Callaway2COLPEm Resource

From: Garcia-Santos, Norma
Sent: Friday, February 06, 2009 5:09 PM
To: Olson, Bruce
Cc: Parkhurst, Mary Ann; Witt, Kevin
Subject: Comments Callaway Table of Needs
Attachments: Copied 2-5-09_Information_Needs_List_2009-02-03 draft Comments.xls

Good afternoon,

During the phone call Bruce mentioned to cc: Mary Ann (since I do not remember if we still have to cc: her, I am cc: her). These comments are to reflect consistency with the previous table of needs. PNNL should verify of these comments are accurate or not (in terms of the information that the reviewer wants to gather). (Bruce: Kevin sent you an e-mail earlier with this input.).

Thanks,

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Created By: Norma.Garcia-Santos@nrc.gov

Recipients:
"Parkhurst, Mary Ann" <maryann.parkhurst@pnl.gov>
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Tracking Status: None

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Files	**Size**	**Date & Time**	
MESSAGE	768	2/6/2009 5:09:32 PM	
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Options
Priority: Standard
Return Notification: No
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Sensitivity: Normal
Expiration Date:
Recipients Received:

Information Needs —
Callaway Unit 2 Site

Number = number of c
Letter = information ne
Red text = Further det

Info needs #	ER Section
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Acc-1	
Acc-2	
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Acc-23	
Alt-	
Alt-1	9.2.3
Alt-2	
Alt-3	

Alt-4	ESPR 9.4.1
AQ-	
AQ-1	ER 2.4.2.2.3
AQ-2	
AQ-3	ER 2.4.2.2.3.3
AQ-4	ER 2.4.3
AQ-5	
AQ-6	ER 5.3.2.2
AQ-7	ER 5.3.1.3
AQ-8	ER 5.5.1.2

AQ-9	**ER 6.0**
AQ-10	**ER 4.3.2**
AQ-11	**ER 4.3.2**
CR-	
CR-1	2.5.3 4.1.3
CR-2	2.5.3 4.1.3
CR-3	2.5.3 4.1.3
CR-4	2.5.3 4.1.3
CR-5	2.5.3
CR-6	2.5.3
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Met-	

Met-1	
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Met-5	ER 2.7.1
Met-6	ER 2.7.1.
Met-7	ER 2.7.1.
Met-8	ER 2.7.1.
Met-9	ER 2.7.2
Met-10	ER 2.7.3
Met-11	ER 2.7.4
Met-12	

Met-13	ER 2.7.4.
Met-14	ER 2.7.4.
Met-15	ER 2.7.4.
Met-16	ER 2.7.5
Met-17	ER 2.7.6
Met 18	
Met-19	ER 5.3.3.
NP-	

NP-1	8.2.1
NP-2	8.2.1
NP-3	8.2.1
BC-	
BC-1	10.4
BC-2	10.4
BC-3	10.4
BC-4	10.4

BC-5	10.4.1
BC6	10.4.1
NRHH	
NRHH-1	4.4.1 and 4.7
NRHH-2	5.3.4.1
NRHH-3	5.3.4.1
NRHH-4	5.3.4.1
NRHH-5	5.6.3
NRHH-6	7.7
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T-1	**ER 5.11.2**
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T-3	**ER 5.11**
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TE-0	ER 2.4.1.
TE-1	ER 2.4.1.1
TE-2	

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TE-4	ER 2.4.1.
TE-5	ER 2.4.1.
TE-6	ER 2.4.1.
TE-7	ER 2.4.2.
TE-8	ER 4.3.1.
TE-9	ER 4.3.1.
TE-10	ER 4.3.1.
TE-11	ER 5.2.1.
TE-12	ER 5.3.3.
TE-13	
TE-14	ER 5.4.4

TE-15	ER 5.4.4
TE-16	
TE-17	ER 6.5.1.
TL-	
TL-1	
TL-2	

– February 2, 2009
e Audit

original information need.
eed added to the list of original information needs during the site audit.
finition of or addition to information needs as a result of site audit conversations.

