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10 CFR 50.90
10 CFR 2.390

RS-10-212
December 17, 2010

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Limerick Generating Station, Units 1 and 2
Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

Subject: Additional Information Supporting Request for License Amendment Regarding Measurement Uncertainty Recapture Power Uprate

References:

1. Letter from M. D. Jesse (Exelon Generation Company, LLC) to U. S. NRC, "Request for License Amendment Regarding Measurement Uncertainty Recapture Power Uprate," dated March 25, 2010
2. Letter from P. Bamford (U. S. NRC) to M. J. Pacilio (Exelon Generation Company, LLC), 'Limerick Generating Station, Unit Nos. 1 and 2 — Request for Additional Information Related to Request for License Amendment Regarding Measurement Uncertainty Recapture Power Uprate," dated July 15, 2010
3. Letter from M. D. Jesse (Exelon Generation Company, LLC) to U. S. NRC, "Additional Information Supporting Request for License Amendment Regarding Measurement Uncertainty Recapture Power Uprate," dated August 30, 2010
4. Letter from P. Bamford (U. S. NRC) to M. J. Pacilio (Exelon Generation Company, LLC), "Limerick Generating Station, Unit Nos. 1 and 2 – Request for Additional Information Regarding Measurement Uncertainty Recapture Power Uprate," dated December 8, 2010

In Reference 1, Exelon Generation Company, LLC (EGC) requested an amendment to Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, respectively. Specifically, the proposed changes revise the Operating License and Technical Specifications to implement an increase in rated thermal power of approximately 1.65%. In Reference 2, the NRC staff requested additional information and in Reference 3, EGC

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responded to that request. In Reference 4, the NRC requested additional information to support review of the proposed changes. Enclosure 1 contains the response to the NRC staff request.

In accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," EGC requests withholding of Enclosure 1. Enclosure 1 is considered proprietary by GEH Nuclear Energy. An affidavit supporting this request is included as Enclosure 3 and a non-proprietary version of Enclosure 1 is provided in Enclosure 2.

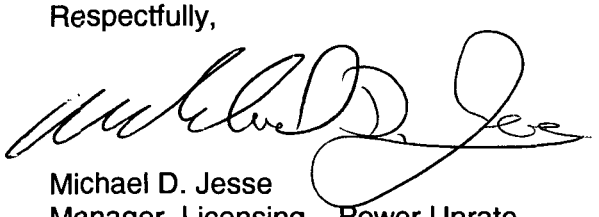
EGC has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. In addition, the additional information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

There are no regulatory commitments contained in this letter.

Should you have any questions concerning this letter, please contact Mr. Kevin Borton at (610) 765-5615.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 17th day of December 2010.

Respectfully,



Michael D. Jesse
Manager, Licensing – Power Uprate
Exelon Generation Company, LLC

Enclosures:

1. Response to Request for Additional Information (Proprietary Version)
2. Response to Request for Additional Information (Non-Proprietary Version)
3. Affidavit for Withholding – GE-Hitachi Nuclear Energy

cc: NRC Regional Administrator, Region I
NRC Senior Resident Inspector - Limerick Generating Station
NRC Project Manager, NRR - Limerick
Pennsylvania Department of Environmental Protection - Bureau of Radiation Protection

ENCLOSURE 2

LIMERICK GENERATING STATION UNITS 1&2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION (NON-PROPRIETARY VERSION)

ENCLOSURE 2

GEH-LGS-AEP-143

Limerick TPO CVIB Follow-up RAI - GEH Response (Non-Proprietary)

NON-PROPRIETARY NOTICE

This is a non-proprietary version of the Enclosure 1 of GEH-LGS-AEP-143 which has the proprietary information removed. Portions of the document that have been removed are indicated by an open and closed bracket as shown here [[ ]].

