PMComanchePekNPEm Resource

From: Willingham, Michael

Sent: Friday, June 26, 2009 3:37 PM
To: 'Donald.Woodlan@luminant.com'

Cc: John.Conly@luminant.com; Greg Zimmerman; 'Lance McCold'; 'Terry Gitnick'

Subject: CPNPP Units 3 and 4 COL Application RAIs

Attachments: Final 062609 RAIs.pdf

Don,

Attached are the CPNPP Units 3 and 4 COL Application environmental RAIs.

Sincerely,

MICHAEL H. WILLINGHAM, ENV PROJECT MANAGER

Environmental Projects Branch 1
Division of Site and Environmental Reviews
Office of New Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

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Subject: CPNPP Units 3 and 4 COL Application RAIs

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Mr. Don Woodlan Manager, Nuclear Regulatory Affairs Luminant Generation Company LLC P.O. Box 1002 Glen Rose, Texas 76043

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE

ENVIRONMENTAL REVIEW OF THE COMBINED LICENSE APPLICATION FOR COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 3 AND 4

Dear Mr. Woodlan:

This letter transmits the Nuclear Regulatory Commission (NRC) staff's request for additional information (RAI) concerning Luminant Generation Company, LLC's (Luminant) Combined License (COL) application for proposed reactors at the Comanche Peak Nuclear Power Plant (CPNPP) site. Consistent with the NRC's review schedule, please provide your response to the RAIs (Enclosure 1) within 30 days of receipt. Your responses should be provided under oath or affirmation in accordance with 10 CFR 52.75.

If you are not able to provide a complete response to the RAI within the 30-day timeframe, please provide a schedule for which Luminant intends to respond. Failure to provide a complete response may result in the NRC modifying the environmental review schedule for this application. In addition, any new and significant changes or additions to information that you have already submitted, as a result of your RAI responses, could impact the review schedule.

If you have any questions, I can be reached at (301) 415-3924 or via e-mail at michael.willingham@nrc.gov.

Sincerely,

Michael Willingham, Project Manager Environmental Projects Branch 1 Division of Site and Environmental Reviews Office of New Reactors

Docket Nos. 52-034 and 52-035

Enclosure: As stated

cc: See next page

Mr. Don Woodlan Manager, Nuclear Regulatory Affairs Luminant Generation Company LLC P.O. Box 1002 Glen Rose, Texas 76043

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If you have any questions, I can be reached at (301) 415-3924 or via e-mail at michael.willingham@nrc.gov.

Sincerely,

Michael Willingham, Project Manager Environmental Projects Branch 1 Division of Site and Environmental Reviews Office of New Reactors

Docket Nos. 52-034 and 52-035

Enclosure: As stated

cc: See next page

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DATE	06/ /09	06/ 5 /09	06/ 18 /09	06/ /09

LETTER TO D. WOODLAN FROM M. WILLINGHAM DATED	
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SUBLECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE ENVIRONMENTA REVIEW OF THE COMBINED LICENSE APPLICATION FOR COMANCHE PEAK NUCLEAT POWER PLANT, UNITS 3 AND 4

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Requests for Additional Information (RAIs) Comanche Peak Nuclear Power Plant, Units 3 and 4 Combined License Application

Item Number	ESRP/ER Section	RAI	Full Text (Supporting Information)
		General (GEN)	
GEN-01	1.2-1 [10 CFR 51.45(d)]	Provide documentation of CPNPP's participation in the EPA's or TCEQ's Performance Track Program and Environmental Management System (EMS) if CPNPP participates in such programs.	Documentation will be used to demonstrate CPNPP compliance with environmental regulations and ensure concerns are considered at the highest levels of corporate decision making.
GEN-02	3.0-1 [10 CFR 51.45(c)]	Provide a description of impacts of the preconstruction activities to be performed at the proposed site as listed in 10 CFR Part 51.4. Also distinguish between the environmental impacts of "construction" and "preconstruction" activities, as well as their cumulative impacts.	Only some of the activities associated with the construction of a nuclear power plant are part of the NRC action to license the plant. Activities for which an NRC license is required are defined as "construction" in 10 CFR 50.10(a) and 10 CFR 51.4. Activities associated with building the plant that are not licensed by the NRC as part of the proposed action are grouped under the term "preconstruction." The ER should distinguish between the two categories of activities and should provide details to differentiate the environmental impacts between the two, as well as their cumulative impacts. Interim NRC staff guidance concerning this evaluation is available on the NRC public web site in COL/ESP-ISG-4, at http://www.nrc.gov/reading-rm/doc-collections/isg/col-esp-isg-4.pdf

GEN-03	3.6.1-1 [ESRP 3.6.3, 5.5.1, 5.2.2, and 5.10; 10 CFR 51.45(b) and (d)]	Provide a detailed description of the construction and proposed operation of the evaporation ponds and the "three-month storage" pond and their associated physical and chemical characteristics.	The ER briefly describes the construction and operation of new ponds that would be used in conjunction with the water to be returned from the new cooling towers to Lake Granbury. Additional information is needed on the purpose of these ponds and how they would be operated, including the chemical characteristics of the water to be discharged and the quantities of wastes (i.e., dried salts) to be generated and the proposed disposition of these wastes.
GEN-04	6.0-1 [10 CRF 51.50(c) and 10 CFR 50.36(b); ESRP 4.6]	Provide a copy of the Environmental Protection Plan (EPP)	The Environmental Protection Plan (EPP) was not found as part of the license submittal. Each NRC license that is granted may include conditions to protect the environment during construction and operation. These conditions will be derived from information contained in the Applicant's ER, and will identify the obligations of the licensee in the environmental area, including, as appropriate, requirements for reporting and keeping records of environmental data, and any conditions and monitoring requirement for the protection of the nonaquatic environment.
		Land Use (LU)	
LU-01	2.2.2-2 [ESRP 2.2.2, 4.1.2, and 5.1.2]	For portions of the proposed new water intake and discharge pipelines shown in red on Figure 1.1-4, provide data on the acreage of right-of-way in each land category as defined by U.S. Geological Survey National Land Cover Data Set.	Of particular interest is the area near Lake Granbury (e.g., Treaty Oaks Subdivision and parallel to Mambrino Highway/FM 3210) where there appears to have been significant recent changes in land use. It would also be useful to identify which, if any, of the new pipeline segments would be within existing transmission

