



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

July 12, 2012

Mr. Adam C. Heflin  
Senior Vice President and Chief Nuclear Officer  
Union Electric Company  
P.O. Box 620  
Fulton, MO 65251

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE  
CALLAWAY PLANT, UNIT 1, LICENSE RENEWAL APPLICATION (TAC NOS.  
ME7715 AND ME7716)

Dear Mr. Heflin:

By letter dated December 15, 2011, Union Electric Company, a subsidiary of Ameren Corporation and doing business as Ameren Missouri, submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew the operating license NPF-30 for Callaway Plant, Unit 1 for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

These requests for additional information were discussed with Ms. Sarah Kovaleski, and a mutually agreeable date for the response is within 30 days from the date of this letter. A draft document containing these requests was also sent to Sarah Kovaleski on July 3, 2012. If you have any questions, please contact me at 301-415-6337 or by e-mail at [Carmen.Fells@nrc.gov](mailto:Carmen.Fells@nrc.gov).

Sincerely,

A handwritten signature in cursive script that reads "Carmen Fells".

Carmen Fells, Environmental Project Manager  
Reactor Projects Branch 2  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:  
Requests for Additional Information

cc w/encl: Listserv and Sarah Kovaleski

**Request for Additional Information  
For Callaway Plant, Unit 1, License Renewal  
Environmental Review**

**Aquatic Ecology**

1. Provide a copy of the review of new and significant information document or describe what specific records or information Ameren Missouri (Ameren) reviewed to determine that no new and significant information exists for each of the aquatic ecology Category 1 issues applicable to Callaway Plant, Unit 1 (Callaway).
2. Clarify the location of the discharge point for blow-down water and other waste streams to the Missouri River.
3. Provide copies of or, if copies are not available, descriptions of pre-operational surveys of fish conducted in 2007 and 2008 within reach of the Missouri River adjacent to Callaway's cooling water intake mentioned on page 20, plus any associated reports or documentation.
4. Provide any associated reports or documentation related to the historical records and contacts with State and Federal resource agencies related to the occurrence of State and Federally listed threatened and endangered species.
5. Provide a description of the cooling water intake system, including the intake velocity at the traveling screens, design and operation of the traveling screens, and any other operational procedures or structural designs that affect impingement and entrainment at the Callaway Pump Station on the Missouri River. Also provide information regarding the depth of the intake and the means by which flow is regulated for the flow intake structure.
6. Provide a description of the fish escape openings at the water intake structure and an explanation of why a fish return system is not required. Also provide copies of any studies or documentation of the effectiveness of this mitigation system.
7. Provide a description of what chemicals are used and the associated application rates and schedules to treat the cooling and auxiliary water system.
8. Provide for review the available studies or procedures that Ameren funds, undertakes, or uses to document that protected species are not impinged or entrained at the intake or affected by the thermal effluent. These species should include the fish species that the protected freshwater mussels attach to during their glochidal stages.
9. Provide the Union Electric Company 1986 report "Evaluation of Cooling Water Intake Impacts on the Missouri River," and any other similar reports referencing effects on aquatic resources.
10. Provide a description of the thermal discharge temperatures of the blowdown water.
11. Provide a description of the planned construction of additional water treatment/sediment retention ponds over the next 20 years.

ENCLOSURE

### **Environmental Justice & Socioeconomics**

1. Provide information about any observed subsistence consumption behavior patterns, specifically fish and wildlife consumption, by minority and low-income populations in the vicinity of Callaway. This subsistence consumption behavior could consist of hunting, fishing, and trapping of game animals and any other general food gathering activities (e.g., collecting nuts, berries, and other plant materials) conducted by minority and low-income individuals.
2. In addition to property tax payment information presented in Section 2.10 of the environmental report (ER), describe any other major annual support payments, one-time payments, and other forms of non-tax compensation (if any) provided to local organizations, communities, and jurisdictions (e.g., county, municipality townships, villages, incorporated places, and school districts) on behalf of Callaway.
3. Provide data on the height of the tallest (visible from offsite locations) structures at Callaway and general information on the visibility of plant facilities from various offsite locations.

### **Electromagnetic Fields**

1. For the computer code used to calculate the induced current, provide details of the code, the model developed for this plant, the input, and the output results.

