for the ESBWR software development and quality assurance processes. These are not implementation procedures. Implementation procedures will be developed as subordinate documents to these plans. The implementation procedures will be written once the NRC approves the LTRs. As such, the LTRs will be in full compliance with the governing plans. The purpose of the subject License Topical Reports is to provide a traceable and verifiable licensing basis for the development of implementation procedures that will be used for the development and maintenance of all ESBWR class Q, N3, and N2 software applications.

To ensure that compliance is maintained throughout the procedure development process, GEH will maintain a Requirements Traceability Matrix, which will be verified via the Requirements Traceability Analyses process.

The Names of the subject Software License Topical Reports will be changed as follows; LTR NEDO-33245 ESBWR I&C Software Quality Assurance Plan will become the ESBWR I&C Software Quality Assurance Program Manual and will contain the following Plans;

1. Software Quality Assurance Plan
2. Software Verification and Validation Plan
3. Software Test Plan
4. Software Safety Plan
5. Software Configuration Management Plan

LTR NEDO-33226 ESBWR I&C Software Management Plan will become the ESBWR I&C Software Management Program Manual and will contain the following plans;

1. Software Management Plan
2. Software Development Plan
3. Software Integration Plan
4. Software Installation Plan
5. Software Operation and Maintenance Plan
6. Software Training Plan

Figure 1 (next page) represents the hierarchal structure of these documents and shows the intended implementation path forward. This figure is informational only and will not be included in the subject LTRs.

DCD/LTR Impact:

See attached DCD Tier 2 mark-up (Attachment is an example mark-up of the software manual name changes.)

All references to and within LTR NEDO-33226 ESBWR I&C Software Management Program Manual will be revised to reflect the new document title. (See attachment for example mark-ups of the SMPM.)

All references to and within LTR NEDO-33245 ESBWR I&C Software Quality Assurance Program Manual will be revised to reflect the new document title. (See attachment for example mark-ups of the SQAPM.)

No changes in name or content will be made to the Cyber Security LTR.

ESBWR DCD Tier 1, Section 3.2, Software Development ITAAC, will be revised to reflect the name change. Reference RAI 14.3-170.