Information Needs
Accidents
Provide access to a knowledgeable individual 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 calculation of the short-term X/Q values in ER Table 2.7-52
Provide access to a knowledgeable individual who can explain the process used to calculate the 50% X/Q values in Table 2.7-52
Provide access to a knowledgeable individual 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).
Provide access to the AEOLUS and DBA calculation packages for staff review.
Provide access to Supplements 1 and 2 of the EPR DCD. The application references Supplements 1 and 2 to the DCD FSAR, these supplements are not available on the NRC web site.
Provide access to a knowledgeable indiviual who can discuss the rationale for selecting 2005 meteorological data for severe accident analysis.
Provide access to knowledgeable indiviuals who can discuss the selection of site-specific input to the MACCS2 code.
Provide access to a knowledgeable indiviual 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.
Provide access to knowledgeable indiviuals who can verify that the core damage frequencies listed in the ER include damage from both internally and externally initiated events.
Provide access to knowledgeable indiviuals who can discuss whethere the core damage frequencies listed in the ER include damage during plant low-power operation and shutdown conditions as well as during normal operation.
Provide access to the MACCS2 calculation package for staff review.
Provide a water ingestion dose estimate for each severe accident release category.
Provide electronic copies of hourly meteorological data for 2003 through 2007

Provide electronic copies of hourly MACCS2 input and output files
Provide estimates of the average individual risk of early fatality and and the risk of cancer fatality to population in the area for each release category for comparison with the Commission's safety goals.
Provide access to a knowledgeable indiviual who can discuss all of the surface water pathway impacts of severe accidents.
Provide access to a knowledgeable indiviual who can discuss all of the groundwater pathway impacts of severe accidents.
Provide access to knowledgeable indiviuals who can discuss severe accident mitigation alternatives including design alternatives and procedural and training alternatives.
Provide access to a knowledgeable individuals who can discuss the SAMDA screening process.
Provide access to knowledgeable indiviuals who can discuss the rationale for assuming that the fire risk is the dominant contributor to external events risks.
Provide access to knowledgeable indiviuals who can discuss the evaluation of the minimum implementation cost for alternatives.
Provide access to knowledgeable indiviuals who can discuss the schedule for and factors to be considered in developing non-hardware alternatives.
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.
Alternatives
Provide a knowledgeable expert to discuss the costs of the proposed project and alternatives such as: 1. The fixed charge rate for the utility or consortium of utilities. 2. Fuel cost estimates at time of application for the proposed project and for other alternatives. 3. The operation and maintenance cost estimates (fixed component and variable component) at time of application for the proposed project and each alternative. 4. 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. 5. The discount rate for the proposed project and each alternative.
Provide a knowledgeable expert to discuss the viability of the Alternative sites for Callaway Unit 2.Specifically clarify issues such as: 1. Constructability within the floodplain 2. Acquisition of private residential, industrial and/or commercial land 3. Removal of prime and unique farmland
Provide a knowledgeable expert to discuss the viability of Energy Alternatives. Specifically clarify issues such as: 1. Costs and impacts of natural gas line routing and capacity at the intertie location 2. Costs and impacts of coal rail line routing capacity at the intertie location

Provide a knowledgeable expert 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), and predicted recreational benefits.

Aquatic Ecology
Harvested Fish: Provide access to all cited references (such as MDC 1999).
Tables 2.4-7 and 2.4-8: Please provide one table that describes sampling results for the stream stations, and another table for the Missouri River stations, and a knowledgeable expert and supporting documentation to clarify these tables.
Channel Catfish. Please provide a knowledgeable expert and supporting documentation to address the apparent discrepency between the text and Table 2.4-7.
References: Please provide access to all references.
ER Figure 4.3-3. Please provide a knowledgable expert and supporting maps and documentation to clarify the actual location of collector wells .
Please provide a knowledgeable expert and supportive 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).
References: Please provide access to all references.
Impacts of Discharges to Water. Because 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, please provide a knowledgable expert and supporting documentation who can explain current NPDES-required toxicity testing. For example, it would be helpful to see the results of whole-effluent testing required and conducted for Unit 1 under the existing NPDES permit for the past five years to demonstrate that acute or chronic toxicity has not been observed.

