Callaway2COLPEm Resource

From: Olson, Bruce
Sent: Thursday, April 23, 2009 5:11 PM
To: Last, George V
Cc: Fringer, John; Simmons, Mary Ann; Callaway2COL Resource
Subject: FW: NRC information needs table transmittal.doc
Attachments: NRC information needs table transmittal.doc

George:

Please post up on the EARRTH site and transmit to Callaway Unit 2 SMEs, including NRC as appropriate.

Thanks.....

Bruce Olson, P.E.
Environmental Project Manager
NRC/NRO/DSER/RAP1
301-415-3731

From: Shafer, David E [mailto:DShafer@ameren.com]
Sent: Thursday, April 23, 2009 4:00 PM
To: Bruce Olson
Cc: melissa.dubinsky@rizzoassoc.com; mel.koleber@Rizzoassoc.com; rick.williamson@areva.com; John.Tynan@constellation.com; j80texas@sbcglobal.net; peter.leroy@areva.com
Subject: FW: NRC information needs table transmittal.doc

Bruce,

Attached is the Environmental Audit Information Needs Tabled updated based on our call this afternoon.

Dave Shafer

Phone 573-676-4722
Cell 314-800-8003
Email DShafer@ameren.com

From: Wink, Roger C
Sent: Thursday, April 23, 2009 2:39 PM
To: Shafer, David E
Subject: NRC information needs table transmittal.doc

Updated info needs table with Accident discussion just completed.

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Hearing Identifier: CallawayPlant_Unit2_COL_Public
Email Number: 106

Mail Envelope Properties (21707AE0BEC04F4BB5502E2483D69D6A2713609CB8)

Subject: FW: NRC information needs table transmittal.doc
Sent Date: 4/23/2009 5:10:54 PM
Received Date: 4/23/2009 5:10:58 PM
From: Olson, Bruce

Created By: Bruce.Olson@nrc.gov

Recipients:
"Fringer, John" <John.Fringer@nrc.gov>
Tracking Status: None
"Simmons, Mary Ann" <ma.simmons@pnl.gov>
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Tracking Status: None
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Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

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MESSAGE	2066	4/23/2009 5:10:58 PM
NRC information needs table transmittal.doc	655354	

Options
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Reply Requested: No
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Recipients Received:

Callaway Unit 2 Site Audit
Note: SME = Subject Matter Expert

Info needs #	ER Section	Information Needs	Additional Info Requested	RAI?	Supp?	Read Room	Status
Acc-		**Accidents**					
Acc-1 test	Table 2.7-52	Provide a subject matter expert (SME) who can explain: 1) the definitions of the exclusionary boundary and the low population zone, 2) the relationship of the EAB and LPZ distances for Unit 2 to the EAB and LPZ used for Unit 1, and 3) the distances for calculating the short-term X/Q values in ER Table 2.7-52.	FSAR Figure 2.1-5 and FSAR Table 2.1-1 provide information related to site LPZ and EAB. Footnote to ER Table 2.7-52 explains the 2.5 mile distance is inside 2.6 LPZ. May receive RAI to add information to COLA ER similar to that presented in the FSAR.	Yes			Used 0.75 mile radius from each potential release point to develop the bounding 0.83 mile radius. NRC to revisit the methodology used. Potential RAI pending further NRC review.
Acc-2	Table 2.7-52	Provide an SME who can explain the process used to calculate the 50 percent X/Q values in Table 2.7-52.	Followed Reg Guide 1.145. Place information in (electronic) reading room.			Yes	Subset of Acc-1
Acc-3	2.7 7.1	Provide an SME who can explain the inconsistency in the meteorological data sets used for calculation of the X/Q for long-term dispersion (normal operations) and X/Qs for short-term dispersion (accidents).	OK to use 3 years of data for long term analysis.				3 years of data is adequate. No additional action.
Acc-4	2.7 7.1	Provide access to the AEOLUS, DBA and XDCALC calculation packages for staff review two weeks before site audit, if possible.	Place information in (electronic) reading room. Hourly meteorological data was docketed as discussed in Acc-12.			Yes	No additional action.
Acc-5	7.2.1	Provide an SME who can discuss the rationale for selecting 2005 meteorological data for severe accident analysis.	2005 data had most valid data points, so 2005 was selected as the base case.				No additional action
Acc-6	7.2.1	Provide SMEs who can discuss the selection of site-specific input to the MACCS2 code.	Place information in (electronic) reading room.	Yes		Yes	What is basis of the relocation criteria?
Acc-7	7.2.1.3	Provide an SME who can discuss the rationale for limiting the time window for severe accident analysis to 24 hrs (ER 7.2.1.3) and other input parameters.	Traces were run until plateau reached, even if beyond 24 hours run-time was needed. May need COLA ER update to include this information.				
Acc-8	7.2.1.43	Provide SMEs who can discuss the core damage frequencies listed in the ER including damage from both internally and externally initiated events.					No additional action Events screened out.
Acc-9	7.2.1.43	Provide an SME who can discuss whether the core damage frequencies listed in the ER include damage during plant low-power operation and shutdown conditions as well as during normal operation.	Probably an RAI. Agreement between DCD and ER (e.g., not sure if shutdown conditions are included).	Yes			At power event bounds shutdown events. RAI response reperformed the level 2 PRA. Requesting RAI to determine ER revisions necessary.
Acc-10	7.2	Provide access to the MACCS2 calculation package for staff review, two weeks before site audit, if possible.	AREVA document 51-9072214-000 Process Control Program for Callaway Unit 2. Added to Hard Drive folder.			Yes	Rick Williamson to coordinate info for Reading Room
Acc-11	7.2.2	Provide for review a water ingestion dose estimate for each severe accident release category.	Place information in (electronic) reading room.			Yes	Rick Williamson to coordinate info for Reading Room
Acc-12	2	Provide access to electronic copies of hourly meteorological data for 2003 through 2007.	March 9, 2009 letter (ALNRC-00013) provided hourly met data. (Copy of letter ALNRC-00013 which previously sent hourly meteorological data to NRC). Note that the folder also has data txt files that can be added to reading room. Added to Hard Drive folder		Yes		Tie back to ACC4 – Potentially there are some problems with the data format sent under the ALNRC. Updated data being sent to Ameren from Areva or ABS to retransmit to the NRC.
Acc-13	7.2	Provide for review electronic copies of hourly MACCS2 input and output files and copies of AEOLUS3 and XDCALC output data files.			Yes	Yes	
Acc-14	7.2	Provide access to estimates of the average individual risk of early fatality and the risk of cancer fatality to area population for each release category.				Yes	No additional action
Acc-15	7.2.2.2	Provide an SME who can discuss all of the surface water pathway impacts of severe accidents.	Similar to Calvert Cliffs 173, Used NUREGs 0440 and 1437 for methodology.	Yes			Need to factor in frequency and magnitude. Questions to be sent via RAI.

Acc-16	7.2.2.3	Provide an SME who can discuss all of the groundwater pathway impacts of severe accidents.	Similar to Calvert Cliffs 173, Used NUREGs 0440 and 1437 for methodology.	Yes			Basemat melthrough contribution in minor.
Acc-17	7.3	Provide SMEs who can discuss severe accident mitigation alternatives (SAMAs) including design alternatives and procedural and training alternatives.	Probable RAI to obtain "commitment" from Ameren to review list of DCER SAMA and provide risk insights and schedule for review and possible procedures and training.	Yes			Ameren to review DC ER SAMA – discuss with Jen Butler – need a clear picture of what needs to happen
Acc-18	7.3.1	Provide an SME who can discuss the SAMDA screening process.	NRC may pursue DC RAI.				No additional action
Acc-19	7.3.2	Provide SMEs who can discuss the rationale for assuming that the fire risk is the dominant contributor to risks from external events.	RAI to obtain information related to seismic risk.				No additional action (DC Question)
Acc-20	7.3.2	Provide SMEs who can discuss the evaluation of the minimum implementation cost of alternatives.	No RAI. Used level 3 PRA and processing design changes through AREVA internal processes.				No additional action
Acc-21	7.3	Provide SMEs who can discuss the schedule for and factors to be considered in developing non-hardware alternatives.	Like 17.	Yes			See 17. Wait for formal RAI. NRC requests overview of schedule for developing procedures and training related to SAMA.
Acc-22	7.2	Provide estimates of the total core damage frequency and population risk estimates for Callaway Unit 1 for use in estimating cumulative risks for the site.	Can place in reading room. Contains Summary Report on the Fourth Update of the Callaway Level 1 PRA Added to Hard Drive folder	Yes			CDF and population risk data from Unit 1 if available.
Acc-23	Section 7.1	Provide an SME who can discuss the apparent departures of design basis accident source term assumptions in Section 7.1 of the ER from the assumptions made in the design control document for corresponding accidents. Specifically, the SME should be prepared to discuss steam system piping failures, locked rotor accidents, and rod ejection accidents. Assumptions for other design basis accidents may also be discussed.	Make consistent with FSAR Chapter 15 via RAI.	Yes			2 accidents in the ER not discussed in the DCD. Same issue raised for RCOLA. Areva aware of issue.
Alt-		**Alternatives**					
Alt-1	9.2.3	Provide an SME to discuss the costs of the proposed project and energy alternatives such as: • The fixed charge rate for the utility or consortium of utilities • Fuel cost estimates at time of application for the proposed project and for other alternatives • The operation and maintenance cost estimates (fixed component and variable component) at time of application for the proposed project and each alternative • The escalation rates from date of application through facility lifetime (30-year life) for the components of operation and maintenance and fuel for the proposed project and each alternative • The discount rate for the proposed project and each alternative.	Notes taken indicate the NRC don't need a response. None of the Alternatives were environmentally "equal" to Callaway 2.				No additional action
Alt-2	9.3	Provide an SME to discuss the viability of the Alternative sites for Callaway Unit 2. Specifically, clarify issues such as: • Constructability within the floodplain • Acquisition of private residential, industrial and/or commercial land • Removal of prime and unique farmland.	This item led to the discussion of withdrawing the Chamois site. We also clarified that we did not discuss acquisition of the land at the alternate sites.	Yes	Yes		Chamois will be kept as an alternative site considered