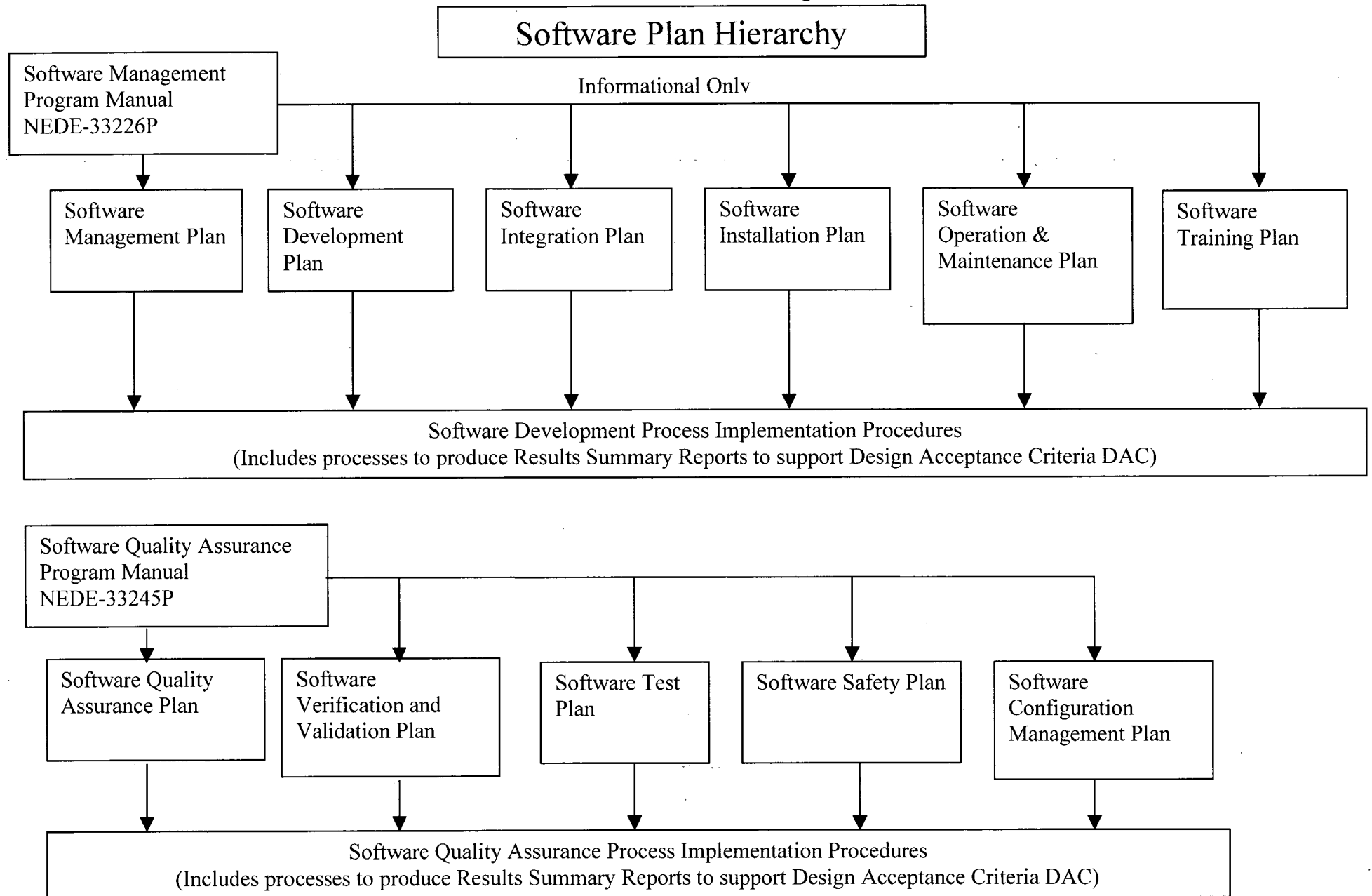


Figure 1

Table 1 List of Changes to SW LTR

General	SQAP (Software Quality Assurance Plan) will be changed to SQAPM (Software Quality Assurance Program Manual)
General	SMP (Software Management Plan) will be changed to read SMPM (Software Management Program Manual)
	Change Software Quality Assurance Plan to read Software Quality Assurance Program Manual. Change SQAP to read SQAPM
	Change Software Quality Assurance Plan to read Software Quality Assurance Program Manual. Change SQAP to read SQAPM
1.1	Change SQAP to read SQAPM
1.2	Change SQAP to read SQAPM
1.2	Change SQAP to read SQAPM
1.2	Change SQAP to read SQAPM
1.2	Change SQAP to read SQAPM
1.2	Change SQAP to read SQAPM
1.4	Change SQAP to read SQAPM, (2)
1.5	Change SQAP to read SQAPM, (2)
2.1	Change SQAP to read SQAPM
2.2.4	Change SQAP to read SQAPM
2.3	Change SQAP to read SQAPM, (2)
3.3.2	Change SQAP to read SQAPM
3.3.5.1	Change SQAP to read SQAPM
3.4	Change SQAP to read SQAPM, (3)
3.5	Change SQAP to read SQAPM
3.5	Change SQAP to read SQAPM
4	Change SQAP to read SQAPM
6.2	Change SQAP to read SQAPM, (2)
6.4.3	Change SQAP to read SQAPM, (2)
7.1.2	Change SQAP to read SQAPM, (2)
7.2.3	Change SQAP to read SQAPM, (2)
7.2.5.2.5	Change SQAP to read SQAPM
7.3.2.2	Change SQAP to read SQAPM. Removed (this plan) after original read SQAP (this plan) and associated RTM.
7.3.2.2	Change SQAP to read SQAPM
7.3.2.2	Change SQAP to read SQAPM
7.3.2.9	Change SQAP to read SQAPM. Removed (this plan) after original read SQAP (this plan) and associated RTM.
7.3.3.7	Change SQAP to read SQAPM
7.3.4.8	Change SQAP to read SQAPM
7.3.5.11	Change SQAP to read SQAPM
7.3.6.7	Change SQAP to read SQAPM
7.3.7.11	Change SQAP to read SQAPM
7.3.9.3	Change SQAP to read SQAPM
7.3.9.4	Change SQAP to read SQAPM