			line rights-of-way.
LU-02	4.1.1.2-1 [ESRP 4.1.1; 10 CFR 51.70(b)]	Provide resolution of the apparent inconsistency between the statement that "no additional land is expected to be required for the CPNPP site," and Figure 3.1-2, which indicates that the proposed concrete batch plant would be constructed largely outside the site boundary.	
LU-03	5.5.1.1.2-1 [ESRP 3.6.1, 3.6.3, 5.5.1]	Provide information on the generation of solid waste during project operations from the evaporation ponds associated with the proposed Blowdown Treatment Facility, including (1) an estimate of the quantity of waste that would be generated, (2) a description of the process that would be followed to classify the waste and set disposal requirements, and (3) potential options for disposal (to the extent this is known).	This information is needed to compare the amount of waste generated with the capacity of appropriate land fills in the vicinity and region, to document the waste classification process, and to identify other (potentially positive) disposal options.
LU-04	9.3.5-1 [ESRP 4.1.2, 5.1.2, 9.4; 10 CFR 51.45(b)(3), 10 CFR 51.50(c), and 10 CFR 51.70 (b)]	Provide data to support the weighted score for each candidate alternative site in Table 9.3-1A regarding transmission corridors, including information on approximate length and general location, feasibility, and resources affected.	Information obtained through the Alternatives Site Visit and review of the McCallum-Turner Report provided much information about the alternative sites themselves; however, more data is needed regarding the associated transmission lines to support the impact assessment.
LU-05	3.7.2-1 [10 CFR 51.45(c); ESRP 2.2.2]	Provide information from ONCOR regarding the process and procedures for identifying and obtaining approval for new transmission line routes.	Section 3.7.2 of the ER describes a "transmission line routing study." The preparation and timing of this study is apparently the responsibility of ONCOR. A copy of the presentation given by ONCOR at the Environmental Site Audit on February 24, 2009, is needed to provide additional details about

			ONCOR's process and procedures for new transmission lines.
		Water Quality and Use, Hydrology, and Geohy	/drology (HYD)
HYD-01	2.3.1-1 [ESRP 2.3; 10 CFR 51.70(b)]	Provide site-specific detailed profiles of geology and aquifer units beneath the Comanche Peak Nuclear Power Plant.	Site-specific data and understanding of the hydrogeology is needed to determine potential impacts to groundwater.
HYD-02	2.3.1-2 [ESRP 2.3; 10 CFR 51.70(b)]	Provide a summary table of all site-specific hydraulic conductivity values for slug tests, packer tests, pumping tests, and any other relevant hydraulic testing conducted and justification for not using the higher hydraulic conductivity value determined from the 72-hour pumping test.	A summary of hydraulic conductivity information is needed to better understand the rationale for selecting parameters used to calculate potential contaminant transport rates. Pumping test data from fill material in a ravine was not used. Rational for not including the results of the test in the site analysis should be provided because it would likely result in calculation of significantly faster transport rates.
HYD-03	2.3.1-3 [ESRP 2.3 and 4.2; 10 CFR 51.70(b)]	Provide post-construction grading plans, the planned removal of regolith/undifferentiated fill, planned placement of engineered fill and the impact this will have on infiltration and surface runoff characteristics, groundwater gradients and flow paths.	Flow path analysis was conducted using existing conditions but site grading activities and stripping of unconsolidated regolith and undifferentiated fill will have a significant impact on infiltration and surface runoff characteristics, groundwater gradients and flow paths. The change in hydrogeologic conditions should be considered when conducting contaminant pathway analysis and determining designs for controlling and routing surface water.
HYD-04	2.3.1-4 [ESRP 2.3, 4.2 and 5.2; 10 CFR 51.70(b)]	Provide a map showing the start and stop location for each of the four groundwater flow path and travel time scenarios.	This information is needed to better understand the pathways analysis.

-			
HYD-05	2.3.1-5 [ESRP 2.3; 10 CFR 51.70(b)]	Provide a discussion and justification of the porosity, effective porosity, secondary porosity, and preferred pathways considered in the groundwater travel time calculations, and range of effective porosities and preferred pathways (e.g., secondary porosity) measured or estimated in the regolith/undifferentiated fill and underlying bedrock.	Travel time calculations appear to have been estimated using total porosity instead of effective porosity. Use of effective porosity would result in calculation of faster travel times. The presence of secondary porosity and preferred transport pathways such as fractures or solution enhanced voids that would also increase the rate of transport should also be discussed in greater detail. Site specific data should be used where possible but if not available it should be described why use of literature values is adequate for this site.
HYD-06	2.3.1-6	Provide hydrographs showing groundwater levels in wells installed at the site.	This information is needed to better understand the pathways analysis and potential impacts to
	[ESRP 2.3; 10 CFR 51.70(b)]		groundwater.
HYD-07	2.3.1-7 [ESRP 2.3, 4.2, and 5.2; 10 CFR 51.70(b)]	Provide all available site-specific soils and hydrogeologic data relevant to the proposed 384-acre onsite storage and evaporation ponds and blowdown treatment facility.	This information is needed to determine potential impacts of operating these facilities.
HYD-08	2.3.1-8	Provide proposed construction and design information for the proposed onsite storage and evaporation	This information is needed to determine potential impacts of operating these facilities.
	[ESRP 2.3, 4.2, and 5.2; 10 CFR 51.70(b)]	ponds, blowdown treatment facility, and discussion on how these facilities may impact groundwater and surface water and the monitoring that will be conducted to determine the impacts.	anipasse of operating those identities.
HYD-09	2.3.1-9 [ESRP 2.3, 4.2 and 5.2; 10 CFR 51.70(b)]	Provide the composition and toxicity of the salts in the evaporation ponds.	This information is needed to determine potential impacts of operating these facilities.

