

RS-10-133
August 12, 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, "Schedule for Responding to Request for Additional Information," dated July 28, 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 (TS) to implement an increase in rated thermal power of approximately 1.65%. In Reference 2, the NRC requested additional information to support review of the proposed changes. In response to this request, EGC is providing the attached information for questions two and three of the requested information. As noted in Reference 3, the response to question one of the requested information will be provided by August 31, 2010.

U. S. Nuclear Regulatory Commission
Additional Information Supporting Request for
License Amendment Regarding Measurement
Uncertainty Recapture Power Uprate
August 12, 2010
Page 2

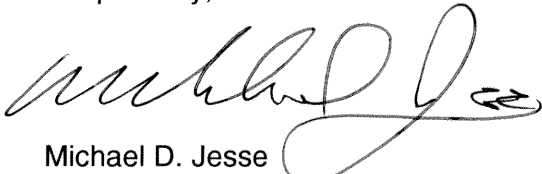
EGC has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendment does 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 12th day of August 2010.

Respectfully,

A handwritten signature in black ink, appearing to read "Michael D. Jesse", with a stylized flourish at the end.

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

Attachment: Response to Request for Additional Information

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

ATTACHMENT
Response to Request for Additional Information

NRC Request 2

The current thermal licensed power (CTLP) pressure-temperature (P-T) curves, contained in "Pressure-Temperature Curves for [Philadelphia Electric Company] PECO Energy Company Limerick 1 (GE-NE-B11-00836-00-01, Rev. 0)," and "Pressure Temperature Curves for PECO Energy Company Limerick 2 (GE-NE-B11-00836-00-02, Rev. 0)," did not include analysis of the water level instrumentation nozzles within the RV beltline region. Provide a technical basis to support the statement in Attachment 6, Section 3.2.1, "Fracture Toughness," that the water level instrumentation nozzle that occurs within the RV beltline region is bounded by the CTLP P-T curves.

Response

Following the methodology defined in Appendix J of NEDC-33178P-A, Revision 1, "GE Hitachi Nuclear Energy Methodology for Development of Reactor Pressure Vessel Pressure-Temperature Curves," (Reference 1 to this Attachment, approved by the NRC in Reference 2) the curve representing the Limerick Generating Station (LGS), Units 1 and 2 water level instrumentation nozzles was evaluated. These results were then compared to the currently licensed P-T curves for both units. It was found that the water level instrumentation nozzle remains bounded by the licensed curves. The results for Unit 1 demonstrate a 20°F margin for Curve A and a 6°F margin for Curves B and C up to 32 effective full power years (EFPY). For Unit 2, the results demonstrate a 60°F margin for Curve A and a 20°F margin for Curves B and C up to 32 EFPY.

NRC Request 3

Initial property values for RV beltline materials are not consistent with the values previously submitted in response to Generic Letter [GL] 92-01, Rev. 1, "Reactor Vessel Structural Integrity," and P-T curve submittals for LGS, Units 1 and 2 in GE-NE-B1100836-00-01 and GE-NE-B11-00836-00-02, respectively. Provide a comprehensive listing of the RV beltline materials, including the heat number for each RV beltline plate or forging and the heat number of wire and flux lot number used to fabricate each RV beltline weld; the chemical composition, in particular the weight in percent of copper and nickel for each RV beltline material; and the unirradiated reference temperature for each RV beltline material, and the method of determining the unirradiated reference temperature from the Charpy and drop weight tests.

Response

The information regarding properties of the RV beltline materials provided in the thermal power optimization (TPO) uprate amendment request (Reference 3, Attachment 6, Tables 3-3 and 3-4) is correct and provides a comprehensive listing of all the information requested, except for the method of determining the unirradiated reference temperature (RT_{NDT}). The information in Reference 3 reflects updates to previously submitted values; the updates were provided in docketed correspondence as discussed below:

ATTACHMENT
Response to Request for Additional Information

Unit 1:

1. For %Cu, the original GL 92-01 response cited heat S3986 with %Cu = 0.05. This value was subsequently changed to %Cu = 0.054 in a supplemental response to GL 92-01 (Reference 4). The TPO evaluation used 0.054 %Cu.
2. For %Cu, the original GL 92-01 response cited heat 1P4218 with %Cu = 0.06. This value was subsequently changed to %Cu = 0.053 in a supplemental response to GL 92-01 (Reference 4). The TPO evaluation used 0.053 %Cu.
3. For %Cu, the original GL 92-01 response cited heat 5P6756 with %Cu = 0.08. This value was subsequently changed to %Cu = 0.083 in a supplemental response to GL 92-01 (Reference 4). The TPO evaluation used 0.083 %Cu.
4. For %Ni, the original GL 92-01 response cited heat 3P4000 with %Ni = 0.9. This value was subsequently changed to %Ni = 0.928 in a supplemental response to GL 92-01 (Reference 4). The TPO evaluation used 0.928 %Ni.
5. For %Ni, the original GL 92-01 response cited heat S3986 with %Ni = 0.92. This value was subsequently changed to %Ni = 0.969 in a supplemental response to GL 92-01 (Reference 4). The TPO evaluation used 0.969 %Ni.
6. For %Ni, the original GL 92-01 response cited heat 5P6756 with %Ni = 0.96. This value was subsequently changed to %Ni = 0.943 in a supplemental response to GL 92-01 (Reference 4). The TPO evaluation used 0.943 %Ni.
7. For %Ni, the first reporting of the LPCI forging Q2Q25W was for the previous 5% power uprate evaluation (Reference 5) and includes %Ni = 0.85% (with an initial RT_{NDT} of $-6^{\circ}F$) and %Ni = 0.84 (with an initial RT_{NDT} of $-36^{\circ}F$). Input provided for Reference 6 consolidated the two chemistries and revised this value such that %Ni = 0.78 (with an initial RT_{NDT} of $-6^{\circ}F$). These changes are a result of further certified material test report (CMTR) review. The TPO evaluation used 0.78%Ni.
8. For %Ni, the first reporting of the LPCI forging Q2Q35W was for the previous 5% power uprate evaluation (Reference 5) and includes %Ni = 0.78 (twice, one with an initial RT_{NDT} of $-26^{\circ}F$ and the second with an initial RT_{NDT} of $-8^{\circ}F$). Input provided for Reference 6 consolidated the two chemistries and revised this value such that %Ni = 0.85 (with an initial RT_{NDT} of $-8^{\circ}F$). These changes are a result of further CMTR review. The TPO evaluation used 0.85%Ni.
9. For RT_{NDT} , the original GL 92-01 response cited heat 09M057 as $-32^{\circ}F$. This value was revised to $-36^{\circ}F$ in a supplemental response to GL 92-01 (Reference 4). The TPO evaluation used $-36^{\circ}F$.

Unit 2:

10. All %Cu data is consistent with the initial GL 92-01 response up to and including the TPO evaluation in Reference 3.
11. For %Ni, the original GL 92-01 response cited heat 3P4000 with %Ni = 0.95. This value was subsequently changed to %Ni = 0.928 in a supplemental response to GL 92-01 (Reference 4). The TPO evaluation used 0.928%Ni.
12. For RT_{NDT} , the original GL 92-01 response cited heat 09M057 as $-32^{\circ}F$. This value was revised to $-36^{\circ}F$ in a supplemental response to GL 92-01 (Reference 4). The TPO evaluation used $-36^{\circ}F$.
13. For RT_{NDT} , the original GL 92-01 response cited heat 4P4784 as $-50^{\circ}F$. This value was subsequently changed to $-20^{\circ}F$ during the previous 5% power uprate (Reference 5). The TPO evaluation used $-20^{\circ}F$.

ATTACHMENT
Response to Request for Additional Information

The initial RT_{NDT} is provided in Tables 3-3 and 3-4 of Reference 3, Attachment 6. The GEH methodology for determining initial RT_{NDT} is described in Reference 1, Section 4.1.2, "Values of Initial RT_{NDT} and Lowest Service Temperature (LST)."

REFERENCES

1. Topical Report NEDC-33178P-A, "General Electric Methodology For Development Of Reactor Pressure Vessel Pressure-Temperature Curves," Revision 1, June 2009
2. Final Safety Evaluation by the Office of Nuclear Reactor Regulation, "Topical Report NEDC-33178P, 'General Electric Methodology For Development Of Reactor Pressure Vessel Pressure-Temperature Curves,' Boiling Water Reactors Owners' Group Project No. 691," dated April 27, 2009
3. 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
4. Letter from G. D. Edwards (PECO Energy Company) to U. S. NRC, "Limerick Generating Station, Units 1 and 2 Response to Request for Additional Information Concerning Generic Letter 92-01, Revision 1, Supplement 1, 'Reactor Vessel Structural Integrity,'" dated August 3, 1998
5. Letter from G. A. Hunger (PECO Energy Company) to U. S. NRC, "Limerick Generating Station, Units 1 and 2, Operating license Change Request 93-24-0," dated December 9, 1993
6. Letter from J. A. Hutton (PECO Energy Company) to U. S. NRC, "Limerick Generating Station, Unit 1, Technical Specifications Change Request No. 00-02-1, Changes to Reactor Pressure Vessel Pressure-Temperature Limits," dated May 15, 2000