Environmental Measurements and Monitoring. Please provide a subject matter expert who can discuss the measusurement and monitoring programs that have been conducted for Unit 1. Specific areas of interest include the programs that evaluted 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. Annual monitoring reports or reports required by NPDES for the last 5 years would be helpful, if available.
Provide access to any mitigation plan for the site and a knowledgable expert to discuss the plan.
Provide a knowledgable expert and supporting information to clarify the disposal of dredged materials at the site.
Cultural Resources
Please provide a knowledgable expert and supporting data/information to confirm archaeology and historic architecture surveys and resulting reports have been completed and finalized, and to address the survey status of the collector wells system, access road, bridge, water supply pipeline, and transmission lines areas. Please provide access to all final reports for review.
Provide expert to confirm all pertinent survey reports are adequate for current SHPO survey standards.
Provide knowledgeable expert who can provide copies of all 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 expert to discuss related archaeological and architectural surveys and reports.
Provide a knowlegeable expert who can describe any archaeolgoical sites that been recommended for Phase II or Phase III investigations and if any Traditional Cultural Properties been identified an if so provide avoidance or mitigation plans (MOAs or MOUs).
Provide access to all consultation letters with Native American Tribes, and Interested Parties.
Provide a knowledgeable expert and supporting information to describe/list all Tribes that were consulted and how they were selected.
Provide a knowledgeable expert to describe the discovery process for the possible Steamboat wreck sites and any references and discussion of the possibility of steamboat wreck sites in the project area for review.
Provide a knowledgable expert and supporting information to provide a detailed description of the plan for inadvertent discoveries (human remains and all other cultural sites) which is mentioned but not elaborated upon.
Provide a knowlegeable expert to describe how potential impacts resulting from construction and operations on cultural and historic resources were analyzed and if indirect effects were considered to cultural resources located outside the project's footprint incuding TCPs and above ground structures?
Provide a knowledgable expert and supporting information to address potential impacts on cultural resources from preconstruction activities.

General Information Needs
Provide originals of all ER figures in .jpeg, .png or .tif format at a resolution of at least 300 dpi, and sized correctly.
Provide knowledgeable expert(s) and supporting data and information (including assumptions) in appropriate disciplines to support all statements made and conclusions reached for each subject area throughout the ER.
Make available the ER references.
Provide the background information that supports all statements made and conclusions reached for each subject area for each alternative site (documentation is needed to show due diligence in gathering and using the best readily available information for a reconnaissance level review).
Provide knowledgeable expert(s) 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.
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 intake structure • 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

Provide all GIS and/or CAD data/databases used to support the Environmental Report analysis and results including existing and proposed conditions as appropriate. The data should generally include, but is not limited to: a) 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.) b) Location data (official property boundary, official unit point location, exclusion area boundary, and other relevant boundaries on-site or regionally) c) 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.) d) All terrestrial and aquatic ecological data (wetlands, ponds, terrestrial and aquatic sampling sites, wildlife/habitat areas, land
Hydrology
Provide a knowledgeable expert who can address the temperature variation within the ultimate heat sink (such as the average-maximum and average-minimum temperature of applicable water bodies).
Provide a knowledgeable expert who can address sediment transport in surface water bodies and wetlands (such as quantities and locations of rate, bed and suspended load fractions and graduation).
Provide a knowledgeable expert who can address the design basis flood (including its relationship to 100-year and PMF values).
Provide a knowledgeable expert who can address the discharge area bathymetry in the floodplain (such as its seasonal characteristics, distribution, and the intake and discharge velocities).
Provide a knowledgeable expert who can address the hydrologic system (such as the surface water returns after withdrawl and their quantification). And, provide an expert who can address quantification of hydrologic budget data (such as monthly information to supplement annual information).
Provide a knowledgeable expert who can address surface water usages (such that the rate of use is defined).
Provide a knowledgeable expert who can address plant water usage (including monthly data and during period of low water availability).
Provide a knowledgeable expert who can address surface water chemical analysis (including mercury Hg baseline measurements)
Provide a knowledgeable expert who can address plant water discharges to surface water bodies including the magnitude and nature of the pollutant discharge in space and time.
Provide a knowledgeable expert who can address discharge system (including velocity and temperature differential characteristics)
Provide a knowledgeable expert who can address heat dissipation systems (including system performance due to hydrological variations.)