CVIB Follow-up RAI

By letter dated March 25, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML100850380), Exelon Generation Company, LLC (Exelon, the licensee) submitted a license amendment request proposing to revise the operating license and technical specifications for Limerick Generating Station (LGS), Unit Nos. 1 and 2. This LAR proposes to implement an increase of approximately 1.65% in rated thermal power from the currently licensed thermal power limit of 3458 megawatts thermal. The increase would be based on the improved thermal power measurement accuracy, which would be achieved through the utilization of the Cameron International (formerly Caldon) CheckPlus™ leading edge flowmeter ultrasonic flow measurement instrumentation. By letter dated July 15, 2010 (ADAMS Accession No. ML101940053), the Nuclear Regulatory Commission (NRC) staff requested additional information to review and evaluate the information provided by Exelon. The licensee responded by letter dated August 30, 2010 (ADAMS Accession No. ML102440265). The NRC has been reviewing the submittal and has determined that additional information is needed to complete its review.

1. Appendix G to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, "Fracture Toughness Requirements," states that reactor vessel (RV) beltline materials must have a Charpy upper-shelf energy (USE) in the transverse direction for base material and along the weld for weld material according to the [American Society of Mechanical Engineers] ASME Code, of no less than 75 ft-lb initially, and must maintain Charpy USE throughout the life of the RV of no less than 50 ft-lbs, unless it is demonstrated in a manner approved by the Director, Office of Nuclear Reactor Regulation, that lower values of Charpy USE will provide margins of safety against fracture equivalent to those required by Appendix G of Section XI of the ASME Code.

   In Table 3-1 of Attachment 6 to the licensee's March 25, 2010 submittal, low pressure coolant injection (LPCI) nozzle weld (heat number 07L669/K004A27A) is identified with an initial transverse USE of 54 ft-lb. In Table 3-2 of Attachment 6 to the licensee's March 25, 2010 submittal, LPCI nozzle weld KA (heat number C3L46C/J020A27A) and weld KA (heat number 422B7201/L030A27A) are identified with initial transverse USE values of 40 ft-lb and 38 ft-lb, respectively. In response to a NRC request for additional information, by letter dated August 30, 2010, when discussing the LPCI forgings, the licensee stated that, "All other RV beltline materials with USE values less than 50 ft-lbs at 32 [Effective Full Power Years] EFPY have been evaluated using [Equivalent Margin Analyses] EMAs in accordance with NEDO-32205-A, [Rev. 1, "10 CFR 50 Appendix G Equivalent Margin Analysis for Low Upper Shelf Energy in BWR/2 through BWR/6 Vessels,"] which is applicable for the materials evaluated."

   In NEDO-32205-A, Rev. 1, the materials addressed in the analysis included: SA302 Grade B and Grade B Modified low allow steel plate, SA533 Grade B Class 1 low alloy steel plate, Shielded Metal Arc Welds, Electroslag Welds, Submerged Arc Welds (SAW)

made with non-Linde 80 flux, and SAW with Linde 80 flux. The methodology contained in NEDO-32205-A, Rev. 1 is applicable only to the materials analyzed in the report. The LGS LPCI nozzle weld materials do not appear to be included in the NEDO-32205-A, Rev. 1 analysis. Therefore, based on the information provided, the NRC staff does not find the application of NEDO-32205-A, Rev. 1 acceptable for demonstrating compliance with Appendix G to 10 CFR Part 50 for LGS, Unit Nos. 1 and 2 nozzle weld materials.

Therefore, for RV beltline nozzle weld materials with USE values below 75 ft-lbs for unirradiated conditions and below 50 ft-lbs at 32 EFPY, please submit analyses to demonstrate that the lower values of Charpy USE will provide margins of safety against fracture equivalent to those required by Appendix G of Section XI of the ASME Code, or provide additional justification to demonstrate that these materials are within the scope of the materials addressed by NEDO-32205-A, Rev. 1.

Response

This response provides additional justification to demonstrate that Shielded Metal Arc Weld (SMAW) Heats 07L669/Lot K004A27A, C3L46C/Lot J020A27A, and 422B7201/Lot L030A27A are within the scope of materials that are addressed by the Equivalent Margin Analysis (EMA) topical report, NEDO-32205-A, Revision 1 (Reference 1), approved by the NRC in Reference 2.