9.2.2	Change SQAP to read SQAPM
9.4.2.2	Change SQAP to read SQAPM
10.1.2	Change SQAP to read SQAPM
10.4.5.1	Change SQAP to read SQAPM
11.2	Change SQAP to read SQAPM
12.1.2	Change SQAP to read SQAPM
12.1.2	Change SQAP to read SQAPM, (2)
14.1	Change SQAP to read SQAPM
16	Change SQAP to read SQAPM
18	Change SQAP to read SQAPM
	Changed reference to program instead of plan. Should read "The SPE manager is responsible for the maintenance of this Program"
18	Change SQAP to read SQAPM
18	Change SQAP to read SQAPM, (4)
APP A	Appendix A needs to reflect as well. -
APP B	Change SQAP to read SQAPM
2.1	Changed reference to program instead of plan. Should read "the controlling input documents in the production of this PROGRAM ."
2.1	Changed reference to program instead of plan. Should read "this program makes specific commitments..."
APP E	Changes throughout Table 1-1, Change SQAP to read SQAPM
	Change Software Management Plan to read Software Management Program
1.2	Manual. Change SMP to read SMPM
1.2	Change SMP to read SMPM
2.2.4	Change SMP to read SMPM
	Change Software Management Plan to read Software Management Program
2.3	Manual.
3.2	Change SMP to read SMPM
3.4	Change SMP to read SMPM, Change SMP to read SMPM
4	Change SMP to read SMPM
7.1.2	Change SMP to read SMPM
7.2.6.2.5	Change SMP to read SMPM
7.3.2.2	Change SMP to read SMPM
7.3.2.2	Change SMP to read SMPM
7.3.2.9	Change SMP to read SMPM
7.3.3.8	Change SMP to read SMPM
7.3.4.8	Change SMP to read SMPM
7.3.5.11	Change SMP to read SMPM
7.3.6.7	Change SMP to read SMPM
7.3.7.11	Change SMP to read SMPM
7.3.9.3	Change SMP to read SMPM
9.2.2	Change SMP to read SMPM
9.2.2	Change SMP to read SMPM
9.2.2	Change SMP to read SMPM
10.4.5.1	Change SMP to read SMPM
11.2	Change SMP to read SMPM
14.2	Change SMP to read SMPM
14.3	Change SMP to read SMPM
16	Change SMP to read SMPM

APP E	Changes throughout Table 1-1, Change SMP to read SMPM
APP C	
Baseline Review	Change SMP to read SMPM
3.3.4	Change SMP to read SMPM (2)
3.3.7	Change SMP to read SMPM
5.1	Change SMP to read SMPM
7.1.2	Change SMP to read SMPM
7.2.5	Change SMP to read SMPM
7.2.6.2.2	Change SMP to read SMPM
7.2.6.2.3	Change SMP to read SMPM
7.3	Change SMP to read SMPM
7.3	Change SMP to read SMPM
7.3.2.2	Change SMP to read SMPM
7.3.5.5	Change SMP to read SMPM
7.3.5.5	Change SMP to read SMPM
7.3.5.5	Change SMP to read SMPM
7.3.5.6	Change SMP to read SMPM
7.3.5.7	Change SMP to read SMPM
7.3.9.1	Change SMP to read SMPM
7.4.4	Change SMP to read SMPM
8	Change SMP to read SMPM
8	Change SMP to read SMPM
9.2.2	Change SMP to read SMPM
9.2.2	Change SMP to read SMPM
9.2.2	Change SMP to read SMPM
9.2.2	Change SMP to read SMPM
9.2.3	Change SMP to read SMPM
9.4.1	Change SMP to read SMPM
9.4.2.1	Change SMP to read SMPM
9.4.2.3	Change SMP to read SMPM
9.4.4	Change SMP to read SMPM
9.4.5	Change SMP to read SMPM
10.2.2	Change SMP to read SMPM
10.4.2.2	Change SMP to read SMPM
10.4.5	Change SMP to read SMPM
10.4.5	Change SMP to read SMPM
10.4.5	Change SMP to read SMPM
10.7.1	Change SMP to read SMPM
10.7.2.1	Change SMP to read SMPM
APP A	Changes needed throughout
APP B	Change SMP to read SMPM and Software Management Program Manual

NRC RAI 7.1-76

This RAI refers to GEH-submitted Licensing Topical Reports (LTRs) NEDE-33226P, Rev 2 (ESBWR Software Management Plan (SMP)) and NEDE-33245P, Rev 2 (Software Quality Assurance Plan (SQAP)). There are Engineering Operating Procedures (EOPs) and other internal, non-docketed GEH materials that are used as a part of these documents. While staff understands that these items are beneficial to GEH in the implementation phase and provide valuable guidance, their use complicates the review process and introduces a level of uncertainty into the effort. As these internal materials are to be revised to remain current with internal GEH procedures, without modification to the SMP or SQAP, the impact of any such change could be unknown and unrecognized. The staff requests that GEH remove these references or otherwise abstract them so as to eliminate the uncertainty introduced by their use. Alternately, they could be submitted for review along with the LTRs. Please provide justification as to why these internal procedures are vital to these documents, a method for abstraction/elimination to reduce the uncertainty, or a schedule for providing these items.