HYD-10	2.3.3-1 [ESRP 5.2; 10 CFR 51.70(b)]	Provide data on all pollutant point discharges to Lake Granbury and to the Brazos River between DeCordova Bend Dam and the Glen Rose stream gage (USGS 08091000), including the location, effluent flow rate, and allowable and average contaminant concentrations and temperature in each discharge. Include a description of information gathering efforts and sources.	
HYD-11	3.4.2-1 [ESRP 4.2 and 5.2; 10 CFR 51.70(b)]	Provide design details and calculations for the intake structure flow patterns, including screen opening size(s), through screen velocities under differing reservoir conditions, and assumptions of how the reservoir ambient flow field will affect the intake structure performance and hydraulics.	Include calculation packages pertaining to the intake structure hydraulics and through-screen velocities. Specifically, calculation package "CWS-13-05-230-002; Project Number 28831 Conceptual Design of Makeup Water Screening System to Lake Granbury Intake Structure. By Allan Wern May 5, 2008" should be made available.
HYD-12	3.4.2-2 [ESRP 4.2 and 5.2; 10 CFR 51.70(b)]	Provide for reference design details for the proposed submerged multiport diffuser for blowdown effluent to Lake Granbury, including horizontal and vertical alignment and location relative to significant bathymetric features of the reservoir.	Figures 3.4-3 and 5.3-1 show approximate locations and some diffuser design details, but do not show where the diffuser will be located relative to the old river channel within the reservoir. Include calculation packages pertaining to diffuser hydraulics, including flow rate, head loss, exit velocity and longitudinal variation of exit velocity. Specifically, calculation package "CWS-13-05-230-001 Conceptual Structural Design of Circulating Water, Make up Water and Blowdown Structural Water Systems" should be made available.
HYD-13	3.6.3.2-1 [ESRP 4.2 and 5.2; 10 CFR	Provide for reference details of how storm water will be routed, collected, treated and disposed for the Unit 3 and 4 facilities.	The calculation package "Comanche Peak Units 3 & 4 Conceptual Design of Grading and Drainage of COLA Building Structures, City of

	51.70(b)]		Glen Rose, Somervell County, Texas, Rev A. Project Number 28831, URS Washington Division" provides much of the information needed to complete the EIS.
HYD-14	3.9.3-1 [ESRP 4.2; 10 CFR 51.70(b)]	Provide information on groundwater dewatering that will be conducted during construction activities.	This information is needed to better understand the pathways analysis and potential impacts to groundwater.
HYD-15	5.2-1 [ESRP 5.2; 10 CFR 51.70(b)]	Provide estimates of the water availability, physical, and water quality impacts on Brazos River system of Brazos River system water management changes that would be induced by the implementation water rights adequate for operation of Units 3 and 4, including water quality impacts to Possum Kingdom Lake, Lake Granbury, and the Brazos River downstream of Lake Granbury. Include quantitative multi-year time series simulation data on the elevation, inflows, releases, and water quality of reservoirs in the Brazos River system	Section 5.2.1.7 of the ER states "Luminant is negotiating a contract with the BRA that takes into account for downstream water rights for the Brazos River. Extensive third party water availability modeling has been performed for the Brazos River drainage basin and activities are underway to amend the Brazos Region G water plan, as well as the State Water Plan, to provide adequate net diversions to CPNPP Units 3 and 4." Luminant has provided RiverWare modeling files for Possum Kingdom and Lake Granbury that estimate reservoir elevation, release, TDS, and chloride concentrations resulting from provision of water for Units 3 and 4. Luminant also modified the TCEQ water availability model (WAM) for the Brazos River Basin to simulate the systematic effects of providing water for Units 3 and 4. Provide on the docket simulation results (preferably electronic data with time series of reservoir elevations, releases, chemical concentrations) for the modified WAM simulations. Provide executable code and a description of the modifications that were made to the TCEQ WAM.

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HYD-16	5.2-2 [ESRP 5.2; 10 CFR 51.70(b)]	Provide a description of baseline water quality conditions for the Brazos River downstream of Lake Granbury and the impact that Unit 3 and 4 thermal and chemical discharges to Lake Granbury and Squaw Creek Reservoir would have on water quality downstream of Lake Granbury. This description should include a summary of the information gathering efforts for quantitative data on chemical concentrations and temperature.	
HYD-17	5.2-3 [ESRP 4.2 and 5.2; 10 CFR 51.70(b)]	Provide a more detailed description and justification of how the SMALL level of impact to groundwater and surface water was determined.	Little detail and justification is provided.
HYD-18	5.3-1 [ESRP 4.2 and 5.2; 10 CFR 51.70(b)]	Provide a characterization, with supporting data and rationale, of the ambient flow field and bathymetry that would affect or be affected by the proposed Units 3 and 4 intake and outfall structures, accounting for the site-specific bathymetry of lower Lake Granbury including a description of how spatial patterns of velocity and temperature are dependent on reservoir elevation, low-level outlet (sluice gate) flow, spillway flow, degree of thermal stratification, and the overall magnitude of release from DeCordova Bend Dam.	Section 5.3.1.1.1 of the ER states "During reservoir inflow conditions of approximately 60 cfs and outflow of approximately 28 cfs, there is no measurable flow or current in Lake Granbury. Movement of water in the lake is dictated more by the wind." Despite the low magnitude of water velocities within the reservoir, there are patterns of circulation and heat and mass transport that exist under different combinations of inflow, dam release flow, elevation, and wind speed and direction. These will be disrupted by Unit 3 and 4 intake operation, and will also determine the ambient conditions in which the proposed outfall structure will function—hence, the baseline hydrodynamic conditions need to be characterized. If an assumption of uniform flow through a given reservoir cross-section is made, it must be supported with field data and/or site-