Provide a knowledgeable expert who can address the nonradioactive effluent treatment facilities (with focus on range of materials within the intake and discharge flow)
Provide a knowledgeable expert who can address Construction Phase water quality (and the baseline WQ data being used)
Provide a knowledgeable expert who can address Construction Phase surface and groundwater quality (related to interaction with exposed substrate material).
Provide a knowledgeable expert who can address ground water levels expected during operation (relative to plant grade, bgs)
Provide a knowledgeable expert who can address ground water withdrawls during operation (and quantification as average, high or low volumes)
Provide a knowledgeable expert who can address low riverine flow and low groundwater levels during operation (such that analysis of interactions might be considered).
Provide a knowledgeable expert who can address area ground water withdrawls by other users occurring during operation (and consideration for monthly withdrawls).
Provide a knowledgeable expert who can address impact of Missouri River alluvium groundwater collector wells during operation (and their relationship to wetlands north of Bingell Island).
Provide a knowledgeable expert who can address Receiving surface waterbodies for discharge system during operation (such as water flow, temperature, sediment, and 7 day, one in 10 year flows).
Provide a knowledgeable expert who can address discharge system (and its velocity and temperature differential characteristics)
Provide a knowledgeable expert who can address numerical models for water discharge into receiving surface (including theory, assumptions, basis for parameter values and passage times).
Provide a knowledgeable expert 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).
Provide a knowledgeable expert 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). This includes groundwater flow monitoring programs.
Provide a knowledgeable expert 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).
Provide knowledgeable expert 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.
Provide knowledgeable expert who can discuss Burns & McDonnell, 2008. Phase II Hydrogeologic Investigation Report, Collector Well Siting Study, June 2008

Health Physics - Radiological Health/Waste Systems/Decommissioning
Provide a knowledgeable expert 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)
Provide a knowledgeable expert 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)
Provide access to the Offsite Dose Calculation Manuals for Unit 1 and for Unit 2 for review.
Provide access to electronic copies of input and output files for the XDCALC dose code, and calculation packages used to support dose calculations.
Provide information on the XDCALC computer code, including the software manual with descriptions of input and output
Provide for review the annual reports of the Callaway Radiological Environmental Monitoring Program. All reports generated since the initiation of environmental monitoring at the Callaway site should be included.
Provide a knowledgeable expert to discuss the models, assumptions and input data used to arrive at estimates of radioactive releases through the liquid, gaseous and solid waste systems.
Provide data on transit times for liquid effluent to receptors.
Provide a knowledgeable staff member to discuss radioactive waste systems (example: waste minimization plans as specified in Section 5.5.2 of the Environmental Standard Review Plan (NUREG-1555))
Land Use
Provide knowledgeable expert who can discuss utility corridors in the vicinity of the site (re Figure 2.2-7).
Provide knowledgeable expert who can discuss whether borrow pits will be created/expanded.
Provide knowledgeable expert who can discuss historical use patterns on the Reform Conservation Area.
Provide knowledgeable expert to discuss any dredging to deepen the barge slip and disposition of dredge spoils.
Provide knowledgeable expert 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 occurred in response to housing demand for workers associated with Unit 1 (both construction and operation).
Provide knowledgeable expert 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).
Provide a knowledgeable expert 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).
Meteorology/Air Quality

Provide a knowledgable expert and supporting data/information to explain the logic for conclusions reached in the ER (e.g., "impacts are small" or "on-site conditions are similar to those at other sites"). Details should be addressed, such as criteria for the decision, inputs used and methodologies, analysis of outputs, and statistical methods applied.
Provide a knowledgable expert and supporting data/information to explain why only three years of on-site meteorological data are being analyzed.
Provide a knowledgable expert and supporting data/information to explain why the meteorological analyses (e.g., stability roses, precipitation roses) are done separately for the two measurement levels on the meteorological tower.
Provide a knowledgable expert and supporting data/information (e.g. input and output files, and assumptions) to support all transport and dispersion model runs. For example, present the precise assumptions for source locations, elevations, emission rates, buoyancy flux, nearby building dimensions, etc. Show the evidence that the company dispersion models are equivalent to the NRC-recommended models.
General Climate Section: Provide a knowledgable expert and supporting data/information to explain how each of these details (with many figures and tables) are used in the ER.
Please provide a knowledgable expert and supporting data/information (such as detailed topo maps) to explain the logic behind the statement that "drainage is expected to be minimal".
Provide a knowledgable expert and supporting data/information to explain statements such as "macro-scale diffusion" and "diffusion is worst".
Provide a knowledgable expert and supporting data/information to explain the relevance of "nights during the summer are usually comfortable", and to provide more details concerning the wet bulb temperature (the design value for the specific cooling towers planned) and the frequency of very high RH (greater than say 95%)
Regional air quality: Please provide a knowledgeable expert 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".
Severe weather phenomena: Please provide a knowledgable expert and supporting data and information to explain why each phenomenon is of concern to the Callaway nuclear plant. For example: What are the desired maximum values for numbers of tornados per year, rain per hour, lightning strikes, etc.?
Local meteorology: Please provide a knowledgable expert 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".
Top of p 2-496: Please provide a knowledgable expert 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.