Response to RAI 7.1-76

GEH understands the concerns of the NRC and agrees to abstract the GEH Engineering Operating Procedures (EOPs) and GEH Policies and Procedures (P&Ps) within the Licensing Topical Reports (LTRs), NEDE-33226P (ESBWR Software Management Program Manual (SMPM)) and NEDE-33245P (Software Quality Assurance Program Manual (SQAPM)).

Markups (See enclosures 2 and 3 of this letter) are attached of the SMPM and SQAPM with the recommended abstractions to the tables with Section 2.3 of each LTR and examples of the changes within the SMPM.

DCD/LTR Impact:

GEH EOP and P&P references within LTR NEDE-33226P ESBWR I&C Software Management Program Manual will be abstracted as provided in the attached markup. (See Attachment)

GEH EOP and P&P references within LTR NEDE-33245P ESBWR I&C Software Quality Assurance Program Manual will be abstracted as provided in the attached markup. (See Attachment)

NRC RAI 7.1-79

What are the plans, if any, on incorporation of the most recent Standard Review Plan (SRP), BTP 7-14 Rev. 5, into the SMP and SQAP?

GEH Response

There are no plans to incorporate newer versions of the Standard Review Plan, BTP 7-14 into the subject License Topical Reports. These LTRs were developed under the cognizance of revision 4 of BTP 7-14.

GEH has performed an Analysis of differences between BTP 7-14 revision 4 and revision 5 and has concluded that the processes outlined within the software LTRs will meet the intent and are compliant with the requirements of the newer version of the BTP 7-14.

Pursuant to 10 CFR 52.79(a) (41), Each COL applicant will be required to perform an evaluation of their facility for conformance with the acceptance criteria contained in NUREG-0800 "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants LWR Edition," including Branch Technical Positions. GEH will provide technical support for these efforts during the application process.

DCD/LTR Impact:

No DCD changes will be made in response to this RAI.

No LTR changes will be made in response to this RAI.

Attachments for RAI 7.1-75



**GE Energy
Nuclear**

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NEDO-33226

Revision 2 3

Class I

DRF#0000-0051-3897

July 2007

LICENSING TOPICAL REPORT
ESBWR I&C SOFTWARE MANAGEMENT-~~PLAN~~ PROGRAM MANUAL
(SMPM)

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1.0 INTRODUCTION

1.1 Overview

The Software Management ~~Plan~~ Program Manual (SMPM) includes the key planning documents for the Instrumentation and Controls (I&C) design team and governs the design and development activities for the Digital Computer-Based I&C software for the ESBWR.

1.2 Purpose and Scope

The scope of the SMPM includes software products with the software classifications of Software Class Q, N3, and N2. The definitions for software classifications are defined in Appendix C. Unless otherwise specified, non-safety systems are referenced as Software Class N in the SMPM.

The software plans are identified in the ESBWR Man-Machine Interface (MMI) System and Human Factor & Engineering (HFE) Implementation Plan [2.1(1)]. The software plans included in this SMPM document, referred to as the Software Management ~~Plan~~ Program Manual, are:

- | | |
|---|---------------|
| 1. <u>Software Management Plan (SMP)</u> | [Section 3.0] |
| 2. Software Development Plan (SDP) | [Section 5.0] |
| 3. Software Integration Plan (SIntP) | [Section 6.0] |
| 4. Software Installation Plan (SIP) | [Section 7.0] |
| 5. Software Operation and Maintenance Plan (SOMP) | [Section 8.0] |
| 6. Software Training Plan (STrngP) | [Section 9.0] |

The ESBWR I&C Software Quality Assurance ~~Plan~~ Program Manual (SQAPM) [2.3(1)], herein referred to as SQAPM, includes the software plans used by the Quality Assurance (QA) and the Software Project Engineering (SPE) organizations, governing the same I&C software scope identified in the MMIS/HFE IP.