Certified Material Test Reports (CMTRs) for these SMAW heats were obtained from the original Limerick Purchase Order records. It was confirmed by review of these CMTRs that the three (3) heats noted above and in the RAI are SMAW materials. The CMTRs are included in Attachment 1 of this response, and the pertinent data is tabulated here for convenience. Note that the CMTRs identify all three (3) heats as conforming to ASME SA-316, which is now ASME SFA 5.5, "Low-Alloy Steel Electrodes for Shielded Metal Arc Welding".

Table 1: Charpy V-Notch (CVN) Test Data for SMAW Heats

Heat/Lot	Test Temperature (°F)	CVN Results (ft-lb)		
07L669/K004A27A	[[			
C3L46C/J020A27A				
422B7201/L030A27A				]]

As shown in Table 1, the CVN data for these heats was derived from [[ ]] tests, and each test included results from three (3) specimens. It can be seen that several of the data points are insufficient to support the 10CFR50 Appendix G (Reference 3) requirement of 50 ft-lbs at end of license, including operation at Thermal Power Optimization (TPO). Therefore, in the TPO submittal, Equivalent Margin Analysis was used to demonstrate qualification. It is noted that [[ ]] CVN results are not expected to demonstrate upper shelf. Review of many SMAW heat CMTRs indicates that upper shelf typically occurs at testing of [[ ]] or higher.

In order to demonstrate that these materials are within the scope of the EMA topical report, data from several sources was reviewed. SMAW material data from the NRC database RVID, BWRVIP-135, Revision 2, GE surveillance testing and analysis reports, and BWR CMTRs were obtained; the results are described below.

RVID SMAW Data

Table 2: RVID SMAW USE Data

Plant	Heat	Initial USE (ft-lb)	Basis [4]
Clinton	431T1831	109	
Clinton	76492	97	Direct
Duane Arnold	07L669	See Note 1	
Duane Arnold	09L853	See Note 1	
Duane Arnold	432Z0471	See Note 1	
Duane Arnold	432Z4521	See Note 1	
Duane Arnold	CTY538	See Note 1	
Farley 2	BOLA	148	Surveillance Weld
Farley 2	HODA	131	10°F Data
Grand Gulf	626677	95	Direct
Grand Gulf	627260	121	Direct
Hope Creek	001-01205	109	10°F Data
Hope Creek	504-01205	125	10°F Data
Hope Creek	510-01205	92.5	Direct
Hope Creek	519-01205	109	10°F Data
Limerick 1 & 2	07L857	See Note 1	
Limerick 1 & 2	09M057	See Note 1	
Limerick 1 & 2	640892	See Note 1	
Limerick 1 & 2	662A746 [2]	See Note 1	
Limerick 2	03M014	See Note 1	
Limerick 2	432A2671	See Note 1	
Monticello	NA	See Note 3	
Perry	624063	105	Direct
Perry	626677	90	Direct
Perry	627069	112	Direct
Perry	627260	104	Direct
River Bend	492L4871/(...AE) [5]	157	Direct
River Bend	492L4871/(...AF) [5]	130	Direct
Sequoyah 1	25295	111	Direct
Sequoyah 2	4278	105	Direct
Songs 2	BOLA	93	0°F and 10°F Data
Susquehanna 1 & 2	401S0371	127	Direct
Susquehanna 1 & 2	402C4371	92	10°F Data

Plant	Heat	Initial USE (ft-lb)	Basis [4]
Susquehanna 1 & 2	402K9171	134	Direct
Susquehanna 1 & 2	411L3071	126	Direct
Susquehanna 1 & 2	412P3611	140	Direct
Susquehanna 1 & 2	494K2351	192	Direct
Susquehanna 1 & 2	629616	114	Direct
Susquehanna 2	624263	73	40°F Data
Susquehanna 2	659N315	137	Direct
Vermont Yankee	NA	See Note 3	
Waterford 3	BOLA & HODA	106	Direct