			specific modeling results. Additional bathymetry data for the region between the proposed outfall section and the DeCordova Bend Dam is needed to enable assessment of the flow path from the diffuser to the Dam outlet.
HYD-19	5.3-2 [ESRP 5.2; 10 CFR 51.70(b)]	Provide a site-specific assessment of the flow field and water quality parameter distributions and related impacts in the portion of Lake Granbury extending from approximately one mile upstream of the proposed Units 3 and 4 water intake structure to DeCordova Bend Dam that will result from full-power operation of four units, with particular emphasis on the conditions that would exist during periods of minimum release from DeCordova Bend Dam and minimum inflow to Lake Granbury.	An understanding of the influence of the intake diversion flow on the flow patterns of the reservoir and the discharge is critical for assessing physical and environmental impacts. Section 5.2.1.6 of the ER asserts that the "the design of the intake structure combined with the low intake velocity would have little effect on general flow path or flow velocity of the riverine lake channel" and "the diffuser pipes would be located approximately 1.14 mi downstream from the intake to prevent heated discharge water from recirculating back to the intake. Based on the location of the diffuser upstream of the dam, hydrological impacts near the discharge structure would be SMALL." Explain why the intake flow would not entrain blowdown effluent from the diffuser under low-flow conditions and lead to buildup of heat and contaminants in the recirculation region, given that the aggregate flow rate of the Units 1-4 intake structures far exceeds that of either the Dam release or diffuser discharge, and the diffuser discharge flow is greater than the minimum flow release for the DeCordova Dam. If a heat-balance and chemical mass-balance arguments are provided to address the buildup of heat and concentrations during a critical low-flow period,

		Provide justification and rational for the construction,	provide clear definitions of the control volume used and the fluxes into and out of the control volume. Provide rationales for selection of control volume boundaries and for the temperature and chemical concentrations of all fluxes. If the control volume is assumed to be completely mixed, provide a justification for this assumption based upon knowledge of the local hydrodynamics of the proposed intake and discharge regions within Lake Granbury.
HYD-20	6.3-1 [ESRP 4.2 and 5.2; 10 CFR 51.70(b)]	preoperational, and operational radiological monitoring proposed for groundwater	Little detail and justification is provided.
HYD-21	6.4-1 [ESRP 4.2 and 5.2; 10 CFR 51.70(b)]	Provide justification and rational for the construction, preoperational, and operational hydrological monitoring proposed for groundwater.	Little detail and justification is provided.
HYD-22	7.2-1 [ESRP 7.1 and 7.2; 10 CFR 51.70(b)]	Provide a better description of the source term used to assess accidental releases to surface water and groundwater and the transport pathways that are likely to occur after the site has been altered during construction activities.	Little detail and justification is provided. Considering the grading and placement of engineered fill that is likely to occur during construction activities the estimated travel time is probably not as conservative as stated. Alteration of the site is likely to increase the rate of groundwater flow and groundwater is likely to discharge to surface water faster and closer to the release point than currently assumed in an accident scenario due to the stripping away of

			lower permeability regolith.
HYD-23	9.4.2.2.5-1 [ESRP 9.4.2]	Provide a discussion on the viability of routing the mixed effluent from the treated (BDTF) and untreated (BDTF bypass) blowdown water at ambient or belowambient chloride and TDS concentrations and temperature to the cooling tower basins for reuse. This alternative would avoid the construction of a return pipeline to Lake Granbury, as well as eliminate the need for constructing a discharge structure at Lake Granbury. The rationale for excluding the detailed evaluation this alternative should be clearly presented and discussed.	ower permousinty regent.
		Terrestrial Ecology (TE)	
TE-01	1.2.2-1 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Provide a copy of the following letter that is referenced in the ER: (FWS 2006) Response letter from the U.S. Department of the Interior Fish and Wildlife Service to ENERCON recommending that potential impact to three species be considered during project planning. December 4, 2006.	This letter is needed to document correspondence with governmental agency.
TE-02	1.2.2-2 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Provide copy of letter (made available at site visit) from Texas Parks & Wildlife Department to Enercon (W. Wenstrom) dated 8/3/07 concerning rare species.	This letter is needed to document correspondence with governmental agency.
TE-03	2.2.2-3 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Provide copies of the following documents that were made available at the site visit: Vegetation Management Guidelines, June 2004 (internal, Oncor elect. delivery); (2) Transmission Line Engineering Standards – Construction, 720-003 Construction Specification for Transmission Line Right-of-Way Clearing, 8/7/07, pp. 1-9; (3) Oncor Electric Delivery Co., Overhead Electric Environmental Guidelines for	These documents are needed to determine impacts from transmission line construction and operation to terrestrial resources.