Mixing depth: Please provide a knowledgable expert 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.
Wind speed and direction: Please provide a knowledgable expert 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).
Atmospheric stability persistence: Please provide a knowledgable expert and supporting data and information to dissuss 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, please provide access to all hourly met data for this period.
Maximum terrain heights and top maps: Please provide access to a detailed topo map and a knowledgable expert to discuss the possible drainage wind effects at night?
Please provide a knowledgable expert and supporting data and information to explain: 1) estimates of atmospheric dispersion factors; 2) the use of the ABS code XDCALC; 3) what is meant by "mixed mode release" including source locations, elevations, release rates, momentum and buoyancy flux, and nearby building dimensions, 4) the logic behind the statement that "building wake credit was taken", 5) the logic behind decisions regarding nearest cow, gardens, etc. (all approximately 4 km), 6) 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), and 7) how the 50th percentile dispersion factors were calculated with AEOLUS3 (including the input and output files and model options chosen).
Tables 2.7-36 through 37 (pages 2-540 through 2-554): Please provide a knowledgable expert and 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.
Heat dissipation to atmosphere from CT plume - Please provide a knowledgable expert and supporting data and information to discuss 1) the version number and the exact citation for SACTI, 2) how SACTI uses the two sets of met input files (from the 10 m and 90 m levels), 3) the effects that CTs have on cloud formation and precipitation, 4) low frequency combinations of conditions that might have a major environmental impact, 5) the logic behind why the ESWS CTs are "not considered further in this analysis", 6) the rationale for concluding that "impacts from elevated plumes would be small.", 7) the possibility of plume interaction (thermodynamics and kinematics), 8) the detailed outputs of SACTI and the logic behind conclusions of "small" or "no impact" or "insignificant increases", 9) conclusions for the ESWS CTs particularly relative to near-field impacts, 10) the high RH relative to ground level fog, 11) the design wet bulb temperature for the cooling towers, and 12) the source of inputs in Tables 5.3-4 and 5.3-5.
Need for Power

Provide a knowledgeable expert to discuss the status of the State's review of the IRP.
Specifically clarify issues such as:
1. Recent discussions with the PSC about revising the IRP
2. Expected schedule for IRP approvals
3. Current PSC issues with the IRP and their resolution

Provide a knowledgeable expert to discuss how Callaway Unit 2 is integrated into the NERC/SERC Long-Term Reliability Assessment

Provide a knowledgeable expert to discuss customers for the power to be generated; Specifically clarify issues such as:
1. 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; obtain estimate 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].

Bennefit - Cost

Provide a knowledgeable expert 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..

Provide a knowledgeable expert to discuss projected current-dollar estimates of the annual tax benefits expected to be paid as a result of constructing and operating the new operating unit over the lifetime of the new plant. The discussion should Include 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 corporate taxes paid to jurisdictions affected by the plant. Given that there is historical data from Unit 1, this information should be available in quite significant detail and precision.