Notes:
[1] The heat of material for this plant is identified in RVID, but no data is reported.
[2] This material is identified as 661A746 in RVID. Recent research of the original plant records identifies this to be heat 662A746.
[3] SMAW material is identified for this plant, but no heat number or data are reported.
[4] The basis is provided as described in RVID. "Direct" indicates that the unirradiated USE was from transverse specimens. Where there is no entry, no basis was provided or the basis was EMA.
[5] These heats have different Lot numbers: A422B27AE and A422B27AF.

For "Direct" data, the USE ranges from a low of 90 ft-lbs to a high of 192 ft-lbs. The Mean is 120 ft-lbs, standard deviation (σ) is 25 ft-lbs, and Mean – 2 σ = 71 ft-lbs. Considering all data from Table 2, the USE ranges from a low of 73 ft-lbs (from a 40°F test) to a high of 192 ft-lbs ("Direct"). The Mean is 117 ft-lbs, σ is 24 ft-lbs, and Mean – 2 σ = 69 ft-lbs.

It is also noted that the low test temperature results provide the lower values in this range of data. Testing at 40°F (one data point) results in USE = 73 ft-lbs, the lowest value in Table 2. Testing at 0°F and 10°F (one data point) results in USE = 93 ft-lbs, also one of the lower test results. Testing at 10°F (5 data points) provide results ranging from 92 ft-lbs to 131 ft-lbs.

BWRVIP-135, Revision 2 SMAW Data

Table 3: Integrated Surveillance Program SMAW USE Data

Plant/Source	Heat	Initial USE (ft-lb)
Duane Arnold and SSP [1]	"DA1"	99
Susquehanna 1 [2]	402K9171, 411L3071	107.7

Notes:
[1] This data was not found in another source.
[2] USE data for these heats was also obtained from RVID. The RVID data shows 402K9171 USE = 134 ft-lbs and 411L3071 USE = 126 ft-lbs.

Surveillance Testing and Analysis SMAW Data

Table 4: GE Surveillance Capsule Testing Results for SMAW Materials

Plant	Heat	USE (ft-lb)
Susquehanna 1	402K9171 [1], 411L3071 [2]	[[
Susquehanna 2	401S0371 [3], 411L3071 [2]	]]

Notes:
[1] This heat is identified in RVID with USE = 134 ft-lbs.
[2] This heat is identified in RVID with USE = 126 ft-lbs.
[3] This heat is identified in RVID with USE = 127 ft-lbs.

BWR CMTR SMAW Data

SMAW material CMTRs were reviewed for all available Reactor Pressure Vessel (RPV) Purchase Orders (see Attachment 2). Data was found from several plants that includes a full range of test temperatures including both [[ ]], resulting in seventeen (17) data sets. Additional data was obtained from GE reports that identified average CVN results for both temperatures.

Table 5: BWR CMTR SMAW Data

Data Set	Test Temperature (°F)	CVN (ft-lbs)	Test Temperature (°F)	CVN (ft-lbs) [1]	Minimum [[ ]] CVN (ft-lb)	Minimum [[ ]] CVN (ft-lb)	Ratio [[ ]]
1	[[						
2							
3							
4							
5							
6							
7							]]

Data Set	Test Temperature (°F)	CVN (ft-lbs)	Test Temperature (°F)	CVN (ft-lbs)[1]	Minimum [[ ]] CVN (ft-lb)	Minimum [[ ]] CVN (ft-lb)	Ratio [[ ]]
		[[					
				]]			
8	[[						
9							
10							
11							
12[2]							
13[2]							
14[2]							
15[2]							
16[2]							
17[2]							]]

Note:
[1] Some data sets only provided two (2) [[ ]] CVN results; these are designated by "na" in the cell for the third value.
[2] These data sets only provided the average CVN results.