TE-04	2.4.1-1 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Small-Scale Construction/Maintenance Projects, Rev. 3, Feb. 2008, Cover page & Guideline 1-10; (4) Oncor Electric Delivery Co., Overhead Electric Environmental Guidelines for Vegetative Maintenance on Right-of-Way and Company Facilities, Rev. 3, Feb. 2008, Cover page & Guideline 1-9; (5) Oncor Electric Delivery Co. LLC, Electric & Transmission Line Projects Disturbing 5 or More Acres, Storm Water Pollution Prevention Plan, Example Only EHST Project Number 00- 0000 March 2009. Provide copy of the following document that is referenced in the ER: (PBS&J 2007) Golden-Cheeked Warbler Bird Survey Report (for) TXU Power, Comanche Peak Power Plant, Somervell County, Texas. Prepared for TXU Power, 1601 Bryan Street, Dallas, Texas 75201 by PBS&J, 18383 Preston Road, Suite 110, Dallas, Texas 75252. May.	Information in this document is needed to quantify impacts, or lack of impacts, to the golden-cheeked warbler.
TE-05	2.4.1.1-1 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Provide a quantification of acreages, by habitat type, and terrestrial ecological impacts from construction activities in the Blowdown Treatment Facility area.	Quantification of acreages by habitat type and associated terrestrial ecological impacts have been provided for the 275 acres of the main construction area for the two nuclear reactors and cooling towers, but this information has not been provided for the 384-acre area to be associated with the blowdown treatment facility and surface reservoirs.
TE-06	2.4.1.1-2 [ESRP 4.3.1; 5.3.3.2]	Provide a description of what measures are to be taken to maintain biodiversity at the site, including measures to reduce invasive species establishment per Executive Order 13122, and whether Coordination with the U.S. Fish and Wildlife Service (FWS), and Texas Parks and Wildlife Department (TPWD) is planned in regard to the design of any project	

		mitigation areas to enhance or restore biodiversity.	
TE-07	2.4.1.1-3 [ESRP 4.3.1; 5.3.3.2]	Provide information on whether construction and operation of the project would impact species, or habitat suitable for them, on the TPWD Annotated County Lists of Rare Species (which is available at http://gis.tpwd.state.tx.us/TpwEndangeredSpecies/Des ktopDefault.aspx) for Somervell and Hood counties not specifically discussed in the ER, namely: American peregrine falcon, Baird's sparrow, interior least tern, mountain plover, western burrowing owl, whooping crane, smalleye shiner, plains spotted skunk, Brazos water snake, and Texas garter snake. Include a description of any site assessments performed for these species and their potential habitat, and whether any assessments are planned.	
TE-08	2.4.1.1-4 [ESRP 4.3.1; 5.3.3.2]	Describe measures that will be undertaken to design and construct the project to avoid disturbance to stream and riparian areas, and other important vegetative buffers, showing locations of areas to be protected.	
TE-09	2.4.1.1-5 [ESRP 4.3.1; 5.3.3.2]	State what measures will be undertaken to re-establish native cover through natural regeneration and/or planting on temporary disturbed areas, including measures to treat and control undesirable and /or invasive species, and measures to benefit wildlife. State whether these measures will be developed in coordination with TPWD.	
TE-10	2.4.1.1-6 [ESRP 4.3.1; 5.3.3.2]	Provide information occurrence and locations on the project site of rare plant species and sensitive plant communities, such as those that are tracked by TPWD, including information on any surveys undertaken for them.	

TE-11	2.4.1.1.3-1 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Provide information on expected impacts to birds (i.e., bird strikes), bats, and other wildlife from transmission line crossings of ponds to be constructed within the blowdown treatment area.	Location and size of ponds and other structures in the blowdown treatment area is being developed. Information on the impacts to birds, bats, and other wildlife of these structures, including transmission line crossings of ponds and other features in these areas, is needed to prepare the EIS.
TE-12	4.3.1-1 [ESRP 4.3.1]	Provide a quantification of acreages, by habitat type, and impacts from preconstruction activities to terrestrial ecological resources at the site.	Areas to be affected by preconstruction activities are needed to fully assess terrestrial ecological impacts as required in the EIS.
TE-13	4.3.1.4-1 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	State what impacts are expected to the small wetland area just to the southeast of the proposed cooling tower locations and what mitigation measures will be taken.	Need additional information on potential impacts to wetland area to form basis of evaluation in EIS.
TE-14	4.3.1.4-2 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Please provide an analysis of proposed mitigation for all alternatives evaluated to offset adverse impacts to aquatic resources, including wetlands; the analysis is to include sequencing of avoidance, minimization, and compensation.	The U.S. Army Corps of Engineers (USACE) is a Cooperating Agency with NRC on the EIS for Comanche Nuclear Power Plant Units 3 and 4 as of 21 April 2009. USACE has specifically stated: "The EIS should include analysis of proposed mitigation for all alternatives evaluated to offset adverse impacts to aquatic resources, including wetlands and insure that the sequencing of avoidance, minimization, and compensation has been fully integrated into the selection of the preferred alternative. Any proposed mitigation should include a functional assessment of impacted aquatic resources, including wetlands and demonstrate that mitigation provides replacement of lost wetland functions."