### **Hydrology and Water Quality – Groundwater**

1. Provide the plant flow diagram that was part of the recent National Pollutant Discharge Elimination System (NPDES) permit renewal.
2. Confirm and provide documentation that the groundwater sample reported in the ER (Table 2.3-2) was analyzed for strontium, rather than only for the isotope of strontium (strontium-90).
3. For those wells with tritium levels above background provide data that shows changes in tritium concentrations in groundwater over time.
4. To adequately describe groundwater quantity impacts, NRC needs to know the source or sources of the water that flows into the groundwater sump (i.e., What aquifers are being impacted or are there other sources for the water?). In responding to this request, explain why you believe the groundwater is being supplied from that source or sources that are identified in the response. If there are other sumps in the basements of the buildings of the power block collecting groundwater, estimate the rate of groundwater collected from those sources. Provide cross section drawings

referred to in an October 8, 2008, letter from Ameren to the Missouri Department of Natural Resources (MDNR) (ML083150703) as Attachment F.

5. Provide a map showing the closest private well to Callaway that is approximately 0.25 miles southeast of Intake Well #1.

#### **Hydrology and Water Quality – Surface Water**

1. Provide a description of settling and effluent discharge pond changes (i.e., new ponds needed and old ponds abandoned) over the period of license renewal.
2. Provide any notices of violation (NOVs), nonconformance notifications, or related infractions received from regulatory agencies associated with NPDES permitted discharges, sewage systems, groundwater or soil contamination, including spills, leaks, and other inadvertent releases of fuel solvents, chemicals, or radionuclides (covering the past 5 years).

#### **Land Use and Transmission Lines**

1. Please confirm whether the 2005 land use/land cover data presented in Table 2.11-1 and Figure 2.11-1 has changed; and if so, please provide the following: 1) the most recently available land use calculation package for Callaway County and 2) an updated figure depicting the most recently available land use data.

#### **Meteorology and Air Quality**

1. Provide a description of the primary meteorological tower and backup meteorological tower. Include a description of instrumentation installed and height of installation for each instrument. Describe any changes in land use around the tower sites that have occurred since installation that may affect any meteorological sensors.
2. Provide the most recent 5 years of annual emission statements to the MDNR for emissions of air pollutants resulting from operations at Callaway.
3. Provide a summary of Callaway greenhouse gas emissions. Include emissions of carbon dioxide from permitted combustion sources and emissions of sulfur hexafluoride (SF<sub>6</sub>) leakage, if available.
4. Provide noise emissions studies conducted at Callaway, if any, and any information about noise that could be considered a nuisance to offsite property owners. Also, provide information about any noise complaints.

#### **Terrestrial Ecology**

1. Provide a copy of the review of new and significant information document or describe what specific records or information Ameren reviewed to determine that no new and

significant information exists for each of the terrestrial ecology Category 1 issues applicable to Callaway.

2. The ER references several ecological studies conducted in 2007 and 2008 for the Callaway Plant, Unit 2, combined license application (COLA) and also references the COLA ER. Please provide copies of the terrestrial studies performed for the COLA, including the mammalian, avian, and herpetological studies mentioned on page 17 and the floral survey and 2007 land cover survey mentioned on page 2-226 of the COLA ER. Describe the specific mitigation measures that Ameren takes to ensure that its transmission-line maintenance does not impact any Federally listed species, including personnel training, coordination with State and Federal agencies, and specific precautions that workers must take in the field. Provide copies of related procedures, if applicable.
3. Provide a description of the time of year ground clearing is conducted for the transmission line management.
4. Provide a description of any special vegetation management techniques along the transmission lines at stream and wetland crossings.

#### **Waste Management**

1. Provide information about Callaway's typical yearly low-level waste generation rate, processing methods, storage capability, and disposal options or reasonably foreseeable disposal options that demonstrate that there will be adequate storage and disposal capabilities during the period of license renewal. With respect to the disposition of Class B and Class C waste, provide the status of the arrangements being made for the disposal of this material in the licensed low-level radioactive waste disposal facility in Texas or other options.
2. Provide Callaway's Radioactive Waste Management Plan.
3. Is Callaway a large quantity, small quantity, or conditionally exempt small quantity generator of hazardous waste?
4. Provide 2010 and 2011 Generator's Hazardous Waste Summary Reports.
5. Provide 2010 and 2011 Facility Summary Reports.
6. If radiologically contaminated used oil is not addressed in the Facility Summary Reports, provide a brief description of the quantities of such oil that are generated and how the oil is handled and disposed of.
7. Provide 2010 and 2011 Emergency Planning and Community Right-to-Know Act (EPCRA) reports (Tier Two inventories).
8. Provide recent (2011) reporting for hazardous air pollutants released (SARA Toxic Release Inventory reports).