Considering the data provided in Table 5 above, the mean value of the [[ ]] ratio is determined to be [[ ]]. This ratio is used to scale the Limerick-specific SMAW [[ ]] CVN results to represent 40°F data. See Table 6 below for details and results.

Table 6: Limerick SMAW [[ ]] CVN Data Scaled to Represent 40°F CVN Data

Limerick Heat/Lot	[[ ]] CVN (ft-lb)	Scaling Factor	40°F CVN (ft-lb)
07L669/K004A27A	[[		
422B7201/L030A27A			
C3L46C/J020A27A			
			]]

Considering the 40°F CVN data for each heat, the minimum results are [[ ]]. The range of 40°F CVN data used to develop Figure 8-5 of the EMA topical (Reference 1) is [[ ]]. From Table 6, the 40°F CVN data for the Limerick SMAW heats ranges from [[ ]]. It is noted that [[ ]] is slightly less than [[ ]]; however, this is approximately a 5% difference. Therefore, the CVN data from the three (3) Limerick SMAW heats fall within the range of data used in the Reference 1 topical report; hence, the topical report is applicable for EMA evaluation of the Limerick SMAW data.

Performing the USE/EMA evaluation as defined in NEDO-32205-A, we compare the required % decrease from Figure 2 of Regulatory Guide 1.99, Revision 2 (RG1.99)(Reference 6) to the 34% reduction defined in the topical report. The %Cu is defined in Table 7; all materials are subjected to a fluence of 1.9e17 n/cm^2.

Table 7: Limerick SMAW Material USE % Decrease Evaluation

Heat	%Cu	RG1.99 USE % Decrease	32 EFPY % Decrease from NEDO-32205-A
07L669/K004A27A	[[		
422B7201/L030A27A			
C3L46C/J020A27A			]]

It is demonstrated that all three (3) SMAW materials are well within the acceptable bounds for EMA; therefore, these materials are considered qualified by use of the Reference 1 EMA topical report.

Secondary Supporting Method Using NEDC-32399P (Reference 4)

In order to further demonstrate that these materials are within the scope of the EMA topical report, the initial RT_{NDT} estimation method defined in NEDC-32399P (Reference 4), approved by the NRC (Reference 5), is used to adjust the [[ ]] CVN data.

The EMA topical report data used to determine the Upper Shelf Energy (USE) equivalency requirements for SMAW materials was based upon CVN testing performed at 40°F. As seen in Table 1 above, the CVN tests for the three (3) Limerick SMAW heats were performed at [[ ]]. Therefore, it is desirable to determine the equivalent CVN energy for these heats at 40°F.

The key element of the initial RT_{NDT} estimation method defined in Reference 4 is an [[

]]. For this application, [[

]]. As noted above, the Table 1 data was obtained from [[ ]] tests. Therefore, the CVN energies can be [[ ]] 40°F using the following equation:

[[ ]]

Table 8: [[ ]] CVN Data for SMAW Heats

Heat/Lot	[[	]]	40°F CVN (ft-lb)
07L669/K004A27A	[[		
C3L46C/J020A27A			
422B7201/L030A27A			
			]]

The range of 40°F CVN data used to develop Figure 8-5 of the EMA topical (Reference 1) is [[ ]]. From Table 8, the 40°F CVN data for the Limerick SMAW heats ranges from [[ ]]. It is noted that [[ ]] is slightly less than [[ ]]; however, this is approximately a 5% difference. Therefore, the CVN data from the three (3) SMAW heats falls within the range of data used in the EMA topical report. The conclusions stated above (following Table 7) remain applicable for all of the beltline SMAW materials in the Limerick Unit 1 and 2 vessels.