Provide a knowledgeable expert 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. 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
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

Provide a knowledgeable expert to discuss the important conclusions to be drawn from the summary in Table 10.4.1

Provide a knowledgeable expert to discuss the differences in benefits between alternatives and system configurations. [ESRPs 9.4.1, 9.4.2, 9.4.3] Specifically clarify issues such as: 1. Description of differences in costs between alternatives and alternative system configurations. 2. Comparison of the estimated costs of the proposed facility with other independent or applicant-commissioned cost estimates and reasons for significant differences.
Provide a knowledgeable expert 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
Non-Rad Human Health / Noise
Provide a knowledgeable expert 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 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?); peak noise levels during construction activities.
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.
ER Section 5.3.4.1: Provide a knowledgeable expert 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: Provide a knowledgeable expert 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 5.6.3: Provide a knowledgeable expert to discuss the following associated with the transmission system: ozone, electrostatic effects (electric shock), and conformance with NESC concerning steady-state currents.
ER Section 7.7: Provide a knowledgeable expert to discuss cumulative health impacts of construction and operation. Discuss what other activities are in the area or planned for the area that should be considered in cumulative impacts.
Socioeconomics/EJ
Provide a knowledgeable expert to discuss the "baseline" population forecasting methods and assumptions
Provide a knowledgeable expert to discuss sources of tax information and budgets (e.g., 2-368)
Provide a knowledgeable expert who can discuss the distribution of tax payments on Unit 1 in quantitative terms and their impacts on neighboring jurisdictions and service levels

Provide a knowledgeable expert who can discuss how the service levels in the various jurisdictions compare to national or state standards and to pertinent officials' assessments of adequacy.

Provide a knowledgeable expert who can discuss the residential patterns and commuting routes of workers on Unit 1, both construction and operations workers.

Provide knowledgeable expert to discuss status of County Planning Commissions

Provide a knowledgeabe expert to discuss the source of information about the characteristics and life-style attributes of minority populations in the ROI and nearby communities beyond census data.

Provide a knowledgable expert 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).

Provide a knowledeable expert 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).

Provide a knowledgeable expert who can discuss the traffic analysis, including traffic from both workers and materials entering and exiting the site, and 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.

Provide a knowledgeable expert who can discuss the local populations that will be affected by the construction activities, particularly those within 10-15 miles of the site.

Provide a knowledgeable expert 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. This discussion should cover where the workforce during construction is assumed to originate and where they 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 would also include discussing the numbers of different types of workers over the construction period, including those estimated to already reside in the ROI; 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 ROI due to the project would be particularly helpful.

Provide a knowledgeable expert to discuss when site-specific workforce estimates are expected to be available (see p. 4-70-71).

Provide a knowledgeable expert to discuss the assumptions about the residential location choices of the construction phase workforce and the basis of those assumptions (and how they compare with evidence from the construction of Unit 1.) In particular discuss how many temporary and inmigrating 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 (see pl. 4-73).

Provide a knowledgeable expert 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.
Provide a knowledgeable expert who can discuss expenditures for plant construction and operation other than wages that would occur in the ROI, and their effect on local employment, income, and tax receipts.
Provide a knowledgeable expert to discuss how the mismatch of increased demand due to project-related populations and activities and tax revenues would affect impacts (e.g., schools in Boone County).
Provide a knowledgeable expert to discuss the analysis of potential pathways by which it was determined that minority and low income populations would not be disproportionately affected by adverse impacts.
Provide a knowledgeable expert to discuss when the estimated 363 operations phase workers for Unit 2 will 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.
Provide a knowledgeable expert to discuss the challenges for area communities to adjust to the "bust" cycle of the construction phase and how this affects the characterization of impacts of the operations phase
Provide a knowledgeable expert to discuss the basis for the conclusions about the magnitude of impacts assigned to the ROI from employment, income, taxes, and housing, with particular attention to consistency between construction and operations phases.
Site and Technical Oversight
Provide a knowledgeable expert to clarify the current status of environmentally related authorizations required by Federal, State, regional, local, and affected Native American tribal agencies (from consultation).
Provide a knowledgeable expert to discuss the site location (such as the township, range and section numbers).
Make aerial photographs and perspective drawings of the site available (such as high-oblique aerial views that show the facility and the site boundary).
Provide a knowledgable expert and topographic maps to describe the construction zone and land to be cleared (including transmission line and transportation corridors).
Provide knowledgeable experts to discuss the measures and control/operational procedures to limit potential impacts (such as noise, erosion, dust, traffic, waste, surface-water, groundwater)