TE-15	4.3.1.4-3 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Please provide a functional assessment for any mitigation proposed for aquatic resources, including wetlands, which demonstrates replacement of lost wetland functions.	The U.S. Army Corps of Engineers (USACE) is a Cooperating Agency with NRC on the EIS for Comanche Nuclear Power Plant Units 3 and 4 as of 21 April 2009. USACE has specifically stated: "The EIS should include analysis of proposed mitigation for all alternatives evaluated to offset adverse impacts to aquatic resources, including wetlands and insure that the sequencing of avoidance, minimization, and compensation has been fully integrated into the selection of the preferred alternative. Any proposed mitigation should include a functional assessment of impacted aquatic resources, including wetlands and demonstrate that mitigation provides replacement of lost wetland functions."
TE-16	5.3.3.2-1 [ESRP 5.3.3.2]	Provide copy of the following document that was made available at the site visit: Plume Characteristics of Proposed New Cooling Towers at Comanche Peak, by Enercon for Luminant, TXUT-001-ER-5.3-005.	Conclusions in this section of the ER are based on information contained in Plume Characteristics of Proposed New Cooling Towers at Comanche Peak, by Enercon for Luminant, TXUT-001-ER-5.3-005. The document is needed to understand how the conclusions were reached.
TE-17	5.3.3.2.3-1 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Provide information stating the expected nature and magnitude of the impacts to areas of wetlands and lake surface from cooling tower fogging and icing.	Text in the ER indicates that impacts are expected but does not state their nature or magnitude. Provide this information and documentation for conclusions reached.
TE-18	5.6.1-1 [ESRP 4.3.1; 5.3.3.2; 5.6.1]	Provide information supporting conclusion that electrocution threat to raptors from transmission lines is small, including any references to documents in support of the conclusion.	This information is needed to support statements concerning impacts to raptors from electrocution.

TE-19	5.6.1-2 [ESRP 5.3.3.2; 5.6.1]	Provide information on the extent to which lighting associated with the two new reactors will contribute to sky glow light pollution that could affect wildlife such as birds, and any steps to be taken to reduce light pollution impact (see www.darksky.org for information on light pollution).	
		Aquatic Ecology (AE)	
AE-01	2.4.2-1 [ESRP 2.4.2; 10 CFR 50.71(d)]	Provide additional information about the aquatic community of the Brazos River downstream of Lake Granbury. Discuss the alligator gar fishery and any other "important" species in the river downstream that could be adversely affected by reduced flows or changes in water quality.	TPWD, on Feb. 16, 2009, provided comments on the ER documenting their concerns, which need to be addressed in the EIS. One concern was that operation of Units 3 and 4 could reduce flows in the Brazos River downstream of Lake Granbury sufficiently to affect "several imperiled fish species," including "a vulnerable alligator gar fishery." The ER provides minimal information about the Brazos River downstream.
AE-02	2.4.2.1-1 [ESRP 6.5.2; 10 CFR 50.71(d)]	Provide additional information about the seasonal water quality data summarized in Table 2.4-12.	Describe where and how often (dates) these data were collected, and explain further how they were intended to relate to the data in Table 2.3-26 (surface water data for Lake Granbury).
AE-03	2.4.2.2-1 [ESRP 6.5.2; 10 CFR 50.71(d)]	Provide details, including mesh size, about the experimental monofilament gill nets used in 2007/2008 fish collections in Lake Granbury and Squaw Creek Reservoir.	Texas Parks and Wildlife Department (TPWD), on Feb. 16, 2009, provided comments on the ER documenting their concerns, which need to be addressed in the EIS. One concern was that the mesh size used in the fish sampling may have been too large to capture small fish.
AE-04	2.4.2.2-2 [ESRP 6.5.2;	Compare the TPWD fisheries data for Lake Granbury to the fisheries data cited in the ER (Bio-West 2008) and evaluate whether conclusions regarding golden	TPWD, on Feb. 16, 2009, provided comments on the ER documenting their concerns, which need to be addressed in the EIS. One concern

	10 CFR 50.71(d)]	algae impacts on fisheries should be modified.	was that, based on TPWD fisheries data for Lake Granbury (Baird and Tibbs 2006), golden algae impacts on fish populations have not been as substantial as indicated in the ER.
		Socioeconomics and Environmental Just	tice (SOC)
SOC-01	2.2.1.2-1 [ESRP 2.5.2]	Provide the population of the 11 small towns and unincorporated communities within 10 miles of the CPNPP center point that are listed in Section 2.2.1.2 of the ER	
SOC-02	25.1.1.2-1 [ESRP 2.5.2]	For each municipality listed in Table 2.5-6, provide the distance from the CPNPP site (by road and by straight line)	
SOC-03	2.5.2.1-1 [ESRP 2.5.2]	Provide the name and location of any large industrial or commercial facilities located within 10 miles of the CPNPP site	
SOC-04	2.5.2.2.1-1 [ESRP 2.5.2]	Describe the length, width, and exact location of the FM 56 turn lanes near the plant entrance mentioned in Section 4.4.1.3 of the ER	
SOC-05	2.5.2.2.3-1 [ESRP 2.5.2]	Provide the following information about local traffic conditions: 1. The exact location (indicated by mile marks on a road map) of road segments for which traffic counts are provided in Sect. 2.5.2.2.3 of the ER	
		Peak hour traffic counts and Level of Service (LOS) for all road segments for which traffic counts are provided in Sect. 2.5.2.2.3 of the ER	
		3. The Level of Service that would apply when "capacity" as described in Section 4.4.1.3 of	