Alt-3	9.2	Provide an SME to discuss the viability of Energy Alternatives. Specifically, clarify issues such as: • Costs and impacts of natural gas line routing and capacity at the intertie location • Costs and impacts of coal rail line routing capacity at the intertie location.	We agreed to provide the distance in miles to the nearest rail head and natural gas pipeline capable of supplying fuel for this large facility.	Yes	Yes		Pre-organize the information, Submit after RAI received.
Alt-4	9.4.1	Provide an SME to discuss the viability of alternatives to the proposed heat dissipation system. For each viable alternative, address relevant information such as: • Land-use requirements • Water-use requirements • Operating and maintenance experience for similar units • Capital, maintenance, and operating costs • Effect on generating efficiency • Predicted thermal and physical effects (e.g., thermal plume and scouring) • Predicted atmospheric effects (e.g., fogging, icing, and drift) • Predicted operating noise levels • Predicted aesthetic effect (e.g., visual plumes) • Predicted recreational benefits.			Yes		
AQ-		**Aquatic Ecology**					
AQ-1	2.4.2.2.3	Provide access to all cited references (such as MDC 1999).	RAI to provide unpublished references (NRC developing a specific list).		Yes	Yes	Closed also Addressing in G-3, will also docket formally.
AQ-2	Tables 2.4-7 and 2.4-8	Identify which data are from the stream stations and which are from the Missouri River stations and provide an SME and supporting documentation to clarify Tables 2.4-7 and 2.4-8.	RAI to separate table information on stream vs. river stations (2.4-7 and 2.4-8) after MACTEC provides an update (Sam McCord).	Yes			Formulate Response – shelf until RAI received.
AQ-3	2.4.2.2.3.3	Provide an SME and supporting documentation to address the text and Table 2.4-7 regarding Channel Catfish.	RAI to fix text in ER regarding fish counts (see individual Information Needs Form response).	Yes			Formulate Response – shelf until RAI received.
AQ-4	Figure 4.3-	Provide an SME and supporting maps and documentation to clarify the actual location of collector wells (ER Figure 4.3-3).	RAI to fix ER Figure 4.3-3 regarding Collector Well locations (see individual Information Needs Form response)	Yes			Formulate Response – shelf until RAI received.
AQ-5	5.3.2.2	Provide an SME and supporting data and information to explain the statement that “an absence of harm” has been observed for aquatic species associated with the Callaway Unit 1 cooling system discharges into the Missouri River (Section 5.3.2.2).	Provide Whole Effluent Toxicity (WET) reports for 2004-2008 (currently stored on LAN in Aquatic Ecology response folder). Added to Hard Drive folder		Yes		
AQ-6	5.5.1.2, p. 5-86	The ER states that cooling water discharge characteristics for the planned Unit 2 (and expected impact to receiving water) is expected to be similar to those associated with the existing Unit 1. Provide an SME who can explain current NPDES-required toxicity testing and supporting documentation. If available, provide for review the results of whole-effluent testing required and conducted for Unit 1 under the existing NPDES permit for the past five years.	Provide same information as that listed for AQ-5. NPDES downloaded to hard drive folder.		Yes		

AQ-7	6.0	Provide a SME who can discuss the measurement and monitoring programs that have been conducted for Unit 1. Specific areas of interest include the programs that evaluated aquatic resources in the streams and Missouri River near the existing intake and outfall structures and summaries of thermal and chemical monitoring related to blowdown discharge. Provide access to annual monitoring reports or reports required by NPDES for the last five years, if available. (Environmental Measurements and Monitoring)	Provide quarterly Discharge Monitoring Reports (DMR) for 2004-2008 (currently stored on LAN in Aquatic Ecology response folder). Added to Hard Drive folder		Yes		
AQ-8	4.3.2	Provide access to any mitigation plan for the site and an SME to discuss the plan.	RAI to provide conceptual wetlands mitigation plan (same as TE-8).	Yes			Draft Response – shelf until RAI received. Wait for discussions with COE.
AQ-9	4.3.2	Provide an SME and supporting information to clarify the disposal of dredged materials at the site.	RAI to clarify dredging plan and provide more information to emphasize that the offload facility is fairly new and required no dredging for steam generator offloading in 2005. Need to be clear that a major dredging operation is not necessary as would be required to restore an old facility and provide some estimates of what might be dredged and where it would go.	Yes			Draft Response – shelf until RAI received.
BC-		**Benefit - Cost**					
BC-1	10.4	Provide an SME to discuss the projected costs and cost components/factors for the construction and operation of the project and the sources upon which these projections are based. Be prepared to explain how and why these costs compare to other proposed NPPs and what has been done to provide bounding estimates of these costs and whether they are expressed in current or constant dollars.	Closed based on discussions held during the audit.				No additional action
BC-2	10.4	Provide an SME to discuss projected current-dollar estimates of the annual tax benefits expected to be paid because of constructing and operating the new operating unit over the lifetime of the new plant. The discussion should include historic and expected property taxes paid to Callaway County (and other tax recipient counties), expected annual sales taxes paid to the State of Missouri, and any expected Corpsorate taxes paid to jurisdictions affected by the plant.	Information provided included the following: • Boone, Callaway, Cole Customer Collected Taxes 2008 • Part 1 Sales Tax • Boone, Callaway Cole Property Tax Details • Callaway State Income Tax • Construction Period Local Assessed Property Tax Summary			Yes	No additional action
BC-3	10.4	Provide an SME to explain and discuss how the Federal incentives provided by the Energy Policy Act of 2005 are expected to specifically mitigate projected construction and operations costs over the life of the proposed facility. The expert should quantify the anticipated amount of Federal incentives likely to apply to the proposed action from the following: • Production tax credit for the first advanced reactors brought on line in the United States • Federal risk insurance benefits expected as part of the Nuclear Power 2010 Partnership. The expert should also describe the expected impact of these incentives in terms of their role in making the project economically viable, and the impact on the proposed action in case Callaway Unit 2 does not qualify for some or all of the incentives.	Same as BC-1				No additional action

BC-4	10.4	Provide an SME to discuss the important conclusions to be drawn from the summary in Table 10.4.1.	NRC indicated we did not need the "alternate" columns in Table 10.4-1 since none of the alternates were environmentally equal to Callaway 2. Need to determine what to do with the table. Same as BC-1				No additional action
BC-5	10.4.1	Provide an SME to discuss the benefits of the project that might be non-quantifiable or non-monetary, and to discuss whether and how the forecasted benefits from electricity consumption have been independently verified.	Same as BC-1	Yes			Begin formulating response.
CR-		**Cultural Resources**					
CR-1	2.5.3 4.1.3	Provide an SME and supporting data/information to: • Show that archaeology and historic and resulting reports have been completed and finalized • Address the survey status of the collector wells system, access road, bridge, water supply pipeline, and transmission lines areas. Provide access to all final reports for review.	Submit the following report to the NRC for inclusion on the docket: Phase I Archaeological Survey Assess Road and Pipeline Corridor; Callaway County, MO; July 25, 2008 Mactec Project 3250-07-5219, Task 06.11 Burns & McDonald letter report on Collector Wells Test Well Observation dated April 7, 2008 Mactec Blowdown Pipeline Management Summary Report, dated August 31, 2007 Cultural Resources Discovery Plan for Archaeology Monitoring of Soil Boring; Callaway Nuclear Plant COLA; Callaway County, MO; May 2007 Project 06-3624 Letter Report of Cultural Resources Monitoring; Installation of Test Wells; Callaway County, MO; September 4, 2007 Mactec Project 3250-07-5219, Task 06.21 Provide information on consultations with SHPO and expected time frame for Cultural Resources study for the following areas: Transmission line corridor and un-surveyed portion of Collector Wells Access Road and water pipeline survey report completed by August 31, 2009 Transmission tower location survey and potential Settling Pond affects on site 256 will be avoided or mitigated per the Callaway Plant Cultural Resource Management Plan.	Yes	Yes		
CR-2	2.5.3 4.1.3	Provide an SME to discuss pertinent survey reports with regard to current SHPO survey standards.	Submit a revised Cultural Resource Management Plan with SHPO concurrence that including: (Example Contact MO Nat. Guard) Changes in Cultural Resources regulations and standards since 1984 Include discussions on state law 194 and 214 Address avoidance, mitigation, and protection of identified sites during land altering activities around the sites Look at possibility of site mapping of low and high probability sites in regards to CR (Contact MDC) Discussion on Native American Tribes interface with CR management Traditional Cultural Properties definition Provide copy of current Callaway Plant Cultural Resource Management Plan and procedure APA-ZZ-00140. Both added to Hard Drive folder	Yes		Yes	Working on CRMP revision

CR-3	2.5.3 4.1.3	Provide copies of all relevant correspondence between applicant and SHPO, and/or tribes including SHPO comments on definitions of area of potential effects, and all related archaeological and architectural surveys and reports. Provide an SME to discuss related archaeological and architectural surveys and reports.	Provide list of Native American Tribes and discuss the developed for this list. The list was provided to Ameren by SHPO. Provide copies of written correspondence with Native American Tribes. (NP 09-003 thru NP 09-010) Provide a summary of the process and results including summary of phone conversations and Ameren responses to Tribe letters. Provide copies of written correspondence with SHPO on this issue. Provide summary of phone conversations and meeting held with SHPO on this issue. Provide APE site map (7.5X7.5 Topo) with cultural site and the area of disturbance identified. This map should include the area of disturbance for collector wells and transmission lines. Provide the same map above without the cultural resource sites. Provide the ARCVIEW map and shape file for the above drawings.		Yes	Yes	Compiling info that we don't have in reading room yet..
CR-4	2.5.3 4.1.3	Provide an SME who can describe any archaeological sites that have been recommended for Phase II or Phase III investigations and if any Traditional Cultural Properties have been identified and if so provide avoidance or mitigation plans (MOAs or MOUs).	There are two sites (256 & 359) that have been identified in the construction impact area that would require addition Phase II study if impacted. The CR management plan will address in general terms the process for avoidance, mitigation, and protect of identified CR sites. Traditional Cultural Properties (TCP) was discussed. The burial mounds could be potential TCP's site. Ameren needs to provide response stating that there are no TCP's within the construction impact areas and no Native American Tribes have expressed concerns over the possibility of TCP's to date.	Yes			Part 1 Two sites – will be addressed with CR-1 is completed. Part 2 - No TCPs
CR-5	2.5.3	Provide access to all consultation letters with Native American Tribes and Interested Parties.	Native American Tribes was removed from this question since it is addressed in CR-3. Provide correspondence on any additional consultations performed in reviewing cultural resources. The Callaway County Historical Society was consulted; need to provide a summary of the meeting Provide information on any historical or archeology concerns expressed during the public consultations. If no Public concerns were expressed, make a statement to this effect.	Yes			Work to begin
CR-6	2.5.3	Provide an SME and provide supporting information that describes and lists all Tribes that were consulted and how each was selected.	Included in CR-3				No additional action
CR-7	4.1.3 2.5.3	Provide an SME to describe the discovery process for the possible Steamboat wreck sites and access to any references and discussion of the possibility of steamboat wreck sites in the project area for review.	The possible location of the ship wrecks was determined using historical Army Corps of Engineer maps. We consulted with SHPO and received their concurrence with the plans used for soil borings and test well installation within the area of ship wrecks. For the area around Molly Dozier chute that still need survey we need to discuss the use of GPR for identifying potential ship wrecks		Yes		Will be covered in a separate Supplement.