Provide a knowledgable expert to discuss possible buildup of radionclides in the environment, such as in sediments.
Transportation
Section 5.11.2~~:~~ identifies... ~~Please~~ Provide ~~a knowledgable expert and~~ ~~supporting~~ data and ~~information~~ assumptions to support the decay heat generation rate of 5.450 kW.
Provide access to the Transportation Calculation Package for the calculations in 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). **Access should be provided at least two weeks before the site audit, in order for the Transportation Calculation Package to be reviewed prior to the site audit.**
Provide and discuss ~~a knowledgable expert and~~ supporting data and information related to ~~to discuss~~ the transportation calculations. Also, ~~and reference~~ provide references ~~citations~~ for the "RADTRAN Input from NRC Models" contained in Table 5.11-3, and "Additional RADTRAN Input Parameters" in Table 5.11-8.
Provide ~~a knowledgeable expert and~~ supporting data and information related to ~~to discuss~~ the transportation calculations in Section 7.4 and possible under-reporting due to the use of the Motor Carrier Management Information System.
Section 7.4~~:~~ identifies ... In general, ~~P~~~~rovide a knowledgeable expert to to discuss~~ explain how the 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)).
Section 10.2.2~~:~~ identifies... Provide and discuss your assumptions for ~~a knowledgable expert and supporting data and information to disuss~~ the construction material estimates.
Provide ~~a knowledgable expert and~~ supporting data and information to clarify how the numbers of shipments of unirradiated fuel, irradiated fuel, and radioactive waste were estimated.
Terrestrial Ecology
Terrestrial Habitats. Please provide someone knowledgeable to describe USGS 2005 Land Use and Land Cover (LULC) mapping for the ecological investigation area, and 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 LULC and NAIP materials used in determining cover types.
Please provide a knowledgeable expert and supporting references to support the statement that historically, Indiana bats have been observed in the vicinity and the site is within their habitat range. Please provide access to Clawson, 2003 and MDC, 2007d.
References: Please make available all cited references.

Provide a knowledgeable expert to discuss the methods used to 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.
Plants: Please provide a knowledgable expert and supporting data and information to discuss running buffalo clover relative to suitable habitat in cover types known to be present at Callaway (e.g., forest-grassland interfaces and stream corridors), and efforts taken to survey this species.
Please provide a knowledgable expert 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."
Please provide a knowledgable expert 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."
Wetlands and Other Waters of the U.S.: Please provide a knowledgable expert and supporting data and information to discuss jurisdictional wetlands and the status of whether the Army Corps or other stakeholder agencies concur with the findings of the wetland delineation.
Wetlands: Please provide a knowledgable expert 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.
Wetlands: Please provide a knowledgable expert 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?
Wetlands: Provide provide a knowledgable expert 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 preoperatonal sampling? Is there any reason to believe that T&E species might exist there?
Hydrological Alterations: Provide a knowledgeable expert to describe how the site jurisdictional wetland hydrology relates to the aquifers affected 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.
Potential Impacts Due to Bird Collisions with Cooling Towers: Please provide knowledgeable expert to discuss local birds as well as major flyways for migratory birds.
Please provide a knowledgeable expert to discuss salt deposition and effects on vegetation.
Impacts to Biota Other Than Members of the Public: Please provide a knowledgeable expert to explain the selection of surrogate species for dose calculations. Exposure pathways and food sources would be different from these surrogates for the Important Species identified in Section 2.4, including the bats, deer and upland game birds.

Impacts to Biota Other Than Members of the Public: Please provide a knowledgeable expert to explain how the following references were used to calculate radiation doses to biota: LADTAP II, GASPAR II, and NRC, 1977a. Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I, Regulatory Guide 1.109, Revision 1, Nuclear Regulatory Commission, October 1977.
Please provide a knowledgeable expert to discuss how vegetation management will be implemented, including herbicides to be used and vegetation removal methods
Provide a knowledgeable expert and supporting data and information to discuss the logic behind the decision to conduct/not conduct pre-operational/operational monitoring related to terrestrial and wetland resources, and if conducted, what each program will entail (both in schedule and scope).
Transmission Lines
Please provide a knowledgable expert 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 corrider extension/modifications associated with Unit 2, particularly with regards to the timing of the Loose-Creek connection and its relationship to the transmission line modifications contemplated for Unit 2.
Please provide a knowledgable expert 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 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..."].

Responsibility/Submitted By	Resolved	Follow-up/May need RAI	Will Need RAI	Comment
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PNNL- Andre Coleman			
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