## References Requested for Docketing

<b>Aquatic Ecology</b>	
A.	CDM (Camp Dresser & McKee, Inc.) 1981. Water quality and aquatic biological preoperational monitoring program for the Callaway Nuclear Plant: June 1980 through May 1981. Prepared for Union Electric Company, St. Louis, Missouri, by Camp Dresser & McKee, Milwaukee, Wisconsin. July.
B.	CDM (Camp Dresser & McKee, Inc.) 1982. Water quality and aquatic biological preoperational monitoring program for the Callaway Nuclear Plant: June 1981 through May 1982. Prepared for Union Electric Company, St. Louis, Missouri, by Camp Dresser & McKee, Milwaukee, Wisconsin. September.
C.	UEC (Union Electric Company) 1986. Callaway Plant: Evaluation of Cooling Water Intake Impacts on the Missouri River. Prepared by Environmental Services Department, St. Louis. July.
D.	All related 316 studies completed for Callaway.
E.	Most current National Pollution Discharge Elimination System Permit for Callaway and permit renewal, if available.
<b>Hydrology and Water Quality - Groundwater</b>	
A.	AmerenUE 2007. Callaway Plant Final Environmental Evaluation of Blowdown Line Replacement. July.
B.	AmerenUE 2008b. Callaway Major Water Use Report 2008.
C.	AmerenUE 2010a. Callaway Action Request System 201005073, Absence of Monitoring Wells near SSCs Containing Radioactive Fluids. May.
D.	AmerenUE 2010b. Groundwater Sample Minima, Maxima, and Mean Values for all Sampling Rounds at Callaway Plant Site 2007 – 2008. April.
E.	AmerenUE 2010c. Callaway Landfill Groundwater Quality Data 2006-2009. March.
F.	Burns & McDonnell (Burns and McDonnell Engineering Company) 2008. Phase II Hydrogeologic Investigation Report Collector Well Siting Study, Callaway Unit 2. June.
G.	MDNR (Missouri Department of Natural Resources) 2003. Major Nuclear Power Plant. October.
H.	MDNR (Missouri Department of Natural Resources) 2009b. Callaway #2 Water District PWSS Report 3024085.
I.	Rizzo (Rizzo Associates, Inc) 2008. Final Groundwater Model Report (rev 1, Callaway Nuclear Power Plant, October.)
J.	Terracon 2010. Groundwater Monitoring, Fuel Groundwater Wells. February.
K.	Tetra Tech 2010. Map Showing Location of Callaway #2 Water District and Fulton Water District Public Supply Wells. January.
<b>Hydrology and Water Quality – Surface Water</b>	
A.	Ameren Missouri. 2011. 2010 Annual Radiological Environmental Operating Report for the Callaway Plant. USNRC-05785. April 29, 2011.
B.	UEC (Union Electric Company) 1986. Callaway Plant: Evaluation of Cooling Water Intake.
C.	Impacts on the Missouri River. Prepared by Environmental Services Department, St. Louis. July.
D.	USACE (United States Army Corps of Engineers) 2003. Final Environmental Impact Statement for the Missouri River Fish and Wildlife Mitigation Project. U.S. Army Corps of Engineers.
E.	Kansas City District, Kansas City, Missouri, and Omaha District, Omaha, Nebraska. March.

<b>Terrestrial Ecology</b>	
A.	Missouri Department of Conservation 2008. Reform Conservation Area: Area Plan 2006-2016.
<b>Waste Management</b>	
A.	Ameren document CTP-HM-00300, Handling, Storage, Evaluation, and Disposal of Hazardous and Mixed Wastes.
B.	Ameren document APA-ZZ-00831, Hazardous Chemical Control Program.
C.	Ameren document APA-ZZ-00832, Hazardous and Special Waste Management Program.

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ZHollcraft, RIV

VDricks, RIV

LUselding, RIV



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/RA/

Carmen Fells, Environmental Project Manager  
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Docket No. 50-483

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