

Additional Information Summarizing the Callaway Nuclear Plant  
Readiness Assessment Visit (C-2 and C-3)  
Location: Callaway Nuclear Plant Site, Callaway County, Missouri  
April 1 - 3, 2008

Overall, AmerenUE appears to be on track for gathering most or all of the needed data that will allow it to submit an adequate environmental report (ER). During the review several issues were identified that warrant attention by AmerenUE. The following sections describe the results of the visit.

#### Site Selection Process

The proposed plant would be a regulated plant subject to the regulations of the Missouri Public Service Commission. Regarding site selection, the staff expects more information to be provided in the ER regarding how the region of interest was established, how potential sites were identified, the number and types of potential sites, and the process used to narrow the field of sites down to the three alternative sites eventually evaluated in more detail. In relation to this, the staff is concerned that the ER may not provide a sufficient basis to conclude that the alternative sites are among the best available in the region of interest. In addition, AmerenUE performed a generic analysis of greenfield sites and determined that none would be environmentally preferable to the proposed site. The staff expects the ER to provide additional information to support this generic analysis. The applicant indicated that it used the guidance in Section 9.3 of the staff's Environmental Standard Review Plan (ESRP, NUREG-1555) and the Electric Power Research Institute's siting guide in the search for alternative sites.

In its ER the applicant indicated that it compared three alternative sites to the proposed Callaway Nuclear Plant site. However, the staff noted potentially significant concerns with all of the sites. Two of the sites lack adequate land for a new plant, and would require the purchase of additional land and relocation of local landowners and roads. One of the sites is in the floodplain of the Missouri River. One of the sites lacks sufficient cooling water in the area and the ER doesn't make clear the source from which additional water would be drawn. Another site would require a piping run of more than 12 miles from the cooling water source. Two of the sites would require much longer runs of new transmission lines than the proposed site. The applicant didn't perform geological investigations at any of the alternative sites, and there was some question about the suitability of one of the sites in this regard. The staff expects the ER to provide information to address the issues that are unclear, and to make a case that these are among the best sites available in the region of interest.

#### Alternatives (Other Than Site Selection)

The staff reviewed Chapter 9 of the draft ER, covering the no-action alternative, energy alternatives, site selection, and system and design alternatives. The results for the site selection process are discussed above.

In the energy alternatives section AmerenUE indicated that there was insufficient capacity from interties with other power suppliers to make power purchases a viable option. However, as noted in the discussion of Need for Power below, there is a lack of supporting information regarding this issue in Chapter 8 of the ER. The staff also expects information beyond that provided in the draft ER for some of the alternatives (e.g., solar, coal, and natural gas).

In the system and design alternatives section, the staff expects more information to be provided regarding alternative discharge systems. In addition, the draft ER did not include any description of the proposed water treatment system or any alternatives. The staff expects the ER to provide this information as part of the alternatives analysis.

### Need for Power

The staff reviewed Chapter 8 of the draft ER regarding the need for power. Because of the limited time available, the staff did not review AmerenUE's Integrated Resource Plan (IRP), the document upon which much of the need for power analysis is based. Overall the chapter provides a clear description of the process AmerenUE used in its analysis of the need for power.

It appears that, although AmerenUE submits its IRP to the Missouri Public Service Commission (PSC), the PSC's review of the document at this stage is in the context of whether the IRP complies with State regulations. The PSC does not, at this stage, determine whether the IRP is technically sufficient. Lacking any independent review of the applicant's need for power analyses by another agency, the staff would have to perform such a review as part of the development of the environmental impact statement.

The staff also noted that the need for power analyses provided some basic information about the interties between the AmerenUE system and other systems. But the staff expects that the ER will provide additional information on the capacity of these interties in order to allow the staff to understand the relationship between AmerenUE and surrounding systems.

### Cost-Benefit Analysis

Not reviewed during this visit.