CR-8	4.1.3 5.1.3	Provide an SME and provide supporting information regarding the plan for inadvertent discoveries (human remains and all other cultural sites).	The text in the existing management plan will be updated that discuss inadvertent discovery of cultural resources.				CR-1
CR-9	4.1.3,5.1.3	Provide an SME to describe how potential impacts resulting from preconstruction, construction and operations on cultural and historic resources were analyzed, as well as if indirect effects were considered to cultural resources located outside the project's footprint including TCPs and above ground structures.	The existing response in the binder is acceptable for this issue. Add additional information on transmission line maintenance and associated impact. In this we need to discuss the use of Best Management Practices including avoidance, prevent rutting in corridor, walking corridor and using chemicals for controlling woody vegetation. Add statement that operational impact will be controlled per the Callaway Plant Cultural Resource Management Plan	Yes			
H-		**Hydrology**					
H-0	2.3, 4.2, 5.2, 5.3	Have available for review all references used to support statements made in the hydrology sections of the ER including calculation packages, model input files and modeling result summaries. Include relevant information on groundwater modeling used to assess performance of the water intake system and input files for CORMIX.	AmerenUE will provide the hydrology-related references cited in the ER.				Closed - Addressed in G-3
H-1	2.3	Provide an SME who can address the temperature variation within the Missouri River (such as the average-maximum and average-minimum temperature of this water body).	Missouri River data can be found in http://waterdata.usgs.gov/mo/nwis Website address provided in Hard Drive folder AmerenUE will supply raw data (and data summary if it exists) for historical intake temperatures at Callaway Unit 1				No raw data is available. – No additional action is possible.
H-2	2.3	Provide an SME who can address sediment transport in surface water bodies and wetlands (such as quantities, locations where rates were measured, bed and suspended load fractions and gradation).	Pre-Callaway erosion rates may be obtained from NRCS reports (publicly available). AmerenUE referred NRC to MoDNR Water Pollution Control Branch for any off-site observations of erosion from Callaway site. AmerenUE will provide NPDES records (total suspended solids).		Yes		NRC to Contact DNR on Pollution Control NPDES reports will be provided.
H-3	2.3, 4.2, 4.3	Provide an SME who can address the design basis flood (including its relationship to 100-year value) and the impacts of those floods on alluvial collector wells and plant operation.	Closed. Largest flood in recent times was in 1993; that flood was below the 200-year flood level (539 ft msl) at intake structure. See Figure 3.4-4. Concluded that this question was not an environmental question.				Closed – No additional action
H-4	2.3	Provide an SME who can address the discharge area bathymetry in the channel (such as its seasonal characteristics, 3D distribution, and the discharge velocity and temperature differential characteristics).	See response to H-24a				Closed to H-24a
H-5	2.3	Provide an SME who can address quantification of hydrologic budget data (such as monthly information to supplement annual information).	Groundwater model is steady state and addresses seasonal changes through sensitivity studies; see response to H-24b and H-24c.				Closed to H-24b and H-24c
H-6	2.3, 3.3	Provide an SME who can address surface water usages (such that the rate of use by the plant under various operational conditions is defined).	Necessary information is provided in Table 3.3-1 and Figure 3.3-1.				Closed – No additional action
H-7	2.3, 3.3	Provide an SME who can address plant water use (including monthly data and during period of low water availability).	Necessary information is provided in FSAR 2.4.11, 2.4.12, and 9.2. Also, see response to H-10.				Closed – to H-10

H-8	2.3, 5.2, 6.3	Provide an SME who can address surface water chemical analysis as reported in the ER (including mercury baseline measurements).	Table 2.3-35 shows that dissolved mercury was measured in the surface water testing program. Mercury was not detected at or above the detection limit of 0.2 ug/L. AmerenUE will provide lab reports containing surface water chemical analyses with detection limits identified.		Yes		
H-9	2.3, 5.2, 6.3	Provide an SME who can address plant water discharges to surface water bodies including the magnitude and nature of the pollutant discharge in space and time.	Necessary information is provided in Figure 3.3-1 and Section 5.2 and 5.3.				Closed – No additional action
H-10	3.4, 5.3	Provide an SME who can address heat dissipation systems (including system performance due to variations in hydrological variations).	This is a closed-cycle system. System performance due to hydrologic variations is discussed in ER Section 2.3.1.2.3.4.2 and Burns and McDonnell (June 2008; Phase II Hydrogeologic Investigation…Siting Study). Provided in Hard Drive Folder AmerenUE will provide Burns and McDonnell (2007; Closed-Cycle Cooling…for Future Units) Provided in Hard Drive Folder			Yes	
H-11	3.3, 3.6,	Provide an SME who can address the nonradioactive effluent treatment facilities (with focus on the materials within the intake and discharge flow).	Necessary information is provided in ER Sections 5.2.3.1, 6.6.2, and 6.6.3 regarding monitoring of discharge water.				Closed – No additional action
H-12	4.2	Provide an SME who can address Construction Phase water quality (and the baseline WQ data being used and the surface and groundwater quality related to interaction with exposed substrate material).	MoDNR Drinking Water Branch Water System Details Water System No. M03182219; this refers to analyses of water collected from on-site well No. 3. AmerenUE intends to reopen wells Nos. 1 and 2 to provide construction water as described in ER Section 2.3.2. AmerenUE will submit additional details about sources and quality of water used in construction. Thermal Discharge Modeling Documents provided in Hard Drive Folder			Yes	Publicly available information
H-13	5.2	Provide an SME who can address groundwater levels expected during operation (relative to plant grade) and the factors that control groundwater levels.	Closed. Concluded that this question was not an environmental question.				Closed – No additional action
H-14	5.2	Provide an SME who can address groundwater withdrawals during operation and the factors that can affect whether the rate of withdrawal is high, average, or low.	See response to H-10. Cooling Tower Blowdown Relocation document provided in Hard Drive Folder.				Closed – No additional action
H-15	5.2	Provide an SME who can address possible simultaneous occurrence of low river discharge and low groundwater levels during operation (such that analysis of interactions might be considered).	See response to H-10. B&Mc Closed-Cycle Cooling & Makeup Water Supply Options for Future Units document provided in Hard Drive Folder.				Closed – No additional action
H-16	5.2	Provide an SME who can address area groundwater withdrawals by other users occurring during operation (with consideration of monthly withdrawals, in order to identify periods during which groundwater use by other users might interfere with the plant).	Necessary information is provided in ER Section 2.3.1.2.3.4.2 and Figures 2.3-57, 2.3-58, and 2.3-30, and Table 2.3-30 to show that there are no groundwater users in the contributing recharge area of the collector wells.				Closed – No additional action
H-17	5.2	Provide an SME who can address the impact of Missouri River alluvium groundwater collector wells during operation (and their relationship to wetlands north of Bingell Island).	Necessary information is provided in ER Figures 2.3-41, 2.3-42, 2.3-43, 2.3-57, and 4.3-6, and Tables 2.3-14 and 2.3-15. AmerenUE will provide drawing 8600-X-89931 containing surface topography in the floodplain. Added to Hard Drive folder			Yes	

H-18	5.3	Provide an SME who can address numerical models for water discharge from outfall into receiving surface (including theory, assumptions, basis for parameter values and passage times).	See response to H-24a.				Closed – No additional action
H-19	6.1	Provide an SME who can address thermal monitoring of discharge during phases of pre-application, pre-operational, and operation (such that bathymetry can be shown relative to sample locations at all thermal, hydrological, or aquatic biological monitoring stations).	AmerenUE will supply NPDES data for discharge from Callaway Unit 1, along with data collection locations.			Yes	
H-20	6.3	Provide an SME who can address hydrological monitoring programs and its attendant sediment transport expectation during phases of pre-application, pre-operational, and operation (such that expected transported sediment can be quantified).	See response to H-19.				Closed – No additional action
H-21	6.6	Provide an SME who can address chemical monitoring programs during phases of pre-application, pre-operation, and operation (such that details of the analytical procedure and its quality assurance program can be documented).	AmerenUE will supply QA Plan and analytical procedures used for site characterization (Rizzo 2007. "QA Project Plan for Baseline Study: Surface Water and Groundwater Quality, Callaway Unit 2 Environmental Report Section 2.3.3, Revision 1." August 2007)			Yes	
H-22	5.2, 5.3	Provide an SME who can discuss Burns & McDonnell (2008a). Modeling the Thermal Component of the Wastewater Discharge Plume from Units 1 and 2 of the Callaway Nuclear Power Plant, February 2008.	See response to H-24(a).				Closed – No additional action
H-23	2.3, 5.2, 5.3	Provide an SME who can discuss Burns & McDonnell (2008). Phase II Hydrogeologic Investigation Report, Collector Well Siting Study, June 2008.	AmerenUE will provide a paper copy and an electronic copy of Burns & McDonnell (2008). "Phase II Hydrogeologic Investigation Report, Collector Well Siting Study," June 2008.			Yes	
H-24	2.3, 5.2., 5.3	Provide SMEs who can discuss and provide all input assumptions and data for each of the models used in a) thermal plume analysis, b) groundwater modeling, c) water budget, and d) surface water runoff.	(a) AmerenUE will provide a paper copy and an electronic copy of Burns & McDonnell "Modeling the Thermal Component of the Wastewater Discharge Plume from Units 1 and 2 of the Callaway Nuclear Power Plant," February 2008. (b) AmerenUE will provide electronic MODFLOW files for (1) calibrated model, (2) sensitivity cases, and (3) collector well study and several supporting documents that are not publicly available (c) AmerenUE will provide the zone budget calc package in the reading room (d) AmerenUE will provide CD of input/output files for HEC modeling, text that describes objectives, method, results, conclusions			Yes	
HP-		**Health Physics - Radiological Health/Waste Systems/Decommissioning**					
HP-1	4.5	Provide an SME to discuss the models, assumptions and input data used to arrive at estimates of doses to construction workers (examples: GIS layer of site and compass sectors; locations of workers on the construction site receiving exposures).	Staff requested the calculation packages for Worker Dose, Biota, XDCALC, LADTAP II and GASPAR II be placed in the reading room.			Yes	
HP-2	Table 5.4-6	Provide an SME to discuss the models, assumptions and input data used to arrive at estimates of doses to the general population (examples: location of milk goat, which was not mentioned in Table 5.4-6).	Same calculation packages as for HP-1			Yes	
HP-3	5.4	Provide an SME to discuss the models, assumptions and input data used to arrive at estimates of doses to biota other than humans (examples: selection of surrogate species, calculation input values for the species and effluent concentrations).	Three Wild Turkey, Northern Bobwhite and Morning Dove doses were omitted from Table 5.4-21. The NRC Staff will likely submit an RAI requesting doses for these three species.		Yes		Starting the work

