October 16, 2008

Mr. Timothy E. Herrmann
Vice President, Engineering
AmerenUE
PO Box 620
Fulton, MO 65251

SUBJECT: CALLAWAY PLANT UNIT 2, STATUS OF THE ACCEPTANCE REVIEW OF THE COMBINED LICENSE APPLICATION

Dear Mr. Herrmann:

On July 28, 2008, as supplemented by letter dated September 24, 2008, AmerenUE tendered the combined license (COL) application for a single unit of the U.S Evolutionary Power Reactor (U.S. EPR) to be located at the current Callaway County, Missouri site of the Callaway Power Plant. This proposed plant is to be designated Callaway Plant Unit 2.

The staff started the acceptance review on August 5, 2008. During the acceptance review, the staff identified several completeness and technical sufficiency issues in the geosciences portion of the application (Sections 2.5.1- 2.5.3 of the Final Safety Analysis Report or FSAR). AmerenUE supplemented the application in a letter dated September 24, 2008. The staff reviewed the supplement and concluded that it did not sufficiently address the issues raised by the staff. In addition, the staff identified several quality related issues with the supplement. These issues have been discussed with your staff and are summarized in the enclosure to this letter.

In a letter dated October 14, 2008, AmerenUE informed the NRC that it will supplement its application with a revision of FSAR Section 2.5 on or before November 17, 2008. Upon receipt of this revision and completion of its review, the staff will make a docketing decision on the Callaway Unit 2 COL application.

If you have any questions or require additional information, I can be reached at (301) 415-1421 or by email at surinder.arora@nrc.gov.

Sincerely,

/RA/

Surinder Arora, Project Manager
US EPR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Project No. 750

Enclosure:
Callaway Plant Unit 2 Combined License Application - Technical Sufficiency and Quality Issues in Geology & Seismology

cc w/encl: See next page

If you have any questions or require additional information, I can be reached at (301) 415-1421 or by email at surinder.arora@nrc.gov.

Sincerely,

Surinder Arora, Project Manager
US EPR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Project No. 750

Enclosure:
Callaway Plant Unit 2 Combined License Application - Technical Sufficiency and Quality Issues in Geology & Seismology

cc w/encl: See next page

DISTRIBUTION:

PUBLIC	RidsNroDnrlNge1Resource	RidsNroDnrlResource
PMNS	RidsNroLASGreenResource	RidsNroLASGreenResource
SArora, NRO	RidsOpaMailResource	RidsRgn2MailCenterResource
DBarss, NSIR	RidsRgn4MailCenterResource	RidsOgcMailCenter
DHuyck, NSIR	RidsAcrsAcnwMailCenterResource	RidsNroDnrlNplsResource
SBurnell, OPA	RidsNroDnrlNrgaResource	RidsNroDserRsacResource
VWilliams, NSIR	RidsNroDeIce2Resource	RidsNroDeEmb2Resource
JMcKirgan, NRO	RidsNroDcipCqvpResource	RidsNroDsraSrsbResource
SBrock, OGC	RidsNroDeCib2Resource	RidsNroDserRhebResource
RHolmes, OGC	RidsNroDnrlNge2Resource	RidsNroDcipColpResource
	RidsNroDcipCtsbResource	RidsNroDsraSbcvResource
	RidsNroDsraSbpbResource	RidsNroDserRgs1Resource
	RidsNroDsraSfptResource	RidsNroDeSeb2Resouce
	RidsNroDeSeb2Resource	RidsNroDeIce1Resource
	RidsNroDcipChpbResource	

ADAM Accession Number: ML082840543

OFFICE	PM/DNRL/NAR1	LA/DNRL/NAR1	BC/DSER/RGS1	BC/DSER/RGS2	OGC	BC/DNRL/NAR1
NAME	SArora	JMcLellan	RKaras	CMunson	AHodgdon	JColaccino
DATE	10/14/2008	10/15/2008	10/15/2008	10/15/2008	10/16/2008	10/16/2008

OFFICIAL RECORD COPY

Enclosure:

Callaway Plant Unit 2 Combined License Application - Technical Sufficiency and Quality Issues in Geology & Seismology (Application Sections 2.5.1, 2.5.2 and 2.5.3)

Background:

During the acceptance review of the Callaway combined license application (COLA), the NRC staff identified several completeness and technical sufficiency issues with the information provided in Sections 2.5.1, 2.5.2 and 2.5.3, dealing with geologic and seismic siting criteria. In addition, the staff identified several quality related issues in the application. The staff conveyed these issues to the applicant's representatives in several phone calls held during the acceptance review phase of the COLA. Following these phone calls, AmerenUE submitted a supplement to its COLA in a letter dated September 24, 2008. Upon review, the staff concluded that the supplement submitted by the applicant did not adequately address all the issues.

Description of the Issues:

The issues found by the staff have been categorized in the following six categories:

1. Insufficient information regarding the geologic and tectonic characterization of the plant site and the region.

   The geologic discussions regarding the major seismic sources in the region, such as the New Madrid Seismic Zone, do not include sufficient implications or conclusions for the Callaway site. The COLA includes only a brief discussion relative to major seismic events in the region, such as, the large magnitude (m > 7) 1811-1812 New Madrid earthquakes. The significance of these major events to the Callaway Plant site has not been addressed in the application. No discussion is provided about the historical accounts of ground shaking, the extent of damage caused by such large events, the extent of liquefaction features, recent research in the area, and the capability of other regional seismic sources to produce large earthquakes.

2. The input data for the Probabilistic Seismic Hazard Analysis (PSHA) sensitivity study is incomplete and is of questionable accuracy.