- | | |
|--|--------------------------------------|
| 1. <u>Software Quality Assurance Plan (SQAP)</u> | [2.3(1) Section 3.0] |
| 1. <u>2. Software Verification & Validation Plan (SVVP)</u> | [2.3(1) Section 7.0 5.0] |
| 2. <u>3. Software Safety Plan (SSP)</u> | [2.3(1) Section 9.0 4.0] |
| 3. <u>4. Software Configuration Management Plan (SCMP)</u> | [2.3(1) Section 10.0 6.0] |
| 5. <u>Software Test Plan (STP)</u> | [2.3(1) Section 7.0] |

Together, the SMPM and the SQAPM include all the software plans identified in Reference 2.1(1) and conform to the guidance provided by NUREG 0800, Standard Review Plan [2.2.1].

This SMPM shall be in force during all phases of the software life cycle.

The applicable Software Products (software and firmware) covered in this SMPM encompass all I&C systems, as specifically defined in the MMIS/HFE IP [2.1(1)] (Subsection 1.2.4 only), which perform the monitoring, control, alarming, and protection functions associated with all modes of ESBWR plant normal operation (i.e., startup, shutdown, standby, power operation, and

refueling) as well as off-normal, emergency, and accident conditions.



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NEDO-33245

Revision ~~2~~ 3

Class I

DRF#0000-0049-7144

July 2007

LICENSING TOPICAL REPORT

ESBWR - I&C Software Quality Assurance Plan Program Manual (SQAPM)

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7B. SOFTWARE QUALITY PROGRAM FOR SOFTWARE DESIGN AND DEVELOPMENT – DELETED

Appendix 7B was deleted, and Software Quality Program for Software Design and Development is discussed in the following two Licensing Topical Reports:

(1) ESBWR I&C Software Management ~~Plan~~-Program Manual, NEDO-33226 NEDE-33226P; and

(2) ESBWR I&C Software Quality Assurance ~~Plan~~-Program Manual, NEDO-33245 NEDE-33245P.

MFN 08-168

Enclosure 4

Affidavit

GE Hitachi Nuclear Energy

AFFIDAVIT

I, **David H. Hinds**, state as follows:

- (1) I am the General Manager, New Units Engineering, GE Hitachi Nuclear Energy (GEH) have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.
- (2) The information sought to be withheld is contained in Enclosure 2 of GEH letter MFN 08-168, Mr. James C. Kinsey to U.S. Nuclear Regulatory Commission, entitled *Response to Portion of NRC Request for Additional Information Letter No. 141 Related to ESBWR Design Certification Application – RAI Numbers 7.1-75, 7.1-76, and 7.1-79*. The proprietary information in Enclosure 2, which is entitled *Response to Portion of NRC Request for Additional Information Letter No. 141 Related to ESBWR Design Certification Application – RAI Number 7.1-76 – GEH Proprietary Information* is delineated by a [[dotted underline inside double square brackets.⁽³⁾]]. In each case, the superscript notation ⁽³⁾ refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.
- (3) In making this application for withholding of proprietary information of which it is the owner, GEH relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), and 2.390(a)(4) for "trade secrets" (Exemption 4). The material for which exemption from disclosure is here sought also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).
- (4) Some examples of categories of information which fit into the definition of proprietary information are:
 - a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by GEH competitors without license from GEH constitutes a competitive economic advantage over other companies;
 - b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;
 - c. Information which reveals aspects of past, present, or future GEH customer-funded development plans and programs, resulting in potential products to GEH;
 - d. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a, and (4)b, above.

- (5) To address 10 CFR 2.390 (b) (4), the information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GEH, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GEH, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements, which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.
- (6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within GEH is limited on a "need to know" basis.
- (7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GEH are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.
- (8) The information identified in paragraph (2), above, is classified as proprietary because it identifies details of GEH ESBWR methods, techniques, information, procedures, and assumptions related to the application of the software plans to the GEH ESBWR.

The development of the evaluation process along with the interpretation and application of the regulatory guidance is derived from the extensive experience database that constitutes a major GEH asset.

- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GEH's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GEH's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

The research, development, engineering, analytical and NRC review costs comprise a substantial investment of time and money by GEH.

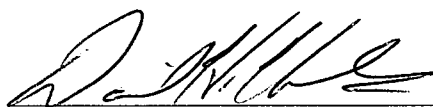
The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GEH's competitive advantage will be lost if its competitors are able to use the results of the GEH experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GEH would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GEH of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed on this 2nd day of May 2008.

A handwritten signature in black ink, appearing to read 'D. H. Hinds', written over a horizontal line.

David H. Hinds
GE Hitachi Nuclear Energy