HP-4	4.5, 5.4	Provide access to the Offsite Dose Calculation Manuals for Unit 1 and for Unit 2 for review.	No additional information requested.				No additional action
HP-5	2.7, 4.5, 5.4	Provide access to electronic copies of input and output files for the following models: XDCALC, LADTAP-II, and GASPAR-II. Also provide an SME to discuss the input and output of the code calculations, and access to the calculation packages used to support dose calculations.	Staff will be requesting input and output files for calculations XDCALC, LADTAP-II and GASPAR-II. This addresses HP-5 and does not need to be a standalone line item. We should submit input/output decks for these calculations in a supplement.			Yes	
HP-6	2.7, 4.5	Provide information on the XDCALC computer code, including the software manual with instructions for input and description of output.	See additional information requirements for HP-1.			Yes	
HP-7	6.0	Provide for review the annual reports of the Callaway Radiological Environmental Monitoring Program. The last five years of environmental monitoring reports at the Callaway site should be included.	No additional information requested.				No additional action
HP-8	5.4	Provide an SME to discuss the models, assumptions and input data used to arrive at estimates of radioactive releases through the liquid, gaseous and solid waste systems.	No additional information requested.				No additional action
HP-9	3.5, 4.5, 5.4	Provide data on transit times for liquid effluent to receptors.	No additional information requested.				No additional action
HP-10	1.3, 3.5	Provide a SME to discuss radioactive waste systems (example: waste minimization plans as specified in ESRP).	RAI will be submitted requesting Unit 1 Mixed Waste Minimization Plan procedure			Yes	
HP (A) 001	2.7; 4.5; 5.4	Request input and output files for calculations XDCALC, LADTAP-II and GASPAR-II.	Staff will be requesting input and output files for calculations XDCALC, LADTAP-II and GASPAR-II. This addresses HP-5 and does not need to be a standalone line item. We should submit input/output decks for these calculations in a supplement.				DUPLICATE
HP (A) 002	5.5.2	Unit 1 mixed waste minimization plan procedure	RAI will be submitted requesting Unit 1 Mixed Waste Minimization Plan procedure				DUPLICATE
HP (A) 003	5.4	3 species omitted from Table 5.4-21 (ER)	RAI will be submitted requesting doses for turkey, Northern Bobwhite and Morning Dove. Might avoid this RAI if we get NRC/PNNL info quickly.				Closed to HP-3
HP (A) 004	3.5; 4.5; 5.4; 2.7	Following calculation packages should be included in the "reading room": HP-1: Worker Dose HP-3: Biota HP-5: XDCALC, LADTAP-II, GASPAR-II HP-6: XDCALC				Yes	
LU-1		**Land Use**					
LU-2	Figure 2.2-7	Provide an SME who can discuss utility corridors near the site (re: Figure 2.2-7).	Information provided. No additional action.				No additional action
LU-3	4.1	Provide an SME who can discuss whether borrow pits will be created and/or expanded.	Information provided. No additional action.				No additional action
LU-4	2.2, 2.5, 4.1, 5.1	Provide an SME who can discuss historical use patterns on the Reform Conservation Area.	Information provided. No additional action.				No additional action
LU-5	4.1	Provide an SME to discuss the disposition of dredge spoils for any dredging to deepen the barge slip.	Information provided. No additional action.				No additional action
LU-6	4.1	Provide an SME to discuss potential for land use change from the development of RV/mobile home parks to house construction workers and the historical experience with land use changes that occurred in response to housing demand for workers associated with Unit 1 (both construction and operation).	No historical information available. NRC indicated that anecdotal information is acceptable if nothing else is available. No additional action assigned to provide anecdotal information.				No additional action

LU-7	4.1, Figure 4.1-2	Provide an SME to discuss land use impacts from any modifications to the water supply/discharge system, including the collector well system (re: Figure 4.1-2 and prime farmland).	Information provided. No additional action.				No additional action
LU-8	4.1, 4.4	Provide an SME who can discuss modifications to the haul road and modifications to access roads and parking areas to accommodate construction traffic to and from the site (for example, on p. 4-67, the ER states that two new site access roads connecting Route 428 and Route 459 will be built).	Information provided. No additional action.				No additional action
Met-		**Meteorology/Air Quality**					
Met-1	2.7, 4.0, 5.0	Provide an SME and supporting data/information to explain the logic for conclusions reached in the ER (e.g., "impacts are small" or "onsite conditions are similar to those at other regional sites"). Details should be addressed, such as criteria for the decision, inputs used and methodologies, analysis of outputs, and statistical methods applied.	RAI Need to add context to describe why conclusion such as "Small" are reached throughout the MET sections. Add context for the climate met data that was presented.	Yes			

Met-2	2.7, 5.4	Provide an SME and supporting data/information to explain why the meteorological analyses are done separately for the two measurement levels on the meteorological tower.	RAI
			Need more discussion of the modeling. Why it was done & what the different models do.
			• Many figures and tables seem just to be "data dumps" Need to address why info is provided.
			• Should describe the primary Models: AEOLUS 3 and XDCALC and discuss what they do and differences to XOQDOQ.
			• other points
			  ○ Possible confusion about whether both models use momentum and buoyancy.
			  ○ Question about rain cap (or lack thereof on EPR) tie that to DCD or a figure as a source.
			• Explanation of the use of hourly data for mixed mode release.
			• Discuss how we came to the conclusion there was no obstruction when there was vertical discharge.
				Yes			

Met-3	2.7, 5.4	Provide an SME and supporting data/information (e.g., input and output files, and assumptions) to support all transport and dispersion model runs.	In general, info need answers are good. But there are details that will need to be docketed so they can be used in the EIS. • Defend phrases such as "A conservative assumption" – need to explain why • Be careful of potential difference between ER and DCD. Pointers to the DCD are ok. • FSAR will have similar RAIs • Watch for CCNPP3 RAIs. Ours will be similar • Combined with Met-13. • Will be asked to discuss the identification of parameters related to model input, e.g. need to reference where information came from and the basis for assumptions.	Yes			
Met-4	2.7.1.1	Provide an SME and supporting data/information (such as detailed topographic maps) to explain the logic behind the statement that "drainage is expected to be minimal."	Satisfied by discussion • It is worthwhile for us to consider a better description in the next rev of ER.				No additional action

Met-5	2.7.1.2	Provide an SME to clarify statements such as “macro-scale diffusion” and “diffusion is worst.”	Satisfied by discussion • It is worthwhile for us to consider improving our ER discussion particularly because we have two primary codes XDCALC and AEOLUS				No additional action
Met-6	2.7.2	Provide an SME and access to specific references (documents, dates, sampler locations, and sampler data and analysis, standard, and sampling results) that can support the statement that the area “is listed as being better than national standards” (ER Section 2.7.2 Regional Air Quality).	Regarding State Standards vs. National Standards. Has Missouri adopted national standards? • Attainment or non-attainment is better than saying “Better than national standards • In 2.7.2.2 check with DNR if there is any impending changes to ozone classification. Status of Missouri adoption of 8-hour ozone standard. • Consider a map of region attainment (see Calvert) • Discuss proximity of Federal Class 1 areas. I.e. identify nearest area and discuss distance. • Check continuity of information presentation between chapters (and FSAR)	Yes			Clarify - Ozone impending changes answer,
Met-7	2.7.4	Provide an SME and supporting data and information to explain: 1) details on the Callaway met tower and instruments (photo, period of record, types of instruments, types of data archived, QA/QC methods, and so on), 2) the use of only three years (2004-2006) of met data, 3) the use of “monthly design wet bulb temperature” (ER Section 2.7.4 Local Meteorology). Also, provide a tour of the meteorological tower and supporting structures.	Want more info on QA of data processing and validation. Address why met tower is not in QA program. • Information presented needs to be in reading room. • More discussion of wet-bulb temp design and how used. • Want to know what happens if data is flagged as questionable by computer. • May need to be discussed in ER 6.4 vs. 2.7.	Yes		Yes	
Met-8	2.7.4.2	Provide an SME and supporting data and information to explain the phrase “heavy rains occur infrequently,” to clarify the discussion of precip wind roses, and to discuss general conclusions that apply across the data (p. 2-496).	Utilization of local NWS and cooperative weather stations to gather representative long-term data for the nearby region & site. This is for info such as min/max temps rainfalls, snowfalls, etc. • This provides a better picture of the applicability of our models to the region over life of facility. • Look at tables that provide “mean” based on 3 –year data. They are not really representative. • Will want definition of heavy rain	Yes			
Met-9	2.7.4.3	Provide an SME and supporting data and information to clearly explain the method of estimating mixing depth and to explain what is meant by “temperature inversion” and how the persistence numbers are calculated (ER Section 2.7.4.3).	Info need response should be docketed. • 2.7.4.3 text needs expansion • Look at possible disconnects between the collected values (used in SACTI) and the Holzworth values used in AEOLUS. • Discuss why Springfield is “representative” • Describe methodology to calculate mixing height • Characterize stability class persistence	Yes			Begin compiling information