   The earthquake catalog used in the original submittal included entries only through 2001 and was, thus, incomplete. The supplement submitted on September 24, 2008, did include an update to the catalog and a sensitivity analysis; however, the update failed to account for over half of the earthquakes that have occurred since 2001. In addition, the supplement included multiple figures with incorrect earthquake magnitudes and locations.

3. The most up-to-date information available in the scientific literature for several seismic sources as well as other significant geologic and tectonic features of the site region and its surroundings were not considered in the application.

   A few examples of this issue include:

   - The application includes only a minimally detailed description of the most recent geologic history (Quaternary period).

   - Conclusions of a 2000 geologic paper that compiles geologic research for the central and eastern U.S. were used in the supplement to the COLA without independent verification or interpretation of the hazard potential for the Callaway site.

- The COLA extensively includes direct quotes from the Callaway Unit 1 FSAR, which was developed in 1970's and reflects the state of scientific understanding during the time of Unit 1's construction.

4. The COLA does not include detailed site investigations for paleoliquefaction features near the Callaway site and its surroundings.

   Staff identified issues related to:

   - Over-reliance on satellite imagery to identify potential paleoliquefaction features; the area is agricultural and this method would not identify most features. There is no evidence that systematic investigations were performed to locate potential earthquake related features within liquefiable soils in the site area.

   - Field study photographs provided in the supplement do not include adequate explanation, nor do they represent a systematic and comprehensive search for potential liquefaction features or faults in the area.

   - The application lacks detailed analyses of paleoliquefaction features found in 1999 and 2005 by expert researchers in the St. Louis area and their implications for developing the seismic source models for the Callaway Plant.

5. Insufficient details included to fully evaluate the potential for surface faulting within a 40 km (25 mi) radius of the site.

   The COL application relies almost entirely on satellite imagery, with very limited field reconnaissance to address the issue of potential surface faulting. Additionally, faults and geologic features identified through literature reviews and field reconnaissance have not been independently assessed for potential seismic capability.

6. General Quality Issues noted by staff:

   Failure to include proper explanations, legends and map scales in many of the figures in Section 2.5.1-3 prevents the staff from performing a detailed evaluation of the information that is provided in the application.

   Examples of the issues identified are:

   - In Figure 2.5-1, either the 200-mile zone is incorrectly plotted or the scale noted on the figure is incorrect.

   - Figures 2.5-19, 2.5-32, and 2.5-33 are not legible.

   - In Figures 2.5-39 through 2.5-44, the 200-mile zone is incorrectly plotted, and earthquake locations and magnitude assignments are not correct.

   - In Figure 2.5-144, notes regarding New Madrid are not correct.

COL AmerenUE - Callaway Mailing List

cc:

Scott Bond
Callaway Plant
P.O. Box 620
Fulton, MO 65251

Ms. Michele Boyd
Legislative Director
Energy Program
Public Citizens Critical Mass Energy
and Environmental Program
215 Pennsylvania Avenue, SE
Washington, DC 20003

Ms. Pat Cryderman
Superintendent
Replacement/Accident Analysis
and Major Projects
AmerenUE
P.O. Box 620
Fulton, MO 65251

Mr. Tim E. Herrmann
Vice President, Nuclear Engineering
AmerenUE
P.O. Box 620
Fulton, MO 65251

Mr. Dave Shafer
Superintendent
Licensing
AmerenUE
1901 Chouteau Avenue
St. Louis, MO 63103

COL AmerenUE - Callaway Mailing List

Email

APH@NEI.org (Adrian Heymer)
awc@nei.org (Anne W. Cottingham)
barbara.perdue@unistarnuclear.com (Barbara Perdue)
BrinkmCB@westinghouse.com (Charles Brinkman)
chris.maslak@ge.com (Chris Maslak)
cwaltman@roe.com (C. Waltman)
david.lewis@pillsburylaw.com (David Lewis)
dlochbaum@UCSUSA.org (David Lochbaum)
greshaja@westinghouse.com (James Gresham)
jgutierrez@morganlewis.com (Jay M. Gutierrez)
jim.riccio@wdc.greenpeace.org (James Riccio)
JJNesrsta@cpsenergy.com (James J. Nesrsta)
John.O'Neill@pillsburylaw.com (John O'Neill)
Joseph_Hegner@dom.com (Joseph Hegner)
KSutton@morganlewis.com (Kathryn M. Sutton)
kwaugh@impact-net.org (Kenneth O. Waugh)
lchandler@morganlewis.com (Lawrence J. Chandler)
Marc.Brooks@dhs.gov (Marc Brooks)
maria.webb@pillsburylaw.com (Maria Webb)
mark.beaumont@wsms.com (Mark Beaumont)
matias.travieso-diaz@pillsburylaw.com (Matias Travieso-Diaz)
media@nei.org (Scott Peterson)
mike_moran@fpl.com (Mike Moran)
miowens@ksdk.com (Michael Owens)
MSF@nei.org (Marvin Fertel)
nirsnet@nirs.org (Michael Mariotte)
patriciaL.campbell@ge.com (Patricia L. Campbell)
paul.gaukler@pillsburylaw.com (Paul Gaukler)
Paul@beyondnuclear.org (Paul Gunter)
phinnen@entergy.com (Paul Hinnenkamp)
pshastings@duke-energy.com (Peter Hastings)
RJB@NEI.org (Russell Bell)
RKTemple@cpsenergy.com (R.K. Temple)
roberta.swain@ge.com (Roberta Swain)
sabinski@suddenlink.net (Steve A. Bennett)
sandra.sloan@areva.com (Sandra Sloan)
sfrantz@morganlewis.com (Stephen P. Frantz)
Vanessa.quinn@dhs.gov (Vanessa Quinn)
VictorB@bv.com (Bill Victor)
Wanda.K.Marshall@dom.com (Wanda K. Marshall)