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		the ER is reached (1700 vehicles per hour for each direction of travel on a two-lane highway)																																Ī
		4. Road segments and intersections near CPNPP where congestion is currently experienced during shift changes for normal operations of CPNPP Units 1 and 2, and peak hour traffic counts and LOS for those segments and intersections	re ng NP nts	here of uring some of the counts of the coun	vhere during CPNPF counts	nere or ring s PNPF unts	re co ng sl IPP nts a	co sh PP U s ar	cor shi P U an	con shif P U and	nift Un nd	ge: t cl nits t L	esti cha s 1 O	tio an 1 a	on ng ar	n i ge an	is es nd	c s f	or cor	rre r n ar	en nor nd	ntly orn d p	y na oe	ex al al	xp op k l	pe pe ho	er ei	rie ra ui	en atio	ce or tra	ed ns aff	of		
		5. Road segments and intersections near CPNPP where congestion is currently experienced during CPNPP 1 and 2 maintenance and refueling outages, and peak hour traffic counts and LOS for those segments and intersections	re ng eli	here of uring (efueling	vhere during efuelir	nere o ring (Tuelin	re co ng C eling	co CF ing	cor CP	cor CP	ong PN ou	ge: NP uta	esti PP ag	tio 1 ges	on 1 a	n i aı s,	is and al	d :	uı 2 d ı	rre m pe	en nai eal	ntly iin ak	y ite h	ex en ou	xp ar ur	oe no tı	er ce	rie e af	en ar ffic	nc nc	ed d co	uni	ts	
		Road segments and intersections near CPNPP where congestion is currently experienced due to traffic related to oil and gas exploration and extraction activities	re af	here o	vhere o traffi	ere o traffio	re co affic	co fic r	cor ic re	cor	ng rel	ge:	esti tec	tio d 1	on to	n i o	is o	С	uı	rre	en	ntly	у	e	хр	ре	er	ie	en	CE	ed	dι	ıe	
		7. Peak hour traffic counts and LOS for key segments of US 377 in and around Granbury and for the intersections of US 67 and SR 144 in Glen Rose (if not addressed above)	me fo	egmer	egme and for	gmer d for	nent for t	ents or th	nts r th	nts the	s c ne	of in	US nte	IS ers	3 se	37 ec	77 ct	7 i tio	n n	aı s (nd of	d a f U	ar JS	οι 3 6	ur 67	nd 7 a	d aı	G	era d	an	ıbı	,		
		Peak hour traffic counts and LOS for key road segments and intersections in Cleburne and Stephenville that are on the main route to CPNPP	ind	s and	ts and	and	nd ir	d in	l int	int	ıte	ers	sec	cti	io	on	ns	ii 8	n	C	let	bι	ur	ne	е	aı	n	ď						
SOC-06	2.5.2.2.4-1 [ESRP 2.5.2]	Provide the following information about local road modifications:								low	wi	ing	g ir	inf	fo	ori	rm	na	tic	on	ı a	ab	001	ut	: Ic	oc	Ca	al	ro	oa	ad			
	[2014 2.0.2]	Projected start and end dates for the two planned improvement projects for US 377 discussed in Sect. 2.5.2.2.4 of the ER	ne	lannec	olanne	innec	ned	ed i	d ir	d in	im	npr	rov	ve	en	m	ne	nt	t p	orc	oje	ес	cts	s f	or	r١	U	JS	3					
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		to SH 144 that are currently underway (mentioned in Section 5.8.1.3 of the ER)	
		Any other planned improvements to important roads in the vicinity of the CPNPP site	
SOC-07	2.5.2.3.1-1 [ESRP 2.5.2]	Provide the definition of "net taxes" used in Table 2.5-17	
SOC-08	2.5.2.5-1 [ESRP 2.5.2]	Provide the following additional information on recreation:	
		Whether the applicant has any plans to open the Squaw Creek Reservoir to the public for fishing	
		When such access would be made available (if at all)	
		Any planned restrictions on who would be allowed to fish at the Reservoir and on the dates and times of that access (if planned)	
SOC-09	2.5.2.6-1	Provide the following information about housing:	
	[ESRP 2.5.2]	The name, average occupancy rate, and number of rooms for each hotel or motel in Somervell and Hood Counties that accepts long-term occupants	
		2. For each of the six Somervell County RV parks listed in Section 2.5.2.6 of the ER, the average number of RV spots that are vacant and available for long-term occupants	
		3. For each of the five Hood County RV parks listed in Section 2.5.2.6 of the ER, the average number of RV spots that are vacant and	

		available for long-term occupants	
		4. For each other RV park in Somervell and Hood Counties, the average number of RV spots that are vacant and available for long-term occupants	
		5. For each RV park in Stephenville, Cleburne, Joshua, and Alvarado, the average number of RV spots that are vacant and available for long-term occupants	
		6. The most likely locations and number of units for the possible new RV or mobile home parks mentioned in Section 4.1.1.2 of the ER	
		7. The most likely locations, number of units by housing type (single family and multi family), and expected completion dates for the "numerous housing developmentsalready planned or underway" mentioned in Section 4.1.1.2 of the ER	
		The number of listed properties in Granbury and Glen Rose in September 2007 (mentioned in Section 4.4.2.4 of the ER) that were rentals	
SOC-10	2.5.2.7.1-1 [ESRP 2.5.2]	Provide the following information about local water and waste water treatment systems:	
		Whether the Lake Granbury Surface Water and Treatment System is currently in operation. If not, an explanation is needed of any financial or technical issues that may inhibit future operations	
		The water treatment capacity and average daily consumption for the Cities of Granbury	

		and Tolar (currently reported differently in Table 2.5-20 and in the text of Section 2.5.2.7.1 of the ER)
		Current peak daily consumption (to supplement the average daily consumption) for all water treatment facilities listed in Table 2.5-20 of the ER
		Names of municipalities served by each water treatment system shown in Table 2.5-20 of the ER
		5. For all wastewater processing facilities, the same information shown for water systems in Table 2.5-20 of the ER, plus current peak demand, name of municipality served, and an identification of which wastewater facilities serve combined systems (those that handle both sanitary sewage and storm water runoff)
SOC-11	2.5.2.7.2-1 [ESRP 2.5.2]	Provide the following information about local public safety and medical services:
	[Whether the current loads given for local hospitals in Section 2.5.2.7.2 of the ER are average numbers and, if so, what the peak numbers are
		2. How the expected ratios of police officers and firefighters to citizens presented in Section 4.4.2.3 of the ER compare to Texas State standards Output Description:
		Existing plans for expansion of police and fire services in the CPNPP vicinity (mentioned in Section 4.4.2.3 of the ER)