Met-10	2.7.4.4	Provide an SME and supporting data and information to explain the data, scientific interpretation, and logic in reaching conclusions regarding the dominant wind direction and similarities between the on-site data and the NWS sites near Callaway (including wind roses and the use of wind speed data to estimate the site roughness length) (ER Section 2.7.4.4 Wind Speed and Direction).	Clarify how this information relates to site. • Improve discussion in 2.7.4.4. It is paragraphs of percentages. Summarize the information better and explain how it affects or supports dispersion analysis. • Add context of why our tower is representative of region. • Discuss why Jeff City windrose is different from the others • Describe why the onsite data is considered to be representative of near and far-field receptors. • Add text to explain the similarities to wind roses data, using specific sectors as opposed to quadrants, or larger areas.	Yes			
Met-11	2.7.4.6	Provide an SME and supporting data and information to discuss the stability method used (determined by the temperature difference between two levels (10 and 60 m) on a tower), the stability persistence for the 10 m separate from 60 m levels, and the conclusion that an inversion persists for a full day. Also, provide access to all hourly met data for this period (ER Section 2.7.4.6 Atmospheric Stability Persistence Summary).	Discuss how tables 2.7-33, 34, 35 and other persistence tables were compiled and what the data represents. Similar to Met-9 • Confusion on stability and stability class persistence (mostly from the Info needs answer.) • Our data is "non-overlapping. Mark Abrams understands what that means	Yes			Start working on Table revisions
Met-12	2.7.5	Provide access to a detailed topographic map and an SME to discuss the possible drainage wind effects at night (ER Section 2.7.5 Maximum Terrain Heights and Topographic Maps).	See Met-4 Satisfied by discussion • Much of this info needs to be put in the reading room • Appendix B missing.			Yes	
Met-13	2.7.6	Provide an SME and supporting data and information to explain: • Estimates of atmospheric dispersion factors • The use of the ABS code XDCALC • What is meant by "mixed mode release" including source locations, elevations, release rates, momentum and buoyancy flux, and nearby building dimensions • The logic behind the statement that "building wake credit was taken" • The logic behind decisions regarding nearest cow, gardens, etc. (all approximately 4 km) • The basis for concluding that the data from an earlier period "agree well" or are "very similar" to those from the 2004-2006 period (using standard statistical tests) • How the 50th percentile dispersion factors were calculated with AERMOD (including the input and output files and model options chosen).	See Met - 3. Include Calculation packages in reading room.			Yes	
Met 14	Tables 2.7-36 thru 37	Provide an SME and access to supporting data and information to explain these tables of wind speed and direction joint frequency distributions for stability relative to estimating inversion strength and stability (Tables 2.7-36 through 37, pages 2-540 through 2-554).	The data between tables 2.7-36 and 37 seems incorrect. Revisit and revise if necessary. Also explain what would introduce differences Explanation needed for table 2.7-43 and 44 needed as well • ABS has looked at 2.7-36 and 37. There is an error to correct.	Yes			

Met-15	5.3.3.1.1	Provide an SME and supporting data and information to discuss: • The version number and the exact citation for SACTI • How SACTI uses the two sets of met input files (from the 10 m and 90 m levels) • The effects that CTs have on cloud formation and precipitation • Low frequency combinations of conditions that might have a major environmental impact • The logic behind why the ESWS CTs are "not considered further in this analysis" • The rationale for concluding that "impacts from elevated plumes would be small" • The possibility of plume interaction (thermodynamics and kinematics) • The detailed outputs of SACTI and the logic behind conclusions of "small" or "no impact" or "insignificant increases" • Conclusions for the ESWS CTs particularly relative to near-field impacts • The high RH relative to ground level fog • The design wet bulb temperature for the cooling towers • The source of inputs in Tables 5.3-4 and 5.3-5. (Heat dissipation to atmosphere from CT plume).	New RAI will be a reduced set of refined questions. • In general answers are ok • Identify distance between Unit 2 CTs and Unit 1 CTs and orientations. Address potential side effects due to super plume or discuss why there are none.	Yes		Yes	Need to work on the figure with the distances.
Met-16	6.4	Provide access to a site plan/map that shows, by sector, the distance between meteorological tower and existing obstructions to airflow (including Callaway Unit 1 buildings, cooling tower, paved or improved surfaces, terrain features, trees, and other vegetation), and planned obstructions to airflow (including Callaway Unit 2 buildings, cooling towers, paved or improved surfaces.	On Distance to obstructions from met tower • Provided map is good and should be added to ER, but need to tabulate distances and enhance discussion well. • Address tree line • Add Secondary Met Tower to a drawing	Yes		Yes	Begin ground work that can be done. Will put Topo map in Reading Room
Met-17	6.4	Provide an SME to discuss routine operation, maintenance, and calibration of the meteorological tower, instrumentation, data acquisition and recording equipment.	Satisfied for now, but need documents to be available in reading room • Need docs in reading room, i.e., SOPs or calibration procedures, Data substitution and validation procedures and criteria, documents to prove missing/substituted data is an insignificant percentage..			Yes	
Met-18	6.4	Provide access to the Standard Operating Procedures, related records and documentation regarding, routine operation, maintenance, and calibration, data processing, validation, reporting and archival, and problem reports and corrective action for the meteorological monitoring program covering the period of record (POR) used in the COLA (i.e., 2004 thru 2007).	Satisfied for now, but need documents to be available in reading room • Need docs in reading room			Yes	
Met-19	6.4	Provide access to a table listing percent data recovery and data counts for each year and the composite POR for individual parameters, the joint recovery of wind speed and wind direction, and the joint recovery of wind speed, and direction, and atmospheric stability class (for each wind measurement level).	Data are what they are looking for but needs to be docketed • discuss 90 meter instrumentation for old tower • Add note on what 90 meter data used for • May have to qualify poor data recovery	Yes			

NEW MET 20			Provide input and output files from XDCALC and AEOLUS. • RAI In process for Calvert now. • Will need to be submitted 2.206 business proprietary • On safety side, will also be asking for ARCON96 input output files and met data		Yes		ACC-4 duplicate
NEW MET 21			Request for the hourly data (just provided) in RG 1.23 format. Will be looking for all 5 years. Will also be looking for 5 year composite JFDs • Mark to check inconsistencies in 2007 data. • We don't need to wait for an RAI to resubmit data. .	Yes	Yes		Duplicate Check for JFDs
NEW MET 22			ER/FSAR needs discussion of the transition from old to new instruments in 2007. • Include dates and compensatory measures during swap out.	Yes			
NEW MET 23			Describe the sigma-theta method of determining stability. Specifically accounting for the low wind effect. • compare process against the traditional method of determining stability using Delta-T • Also describe how frequently this approach was used.	Yes			
NEW MET 24			Need clarification/discussion on how channel checks are performed added to the section 6.4. • Add to section 6.4 • And FSAR 2.3.3	Yes			
NP-		**Need for Power**					
NP-1	8.2.1	Provide an SME to discuss the status of the State's review of the IRP. Specifically, clarify issues such as: • Recent discussions with the PSC about revising the IRP • Expected schedule for IRP approvals • Current PSC issues with the IRP and their resolution.	Discussion was held. We stated the projected date for the next IRP revision was ordered for 6/2010. This also led to the discussion about potential partners for the project and the Noranda filing with the PSC that discussed Meramec retirement. We declined to speculate about what changes, if any, would occur over the next year+.	Yes			
NP-2	8.2.1	Provide an SME to discuss how Callaway Unit 2 is integrated into the NERC/SERC Long-Term Reliability Assessment.					No additional action
NP-3	8.2.1	Provide an SME to discuss customers for the power to be generated; specifically, clarify issues such as: • Identification of expected customers (or firm power sales) for the power to be supplied by the proposed facility and any signed agreements for the purchase of the power • Estimation of forecasted power sales by the applicant in the relevant service area (Note: this information is likely to be business sensitive and/or proprietary information).	We discussed that the projections in Tables 8.4-1 and 8.4-2 (from the IRP) are based on the AmertenUE service territory as the ROI. We also discussed that there are interconnections in place that allow for off-system sales and that those take place routinely. The tables do not include a value for those sales, just a line that shows system generation excess or shortfall.	Yes			

NRHH		Non-Rad Human Health/Noise					
NRHH-1	4.4.1 and 4.7	Provide an SME to discuss public and occupational health, and noise associated with pre-construction and construction activities. Discussion to include examples or controls that would be imposed to mitigate air emissions during construction activities; specific references to air quality and noise limit regulations; distance to nearest accessible area that could be impacted by noise (e.g., closest resident to the fence line); schedule for construction activities (e.g., will construction be 24/7?); and peak noise levels during construction activities.	ER Chapters 2 and 5 addressed air quality and noise regulations, as well as distance to the nearest residence. There are no regulations regarding noise limits in Missouri or in any county surrounding Callaway. Employers can take the following steps to minimize the risks associated with occupational health and noise associated with pre-construction and construction activities. These include the following: 1. Initial and annual audits of procedures 2. Assessment of noise exposures 3. Engineering or administrative control of noise exposures 4. Audiometric evaluation and monitoring of workers' hearing 5. Use of hearing protectors for exposures equal to or greater than 85 dBA, regardless of exposure duration 6. Education and motivation of workers 7. Recordkeeping 8. Program evaluation for effectiveness No follow up actions from audit.				No additional action
NRHH-2	5.3.4.1	If available, provide access to any correspondence with the Missouri Department of Health and Senior Services regarding public health concerns from thermophilic microorganisms (etiological agents) from cooling waters.	There is no such correspondence.				No additional action