### Cultural Resources

AmerenUE appears to have adequate plans for cultural resource mitigation and protection, including on-site monitoring during installation of the collector wells, and additional cultural resource surveys along the bluff line above the floodplain and at the transmission line terminus. One item of concern is the Area of Potential Effect for visual effects, which is presently only 1000 feet from the site boundary. In addition, the draft ER was unclear on the current status of interactions with the State Historic Preservation Officer (SHPO), what additional surveys are planned, and the total proportion of the site that has been surveyed for cultural resources.

### Meteorology, Radiological Impacts, and Accidents

The staff reviewed portions of the draft ER related to meteorology and air quality. The staff did not review portions related to accidents and radiological impacts. Regarding meteorology, the staff noted that the draft ER did not provide information on the nearest EPA Mandatory Class I areas protected under the regional haze program to prevent air quality visibility impairment. In

addition, emissions estimates were limited to those for standby electrical generators. Construction and operation emission estimates were not provided for criteria and non-criteria pollutants, including estimates for transportation (vehicular tailpipe and fugitive dust), cooling tower particulate matter, etc. The staff expects the missing information to be provided in the ER.

### Hydrology

The staff found that the hydrology portions of the ER were relatively complete for a draft ER, and most of the conclusions appeared to be supported by data or other technical justifications. The staff has some concern about the permitting status in general and about the status of review and approval of the collector well system by the U.S. Army Corps of Engineers (ACOE). There was some uncertainty regarding the location of the collector wells relative to the existing levee. The staff also has some concern regarding the supporting information for the groundwater modeling and the availability of data recently collected concerning groundwater-surface water interactions.

### Aquatic Ecology

The staff found that the quantity and breadth of aquatic sampling that has been conducted were very good. However, several areas of concern were noted, including the potential for groundwater withdrawal (by the collector wells) to impact the Molly Dozier Chute and surrounding wetlands, uncertainty about the location of the collector wells relative to the existing levee, practices to minimize or mitigate for erosion or other impacts during collector well installation, the location of new access roads and how impacts to the Molly Dozier Chute and other waterways may be minimized, and the approximately 2 linear miles of onsite streams that will be filled during construction – it was unclear what the permitting status is for this activity, how it would be mitigated, and where the water would be diverted. It was also unclear as to how the effluent concentrations compare with the baseline of the receiving water body. The staff expects that the ER will provide information to address these concerns.

### Terrestrial Ecology

The staff found that the quantity and breadth of terrestrial resource sampling that has been conducted were very good. Areas of concern include the uncertainty associated with the location of the collector wells – the amount of wetland or riparian disturbance could vary considerably depending on which side of the levee they are placed; there was also some concern regarding the status of interactions with the ACOE concerning collector well construction and permitting. In addition, the ER didn't include any discussion of construction noise effects on wildlife. The staff expects that the ER will provide information to address these concerns.

### Socioeconomics and Environmental Justice

Several areas of concern related to socioeconomics were noted, including the discussion of the road access to the plant, the lack of discussion concerning aesthetics and visibility of the new cooling tower and plume, the level of detail in the discussion of environmental justice data, and the level of quantification in chapters 4 and 5 as the basis for the assigned impact levels.

The staff also met with civic and local government representatives to gather additional information. While local representatives generally appeared to favor the new plant, they did

identify some concerns. The most common concern related to the adequacy of local roads to handle the traffic associated with construction. A similar concern was voiced regarding the transport of large construction loads because there is not a rail line to the site and barges on the Missouri River can only be used at certain times of the year. In addition, at least one jurisdiction is concerned that the staffing in the sheriff's office may not be adequate to cope with the additional workload associated with the construction of the new unit.

#### Land Use and Transmission Lines

The transmission system upgrades that would be required for the Callaway site would involve one new 6.7-mile long, 345kV transmission line that will require widening an existing corridor by 150 feet. The staff expects additional information regarding construction methods and resultant sedimentation and run-off and proposed measures to minimize these impacts in the ER.

#### Summary

Overall, AmerenUE appears to be on track for gathering most or all of the data that will allow it to submit an adequate environmental report by the summer of 2008. However, some concerns were noted in each area, as discussed above.