References:

1. Mehta, H.S., et al., "10CFR50 Appendix G Equivalent Margin Analysis for Low Upper Shelf Energy in BWR/2 Through BWR/6 Vessels," NEDO-32205-A, Revision 1, February 1994.
2. James T. Wiggins (US NRC) to Lesley A. England (Gulf States), "Acceptance for Referencing of Topical Report NEDO-32205, Revision 1, '10CFR50 Appendix G Equivalent Margin Analysis for Low Upper Shelf Energy in BWR/2 through BWR/6 Vessels'," December 08, 1993.
3. "Fracture Toughness Requirements," Appendix G to Part 50 of Title 10, the Code of Federal Regulations, July 1983.
4. GE Nuclear Energy, NEDC-32399-P, "Basis for GE RT_{NDT} Estimation Method," Licensing Topical Report for BWR Owners' Group, San Jose, California, September 1994 (GE Proprietary).
5. Letter from B. Sheron to R.A. Pinelli, "Safety Assessment of Report NEDC-32399-P, Basis for GE RT_{NDT} Estimation Method, September 1994," USNRC, December 16, 1994.
6. USNRC, "Radiation Embrittlement of Reactor Vessel Materials," Regulatory Guide 1.99, Revision 2, May 1988.

ATTACHMENT 1
LIMERICK WELD CMTRS

HEATS

Heat 07L669/Lot K004A27A
Heat C3L46C/Lot J020A27A
Heat 422B7201/Lot L030A27A

[[ ]]

ATTACHMENT 2

SMAW MATERIAL CMTRS

[[ ]]

ENCLOSURE 3

LIMERICK GENERATING STATION UNITS 1&2
AFFIDAVIT FOR WITHHOLDING - GE-HITACHI NUCLEAR ENERGY

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, Edward D. Schrull, state as follows:

(1) I am the Vice President, Regulatory Affairs, Services Licensing, GE-Hitachi Nuclear Energy Americas LLC (GEH), and 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 1 of GEH letter GEH-LGS-AEP-143, Michael J. Dick (GEH) to Jeffrey L. Wilson (Exelon Nuclear), entitled *Limerick TPO CVIB Follow-up RAI - GEH Response*, dated December 16, 2010. GEH proprietary information in Enclosure 1, which is entitled, "Limerick TPO CVIB Follow-up RAI - GEH Response (Proprietary)," is identified with a dotted underline placed within double square brackets. [[This sentence is an example.{3}]] Attachments 1 and 2 of Enclosure 1 are proprietary in their entirety and are identified with double square brackets on the first and last pages. In each case, the superscript notation {3} refers to Paragraph (3) of this affidavit that provides the basis for the proprietary determination.

(3) In making this application for withholding of proprietary information of which it is the owner or licensee, 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 qualifies 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, 975 F2d 871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704 F2d 1280 (DC Cir. 1983).

(4) The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a. and (4)b. Some examples of categories of information that 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's competitors without license from GEH constitutes a competitive economic advantage over GEH and/or other companies.

b. Information that, if used by a competitor, would reduce their expenditure of resources or improve their competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.

c. Information that reveals aspects of past, present, or future GEH customer-funded development plans and programs, that may include potential products of GEH.

d. Information that discloses trade secret and/or potentially patentable subject matter for which it may be desirable to obtain patent protection.

(5) To address 10 CFR 2.390(b)(4), the information sought to be withheld is being submitted to the 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, not been disclosed publicly, and not been made available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary and/or confidentiality agreements that provide for maintaining the information in confidence. The initial designation of this information as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure are as set forth in the following paragraphs (6) and (7).

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, who is the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge, or who is the person most likely to be subject to the terms under which it was licensed to GEH. Access to such documents within GEH is limited to 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 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 and/or confidentiality agreements.

(8) The information identified in paragraph (2) above is classified as proprietary because it contains results and conclusions of analysis performed to support Thermal Power Optimization (TPO) for a GEH Boiling Water Reactor. Development of these methods, techniques, and information and their application to the TPO analyses was achieved at a significant cost to GEH. The development of the evaluation process along with the interpretation and application of the analytical results 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 and obtaining 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 16th day of December, 2010.

Edward D. Schrull
Vice President, Regulatory Affairs
Services Licensing
GE-Hitachi Nuclear Energy Americas LLC
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