NRHH-3	5.3.4.1	Provide an SME to discuss potential thermophilic microorganism impacts from cooling water discharge to the Missouri River. Discussion to include the proximity and types of recreational activities occurring near the cooling water discharge (ER Section 5.3.4.1).	Consideration of the impacts of microorganisms on public health are important for facilities using cooling ponds, lakes, canals, or small rivers, because use of such water bodies may significantly increase the presence and numbers of microorganisms. Thermophilic microorganisms are associated with cooling towers and thermal discharges. The presence and numbers of these organisms can be increased by the addition of heat. Exposure to these microorganisms, or in some cases the endotoxins or exotoxins produced by these organisms, can cause illness or death. The Center for Disease Control (CDC) maintains records of outbreaks of waterborne diseases and reported no cases of Legionella sp. infection in Missouri between 2001 and 2004 (CDC, 2004) (CDC, 2006). The only report of adverse effects on human health of microbial contamination of recreational water in Missouri reported by the CDC in 2006 involved two outbreaks of Cryptosporidium in June and July of that year; however, these outbreaks occurred at a community swimming pool and a water park (CDC, 2006). There is no association between these outbreaks and operations of the Callaway Plant cooling system. Water withdrawn from the Aquifer for CWS and ESWS tower makeup at Callaway Plant Unit 2 will be subjected to biocide treatment to minimize the propagation of microorganisms. As a result, pathogenic thermophilic organisms are not expected to propagate within the Callaway Plant Unit 2 condenser cooling tower system and should not create a public health issue. Biocide treatment of the CWS and ESWS systems will limit the propagation of thermophilic organisms. Potential health impacts to workers from routine maintenance activities associated with the towers will be controlled through the application of industrial hygiene practices including the use of appropriate personal protective equipment. It is concluded that the risk to public health from thermophilic microorganisms will be SMALL and will not warrant mitigation. References CDC, 2004. Surveillance Summaries: Surveillance for Waterborne Disease and Outbreaks Associated with Drinking Water and Water not Intended for Drinking – United States, 2001-2002, Report 53(SS08);23-45, Center for Disease Control, 2004. CDC, 2006. Surveillance Summaries: Surveillance for Waterborne Disease and Outbreaks Associated with Drinking Water and Water not Intended for Drinking – United States, 2003-2004, Report 55(SS12);31-58, Center for Disease Control, 2006. No additional requests at this time.		Yes		Provide additional information on part 2 of this information needs item.

NRHH-4	5.3.4.1	Provide an SME to discuss occupational health in association with operation and maintenance activities of cooling towers and protection of workers from thermophilic microorganisms. Discussion to include examples of personal protective equipment or activities implemented when working in and around the cooling towers (ER Section 5.3.4.1).	Employers can take the following steps to minimize the threat of thermophilic microorganisms. These include the following: 1. Personal Protective Equipment (PPE) - make sure employees servicing any cooling towers or at risk equipment wear proper PPE including at least dust masks or respirators to minimize the chance for the inhalation of droplets. 2. Medical Considerations - consider prioritizing who works on which assignments. Remember, those that smoke and/or have some type of immune system compromise are especially at risk. Those under some type of medical care and even those just getting over a cold or flu should not be in a position to be exposed. 3. Start-up/Shut Down Procedures - make sure that you have a start-up/shut down procedures that parallel American Society of Heating Refrigeration and Air Conditioning Engineers guidelines. These procedures discuss topics such as proper draining, decontamination and maintenance procedures for minimizing risks. Comparable precautions to that specified in the Callaway Plant Unit 1 safe work practices manual for asbestos handling and legionella bacteria are expected to be taken for Unit 2 cooling towers. No further actions at this time				No additional action
NRHH-5	5.6.3	Provide an SME to discuss the following associated with the transmission system: ozone, electrostatic effects (electric shock), and conformance with NESC concerning steady-state currents (ER Section 5.6.3).	Employers can take the following steps to minimize the risks associated with the transmission system: ozone, electrostatic effects and conformance with NESC concerning steady-state currents. These include the following: Comply with 10 CFR 51.53(c)(3)(ii)(H), applicant must provide an assessment of the potential shock hazard if the transmission lines that were constructed for the specific purpose of connecting the plant to the transmission system to meet the recommendations of the NESC for preventing electric shock from induced currents. The current NESC (1997) requires that transmission lines be designed to limit the steady-state current due to electrostatic effects to 5 mA root mean square (rms). The potential for chronic effects from these fields continues to be studied and is not known at this time. No further actions at this time.				No additional action

NRHH-6	10.5	Provide an SME to discuss cumulative nonradiological human health impacts of construction and operation including etiological agents (formerly thermophilic organisms), noise, electrostatic effects (electric shock), and electromagnetic field effects. Discuss other activities existing or planned in the area that should be considered in cumulative impacts (ER Section 10.5).	Cumulative impacts of construction and operation are discussed in a Powerpoint slide presentation attached. Activities in the area that may contribute to cumulative impacts include: 1. Missouri River Mitigation Project - managed by the U.S. Army Corpss of Engineers. The Missouri River Mitigation Project (Project) is designed to mitigate, or compensate, for fish and wildlife habitat losses that resulted from past channelization efforts on the Missouri River. The purpose of this mitigation effort is to acquire and develop aquatic and terrestrial habitat on individual sites found along the project length. The Tate Island Project provides 423 acres of shallow water, bottomland hardwood, and shallow sandbar habitat between mile marker 110-113, approximately 2.5 miles downstream of the Callaway discharge. This is outside the limits of the thermal plume and not considered to be within the zone of potential impact of Callaway construction or operations. 2. The Big Muddy National Wildlife Refuge - managed by the U.S. Fish and Wildlife Service. Established in 1994, the refuge has grown to over 11,000 acres spread out as individual units along the Missouri River between Kansas City and St. Louis. These habitats benefit floodplain-dependent fish and wildlife species. The 1,124 acre St. Aubert Island Unit is located about 2.5 miles upriver of Callaway and does not have any public access except from the Missouri River. Both projects will be positively impacted by the Callaway project as the installation of the collector wells will reduce withdrawal of river water for industrial purposes. Additionally, Columbia Water and Light intends to develop two landfill gas-to-energy plants, in Jefferson City and Columbia. Together they will produce 5.2 MWe of power. They are more than 10 miles from the Callaway Plant and cumulative impacts will be small. No additional requests at this time.				No additional actions
SE-		**Socioeconomics/EJ**					
SE-1	2.5.1	Provide an SME to discuss the “baseline” population forecasting methods and assumptions.	Discussed during audit.	Yes			
SE-2	2.5.2 (p.2-368)	Provide an SME to discuss sources of tax information and budgets (e.g., 2-368).	Expect RAI to request - “Taxes paid (tax revenues) estimated for construction years. -“Property tax allocation” -“Callaway county pass through(sales) tax information	Yes			Wait for RAI
SE-3	2.5.2	Provide an SME who can discuss the distribution of tax payments on Unit 1 in quantitative terms and their impacts on neighboring jurisdictions and service levels.	Info request combined with SE-2	Yes			

SE-4	2.5.2	Provide an SME who can discuss how the service levels in the various jurisdictions compare to national or state standards and to pertinent officials' assessments of adequacy.	Loosely related to the info question…… Section 2.5.2.9.2.2 - Provide Figure (map) indicating location of water districts (primarily interested in Callaway County). Sections 2.5.2.9.3 and 2.5.2.9.4 - Add additional detail regarding ability of LLEAs to absorb construction and operation of Callaway Unit 2 and indicate local police forces capabilities. Replace the word "capabilities" with "capacity at the current time (now)." Provide a "travelogue" of Callaway County (surrounding area) to provide reader a sense of the surrounding area. For example are LLEA, fire departments, school districts county-wide? Who provides the services to uninCorpsorated areas? How frequently are they patrolled? Provide occupancy rates of ROI hospitals.	Yes			Start working
SE-5	4.4, 5.8	Provide an SME who can discuss the residential patterns and commuting routes of workers on Unit 1, both historic construction and current operations workers.	The following traffic related items were raised during the discussions. They were not specifically linked to this item, but generally the auditors requested a "summary table". Table providing numbers of workers (Unit 2 construction and operation) for all years of pre-construction and construction (see schedule in Table 4.4-2, with pre-construction activities start 2011, versus section 1.2.7, with construction start in June 2013). Table indicating different workforce types (construction, operations – Unit 1 and Unit 2, refuel), where commuting from, and resulting expected vehicle counts for 2011 - 2017. Best estimate instead of conservative. Provide copy of traffic study. Provide any calculations that were used as study report input. Use best estimate, not most conservative information. Provide traffic statistics from MoDOT. Need to clarify "work shifts" – i.e., are there two construction shifts (e.g., 7am-3pm and 3pm-11pm) or staggering of construction shifts and operating unit shifts?	Yes			Start working
SE-6	2.2.1, 4.1.1	Provide knowledgeable expert to discuss status of developing County Planning Commissions.	Discussed during audit & appeared to be closed.				No additional action
SE-7	2.5.4	Provide an SME to discuss the source of information about the characteristics and life-style attributes of minority populations in the region of interest (ROI) and nearby communities beyond census data.	Included in other items		Yes		Start working

SE-8	2.7.7, 3.7.3, 4.4.1, 5.3, 5.8	Provide an SME and supporting data and information to describe the results of the noise analysis, in terms of the noise levels at the site boundaries (in addition to the general rules about sound attenuation).	Discussed during meeting. Two related questions are added below – Provide distance from nearest Unit 2 ***construction footprint*** point to nearest resident to determine noise impact. Clarify statements regarding noise from transmission lines. That is, it will be the same as Unit 1 transmission lines (section 3.7.3.1; see also sections 5.1.2, 5.3.3.1.6, 5.6.1.3, p. 5-94 describes current noise levels on Loose Creek line). Add text with actual distance from transmission lines to nearest house (resident) Also mention other high noise sources (E.g. train, coal power plant) Table 2.5-6 indicates 11 residents within 1 mile of site. Section 5.3.4.2 indicates closest residence is 1.2 miles away. Table 5.4-3 indicates closest resident in highest plume exposure pathway is 1.82 miles away. May want to provide map showing location of all residents within ~2 mile radius. Suggested that labels (names) to be placed on the transmission corridor lines.				
SE-9	4.4	Provide an SME to discuss the projected composition of the workforce during the construction phase, the distribution between construction, operations, and security personnel during the construction phase, and the shift schedules of these different groups (and the availability of data from the construction and operation of Unit 1 that might inform the analysis).	Desire to have information broken down more. Start developing table now in anticipation of RAI.		Yes		
SE-10	4.4, 5.8	Provide an SME who can discuss the traffic analysis, including traffic from both workers and materials entering and exiting the site, the numbers of vehicles expected to be on each of the major access routes and their affect on traffic congestion, LOS, and to identify and discuss the impacts of this traffic on affected populations, including the impacts of the workforce onsite during outages.			Yes		
SE-11	4.4	Provide an SME who can discuss the local populations that will be affected by the construction activities, particularly those within 10-15 miles of the site.			Yes		

SE-12	4.4	Provide an SME to discuss the basis for the assumptions and calculations concerning the residential location and characteristics of the construction workforce and the impact of their employment on the local and area economy and employment, including the use of the RIMS II multipliers, assumptions about who would fill the indirect jobs, and consequences for area demographics. The discussion should cover where the workforce during construction is assumed to originate and where its members are assumed to reside, including those expected to be weekly commuters (i.e., residing in the ROI during the work week), including how this relates to the survey information referenced on p. 4-71. It should also include discussing the numbers of different types of workers over the construction period, including those estimated to reside currently in the ROI. If available, provide for review, a graph and tables showing the numbers of these different groups over time and the estimated number of people, families, and school age children estimated to be in the local communities and counties of the EIA due to the project.	No RAI anticipated.				No additional action
SE-13	4.4.2.2 (pp.4-70-71)	Provide an SME to discuss when site-specific workforce estimates are expected to be available (ER p. 4-70-71).	Reviewed information in Tables 4.4-2 through 4.4-5. No RAI anticipated. Advise NRC if better data becomes available.				No additional action
SE-14	4.4.2.5	Provide an SME to discuss the assumptions about the residential location choices of the construction phase workforce including the basis of those assumptions and how they compare with information from the construction of Unit 1. In particular, discuss how many temporary and in-migrating workers would be distributed into the communities in Callaway County. Provide information about the sources of the assumptions/estimates of distribution of workers into the migration categories and of the total wages and wage rates presented in the ER (p. 4-73).	No anticipated RAI				No additional action
SE-15	4.4	Provide an SME to discuss how housing prices and availability, including temporary housing, were affected during the construction of Unit 1, particularly in Callaway County, and how they are likely to be affected by the construction of Unit 2, particularly in the residential neighborhoods and communities closest to the site.	No anticipated RAI				No additional action
SE-16	4.4, 5.8	Provide an SME who can discuss expenditures for plant construction and operation other than wages that would occur in the EIA, and their effect on local employment, income, and tax receipts.	Provided information regarding current and planned local expenditures (which includes 50 mile radius plus Kansas City and St. Louis). Provide citation and back-up information. Can we quantify how much we purchase locally? Useful for the benefits section. Include St. Louis and Kansas City in the “local” discussion along with the 50 mile radius.	Yes			
SE-17	4.4, 5.8	Provide an SME to discuss how the increased demand due to project-related populations and activities, and tax revenues would affect impacts (e.g., schools in Boone County).	No anticipated RAI				No additional action
SE-18	4.6, 5.10	Provide an SME to discuss the analysis of potential pathways by which it was determined that minority and low-income populations would not be affected disproportionately by adverse impacts.		Yes			

SE-19	5.8	Provide an SME to discuss when the estimated 363 operations phase workers for Unit 2 would arrive on site, including whether a majority of them would start work during the construction phase of the project, and how this would affect the assessment of operations-phase impacts.	To be updated with traffic count updates. Review all data in section – add new operations workforce (need to redo these calculations).		Yes		
SE-20	5.8	Provide an SME to discuss the challenges for area communities to adjust to the rapid decline in employment following the construction phase and how this affects the characterization of impacts of the operations phase.	What is impact of loss of construction workers after construction ends? Discuss in Chapter 5.		Yes		
SE-21	4.6, 5.10	Provide an SME to discuss the basis for the conclusions about the magnitude of impacts assigned to the EIA from employment, income, taxes, and housing, with particular attention to consistency between construction and operations phases.	Similar to SE-20.		Yes		
ST-		**Site and Technical Oversight**					
ST-1	1.3	Provide an SME to clarify the status of environmentally related authorizations required by Federal, State, regional, local, and affected Native American tribal agencies.	RAI to update permit status table.	Yes			
ST-2	2.2, 3.1	Make available aerial photographs and perspective drawings of the site (such as high-oblique aerial views that show the facility and the site boundary).	Obliques provided. PNNL selected photos needed. Added to Hard Drive folder (pictures 2851, 2855, 2856, 2859).			Yes	
ST-3	4.1	Provide an SME and topographic maps to describe the construction zone and land to be cleared (including transmission line and transportation corridors).	Closed to G-7.				No additional action
ST-4	4.6	Provide SMEs to discuss the measures and control/operational procedures to limit potential impacts (such as noise, erosion, dust, traffic, waste, surface-water, and groundwater).	Information on permitting process wrt impact control measures presented. Expect RAI to formally request information presented (i.e. MODNR BMP's, Hearing Conservation Program, etc.)				No additional action
ST-5	5.10	Provide an SME to discuss possible buildup of radionuclides in the environment, such as in sediments.	See form				No additional action
T-		**Transportation**	**Meeting Feedback**				
T-1	5.11.2	Provide an SME and supporting data and information to support the decay heat generation rate of 5.450 kW. (Section 5.11.2)	The question is simply if on page 5-149 of ER revision 0 if the "5,450 kw" should really be "5.540 kw". Was this properly converted? We discussed this with the reviewer and told him we'd check and correct the ER if the conversion was in error.		Yes		Typo Corrections
T-2	3.8, 5.11, 7.4	Provide access to the Transportation Calculation Package for the calculations in ER Sections 3.8, 5.11, and 7.4 (including the basis for the number of shipments, the TRAGIS output files, RADTRAN 5.6 input and output files, spreadsheets used to perform the nonradiological transportation analyses, and reference citations for the data used in RADTRAN 5.6).	Site specific distances in Table 7.4-6,7 and 11 do not exactly match TRAGIS Table 5.11-3 lists the surburban density in people/square km as 326.5. The Radtrain inputs used 326. Which is correct? Provide source document for data listed in Table 7.4-3. Note superscript is struck thru in one of the column headers.	Yes			
T-3	5.11	Provide an SME and supporting data and information to discuss the transportation calculations and provide references for the "RADTRAN Input from NRC Models" contained in Table 5.11-3, and "Additional RADTRAN Input Parameters" in Table 5.11-8.	The information provided to the reviewer in the transportation binder is what the reviewer requested. The review initiated a couple of additional information needs items during the week but this item is considered closed.				Closed No additional action

T-4	7.4	Provide an SME and supporting data and information to discuss the transportation calculations in Section 7.4 and possible under-reporting due to the use of the Motor Carrier Management Information System.	The following info was discussed regarding the factors to use for this question. • Levy ER Revision 0, pg. 7-53, citation to Table 7.4.3. • Yucca Mountain SEIS • UMTRI 2003-6 Report	Yes			
T-5	7.4	Provide an SME to explain how release fractions are used in the transportation accident analyses and provide the assumptions to support the selection of these release fractions (for example, describe the release fraction for Category 8 accidents in Table 7.4-5 compared to the original source for this data (NUREG/CR-6672, Table 7.31, p. 7-73) (ER Section 7.4).	The 0.02 value used in NUREG 1815 may be an error in the NUREG and 0.002 should be used. Refer to NUREG 66972 which was the source for NUREG 1815. Release fractions used that originate from NUREG 6672 are for a spent fuel shipped in type B containers. Radwaste shipments can be shipped in lesser robust shipping containers (such as type A).	Yes			
T-6	10.2.2	Provide an SME and supporting data and information to discuss assumptions for the pre-construction and construction material estimates (ER Section 10.2.2).	Confirm volumes in ER Section 10.2.2 for construction material volumes are applicable for the US EPR design.				No additional action
T-7	5.11, 7.4	Provide an SME and supporting data and information to clarify how the numbers of shipments of unirradiated fuel, irradiated fuel, and radioactive waste were estimated.	The information provided to the reviewer in the transportation binder is what the reviewer requested. The review initiated a couple of additional information needs items during the week but this item is considered closed.				No additional action
T-8	5.7.8, 5.11, 7.4	Provide an SME and supporting data and information to clarify how the numbers of shipments and impacts were normalized to the 1100 MW (e) reactor (ER Sections 5.7.8, 5.11 and 7.4).	What is the assumed capacity factor for the EPR Calc 126-9042922? Inconsistent values used. What is the reference for data in Table 7.4-10? What is the reference for number of people/vehicle used in Table 5.11-8 What is reference for the crew distances used in Table 5.11-8?	Yes			
T-9	4.4, 5.8	Provide an SME and supporting data to clarify how to partition the number of construction workers into the pre-construction and construction periods.	Some additional information requests were initiated from this review.				No additional action
New	4.2.1.2	Estimate volume of backfill needed for construction?		Yes			
New	4.2.1.2	How will sanitary waste generated during construction & outages be shipped offsite? What volume is shipped & number of shipments? Where would it be shipped?	Using estimates from Unit 1 should be okay. stating something to the effect of "to a landfill within 50 miles" would be acceptable.	Yes			
New	3.6.3.5	Where would non rad, non hazardous waste be shipped/disposed and what are the expected volumes (clean industrial trash for example).	Stating "a landfill within 50 miles" or something to that effect would be acceptable. Also, could use Unit 1 information to develop these estimates.	Yes			
New	10.2.2	Table 4.2-1 footnote ‘c’ for concrete volumes appear to be about half of the volumes listed in the text associated with 10.2.2. Confirm numbers are correct.		Yes			
New	10	Provide copy or cited reference to the MoDOT transportation study discussed during the Cumulative Impacts presentation on 3/25/09. Also provide copy of the associated Rizzo calcs.				Yes	
TE-		**Terrestrial Ecology**					

TE-1	2.4.1.1	Provide an SME to describe USGS 2005 Land Use and Land Cover (LULC) mapping for the ecological investigation area and the 2006 National Agricultural Imagery Program (NAIP) aerial photo interpretation of existing land cover with field reconnaissance on the site, especially in habitat areas that may be utilized by important species. Also, provide sample items of LULC and NAIP materials used in mapping terrestrial habitats.	RAI to provide response given by AUE on individual Information Needs Form.	Yes			
TE-2	2.4.1.2.1.3	Provide an SME and supporting references to support the statement that historically, Indiana bats have been observed in the vicinity. Provide access to Clawson (2003) and MDC (2007d). Provide access to any correspondence with federal or state agencies, regarding threatened or endangered species or critical habitats.	RAI to provide response given by AUE on individual Information Needs Form.	Yes			
TE-3	2.4	References: Make available all cited references.	RAI for unpublished references (NRC developing a specific list).			Yes	
TE-4	2.4.1.1	Provide an SME to discuss the methods used to map and quantify habitat distribution onsite, methods and locations of wildlife and plant surveys, and methods used and expertise of persons identifying species sighted, heard, or trapped, especially threatened and endangered (T&E) species.	RAI to provide a copy of the MACTEC Standard Operating Procedure (SOP) used for Callaway Unit 2 field surveys.		Yes		
TE-5	2.4.1.2.4	Provide an SME and supporting data and information to discuss the Federally-listed running buffalo clover relative to suitable habitat in cover types known to be present at Callaway (e.g., forest-grassland interfaces and stream corridors). Provide access to a description of any survey efforts for state-listed plant species.	Resolved pending conference call with USFWS and MDC to confirm no running buffalo clover.				No additional action
TE-6	2.4.1.4	Provide an SME and supporting data and information/references to support the statement “The only disease vector known to occur on the AmerenUE property is the deer tick (*Ixodes scapularis*) which has been known to transmit Lyme disease to humans.”	RAI to provide response given by AUE on individual Information Needs Form.		Yes		
TE-7	2.4.1.4	Provide an SME and supporting data and information/references to support the statement “No pest species are known to be widespread or cause serious problems at the AmerenUE property and surrounding ecological investigation area.”	RAI to provide a copy of the Reform Conservation Area 10-year management plan attached to the MDC Agreement.		Yes		
TE-8	2.4.2.1.1.4	Provide an SME and supporting data and information to discuss the jurisdictional status of wetlands and the status of whether the Army Corpss or other stakeholder agencies concur with the findings of the wetland delineation.	RAI to provide Preliminary Jurisdictional Determination, functional assessment of Mollie Dosier Chute (Table 2.4-14) by MACTEC, and enhanced conceptual discussion of wetlands mitigation (couple of paragraphs).				No additional action
TE-9	4.3.1.3	Provide an SME and supporting data and information/references to discuss all (local, state and federal) permitting aspects associated with construction impacts to wetlands, streams, and rivers, and any state or local guidance documents.	Resolved per information in ER Table 1.3-1.				No additional action
TE-10	4.3.1.3	Provide an SME and supporting data and information/references to discuss how collector well sites were determined to ensure adequate water supply while limiting potential environmental impacts, including possible location of all three collector wells on the land side of the levee to reduce wetland impacts.	Resolved per individual Information Needs Form and field discussion.				No additional action

TE-11	4.3.1.3	Provide an SME and supporting data and information/references to discuss the potential impacts to the Mollie Dosier Chute associated with culvert construction. For instance, was this area included in the preoperational sampling? Is there any reason to believe that T&E species might exist there?	RAI to provide response given by AUE on individual Information Needs Form.	Yes			
TE-12	5.2.1.3	Provide an SME to describe how wetlands could be affected by hydrological changes caused by the Collector Well System. For example, what do groundwater model results predict in terms of water level changes below wetland areas and the associated effects?	RAI to provide map with spot elevations (contours) along Mollie Dosier Chute and some discussion of soil properties to confirm no direct connection to water table that could draw down water in the Chute during Collector Well operation.				No additional action
TE-13	5.3.3.2.4	Provide an SME and access to additional information on bird collisions with cooling towers, construction cranes, and other tall structures, including both migratory and resident birds.	Resolved per individual Information Needs Form response.				No additional action
TE-14	5.3.3.2.1	Provide an SME to discuss the effects of salt deposition on vegetation. Provide access to a figure overlaying maximum salt deposition isopleths over terrestrial and wetland habitats.	Resolved per individual Information Needs Form response.				No additional action
TE-15	5.6.1.3	Provide an SME to discuss how vegetation management will be implemented on the site and transmission line rights-of-way, including herbicide application methods, herbicides to be used, and vegetation removal methods.	Resolved per individual Information Needs Form response.				No additional action
TE-16	6.5.1.1	Provide an SME and supporting data and information to discuss construction and operational monitoring related to terrestrial and wetland resources.	Resolved per individual Information Needs Form response.				No additional action
TE-17	4.1.2, 4.3	Provide an SME to clarify the status of transmission line route selection, whether important species surveys have been conducted in these routes, and the transmission line impacts to wildlife.	RAI to provide response given by AUE on individual Information Needs Form.	Yes			Start on Information clarification
TE-18	10.5	Provide an SME to discuss cumulative impacts of preconstruction, construction and operation on ecologically important species on the site. Discuss what other activities are in the area or planned for the area that should be considered in cumulative impacts.	RAI to provide Missouri Department of Conservation Agreement with AUE.		Yes		Tied to TE-7
TE (A) 001	4.2.2.7	Wetlands impact number discrepancy		Yes			Update information
TL-		**Transmission Lines**					
TL-1	2.2.2, 4.1.2	Provide an SME to clarify the status of the transmission line corridor construction described on p. 2-13 of the ER and its relationship to decisions regarding the transmission corridor extension/modifications associated with Unit 2, particularly about the timing of the Callaway-Loose Creek connection and its relationship to the transmission line modifications contemplated for Unit 2.	Resolved during site visit				No additional action

TL-2	2.2.2, 3.7, 4.1.2	Provide an SME to discuss all aspects of the transmission corridors and switchyards for Unit 2, including the siting process (what is meant by an "extension") and the attributes and management of the corridor, including, for example, seasonal access for maintenance and whether widening the corridor will affect the Reform Conservation area, and to review how the construction of a new corridor is addressed in different chapters of the ER, and to clarify what is meant on p. 3-133 by the statement that "The transmission corridor siting is currently undergoing evaluation by the Midwest Independent Transmission System Operator (MISO) and has not been established. Therefore, construction of the transmission line required for the Callaway Plant Unit 2, as well as all impacts, are considered independent from the Callaway Plant Unit 2 project..."	Resolved during site visit				No additional action
TL (A) 001		Officially provide to NRC the length of the portion of the new transmission line which will be ran on an easement vice AmerenUE property.	See form – need to provide length in supplement	Yes			Travis has prepared information
G-		**General Information Needs** To the extent not identified in the subject matter areas addressed above, provide the following general information.					
G-1		Provide originals of all ER figures in .jpeg, .png, or .tif format at a resolution of at least 300 dpi, sized correctly, with legends, and legible in black and white. (Figures for wind roses need not be included.)	NRC to prioritize which figures they are going to need in Native format to support the draft EIS. Ameren to convert photographs and other figures that you not have major legends to grayscale . Ameren will set up a call with the NRC to ensure the technical information gets transmitted correctly as to the needs for the other figures not addressed above. A disc of all figures will be transmitted for docketing.				
G-2		Provide SMEs and supporting information (including assumptions, calculation packages, and consultation letters) in appropriate disciplines to support all statements made and conclusions reached.	Closed - addressed in other area breakout sessions.				Closed – No additional action
G-3		Make available all references cited in the ER.	Provide a Reading Room, 1st priority is Richland, WA; then Washington, DC. Segregate references into Regulatory Documents (Federal or State), there is no need to provide Federal Regulatory Documents as they are available publicly. State Regulatory documents can be provided or a web address where they are available can be provided. Publicly available documents that can be obtained but may need to be purchased do not have to be provided. Publicly available documents like websites and web references should be provided as they were a snapshot in time. Proprietary documents should be made available in the reading room and if asked can be transmitted to be docketed, but must be under Confidentiality / Proprietary guidelines.				Richland Reading Room will be ready for use on Thursday
G-4		Make available SMEs and supporting information used to support statements and conclusions in the ER.	Closed - addressed in other area breakout sessions.				Closed – No additional action

G-5	Tables 10.1-1 and 10.1-2	Provide SMEs in appropriate disciplines to discuss contents of Tables 10.1-1 and 10.1-2 and assure consistency between the contents of the summary tables and the results of information needs discussions. It is anticipated that this will be addressed in specific breakout sessions for the individual disciplines.	No issues identified				Closed – No additional action
G-6		Provide large wall map(s) at the site audit that show key features related to the proposed project, including: • Proposed temporary and permanent facilities • Proposed construction laydown areas • Proposed intake pipeline • Proposed collector wells • Proposed discharge pipeline • Proposed transmission corridor(s) • Property boundaries • Points of interest (e.g., nearby residences, gas pipelines, nearby industries, including quarries/mines) • Proposed rail line spur • Proposed haul roads.	Resolved, maps provided during audit.				Closed – No additional action

G-7		Provide access to all GIS and/or CAD data/databases used to support the ER analysis and results including existing and proposed conditions as appropriate. The data should generally include, but are not limited to: • All existing and proposed site infrastructure (roads, buildings, intake/discharge pipelines, transmission lines, utility right-of-ways/transmission corridors, power blocks, switchyards, pipeline corridors, cooling and retention ponds, dams, canals, rail lines, monitoring/instrument stations, etc.) • Location data (official property boundary, official unit point location, exclusion area boundary, and other relevant boundaries on-site or regionally) • All surface and groundwater hydrologic data (watershed/subbasin boundaries, stream/river channels, springs, sinkholes, flood boundaries, reservoir boundary, site stormwater drainage, levees, hydrogeologic study boundaries, aquifers, potentiometric contours, well locations, surface water monitoring sites, etc.) • All terrestrial and aquatic ecological data (wetlands, ponds, terrestrial and aquatic sampling sites, wildlife/habitat areas, land use/land cover, and threatened and endangered species locations) • Terrain and bathymetric data (LiDAR, contours, river cross sections, bathymetric point samples, etc.) • Socioeconomic data (sector data at various radii, census blocks with attribute data including low income and minority data, state/county park recreational area boundaries, trails, water trails, wildlife management units, traffic count data, commuter routes, etc.) • Geology and soils data (site and vicinity data, faults, folds, seismic activity, etc.) • Alternative (candidate) site data (point locations, proposed site boundary, proposed infrastructure, etc.).					See notes in G-1
G-8	4.0, 10.0	Provide SMEs to discuss pre-construction versus construction impacts associated with each subject area (e.g., land use, surface water), and provide estimated percentages of the preconstruction impacts relative to the total construction impacts described, as well as the basis for those estimates.			Yes		
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Callaway Unit 2 Site Audit
Note: SME = Subject Matter Expert