SOC-12	2.5.2.8.2-1	Provide the following information about education:
	[ESRP 2.5.2]	1. Whether the maximum capacity of 2,862 reported for the Glen Rose ISD in Section 2.5.2.8.2 of the ER could be accommodated with current staff and equipment levels or if additional costs would be incurred to allow the system to function at maximum capacity
		2. Whether the maximum capacity of 8,556 reported for the Granbury ISD in Section 4.4.2.5 of the ER could be accommodated with current staff and equipment levels or if additional costs would be incurred to allow the system to function at maximum capacity.
SOC-13	2.5.4-1 [ESRP 2.5.4]	Provide the following information about environmental justice:
		Any customs or traditional behaviors of minority or low-income populations in the impact region pertaining to subsistence hunting, fishing, or farming. If there are none, then the staff needs a detailed description of the process by which the Applicant made that determination.
		2. Comments from any organizations contacted by the applicant that locate and assess uniquely vulnerable minority and low-income communities at or near the proposed site, to include date, name of contact, and the key points of the discussion.
		An explanation of the seeming inconsistency of the high percent of low-income census blocks shown in Table 2.5-24 and the small number of red areas shown

		in Fig. 2.5-19 of the ER
SOC-14	4.1.2-1 [ESRP 4.4.3]	Provide the following information about transmission corridors:
		Whether the Whitney or DeCordova transmission lines would require new Rights of Way
		A description of the aesthetic impacts expected from the construction of new towers on the Whitney and DeCordova Rights of Way
SOC-15	4.4.1.1-1 [ESRP 4.4.3]v	Provide the following information about the construction period workforce:
		1. A revised ER text that discusses the basis for the assumption that the peak workforce for CPNPP Units 3 and 4 will be 4,300, in light of the fact that twice that number of workers (8,694) was employed onsite during the construction of CPNPP Units 1 and 2
		The number (and not just the percentage) of workers in each craft shown in Table 4.4-1 of the ER for each year of construction
		The basis for the assumption that 25% of the inmigrating construction workforce will move their families to the region
		4. The basis for the assumption that 50% of inmigrating construction workers will settle in Somervell County and 50% in Hood County, and an adjustment of that assumption based on expected settlement patterns, if appropriate
		A timeline and supporting text indicating the size,

		schedule, and duration of each of the following workforces and how they are expected to overlap: (a) Unit 1 and 2 operations workers; (b) Unit 1 and 2 outage workers; (c) Unit 3 and 4 construction workers; (d) Unit 3 and 4 operations workers; (e) Unit 3 and 4 outage workers; (f) Unit 1 and 2 deliveries, and (g) Unit 3 and 4 construction-related deliveries.
SOC-16	4.4.1.3-1 [ESRP 4.4.3]	Provide the following information about construction- period impacts to transportation: 1. The construction-period impacts to local traffic identified in the 1987 traffic study referenced in
		Section 4.4.1.3 of the ER (and a copy of that document, if possible)
		A detailed description of any improvements made in terms of traffic signals, widened lanes, and additional signage after the 1987 traffic study
		3. Projected Level of Service for the road segments and intersections mentioned under Section 2.5.2.2.3 (above) during shift change times during the peak construction period for CPNPP Units 3 and 4, taking into account the presence of Unit 1 and 2 operations workers and the periodic presence of Unit 1 and 2 outage workers.
SOC-17	4.4.2.2-1	Provide the following information about the local
	[ESRP 4.4.3]	economy: 1. The basis for the assumption that most, if not all, indirect jobs during the construction period will be filled by the existing workforce

		The approximate portion of annual construction period expenditures to be made within the economic impact region (Bosque, Erath, Hood, Johnson, Somervell, and Tarrant Counties)
SOC-18	4.4.2.2.1-1	Provide the following tax-related information:
	[ESRP 4.4.3 and 5.4.3]	The method by which the assessed value of Units 3 and 4 will be determined for property tax purposes for each jurisdiction with taxing authority and the process by which the value will be reassessed over the life of the units.
		2. The estimated amount of ad valorem taxes to be paid annually on Units 3 and 4 and the expected distribution of those payments among the relevant local government units
		3. The estimated amount of additional sales and use tax to be paid to each relevant jurisdiction in Somervell and Hood Counties during each year of construction, along with a brief explanation of how those figures were calculated
SOC-19	4.4.2.3-1 [ESRP 4.4.3]	Explain the meaning of "annual yield" in the discussion of the capacity of the Wheeler Branch Reservoir in Section 4.4.2.3 of the ER
SOC-20	4.4.2.4-1 [ESRP 4.4.3; 10 CFR 51.70(b)]]	Explain why Section 4.4.2.4 of the ER predicts SMALL to MODERATE construction period housing impacts in light of the fact that the number of housing units needed by inmigrants is likely to exceed the number of available units and the prediction of LARGE impacts in Section 4.4.3.2

SOC-21	4.4.3-1 [ESRP 4.4.3]	Describe how construction period activities could interact with subsistence activities of minority or low-income populations to cause adverse impacts	
SOC-22	4.4.3-2 [ESRP 4.4.3]	Describe the main socioeconomic and environmental justice impacts of preconstruction activities at the site	Currently, there is no discussion of such impacts in the ER
SOC-23	5.8.1.1-1 [ESRP 5.4.3]	Provide the following information about the operations period workforce:	
		A revised ER text explaining why Units 3 and 4 require only 550 operations workers while Units 1 and 2 are using 1,000 workers	
		The maximum number of workers involved in peak hour morning and evening shift changes during the operations period	
		The daily number of operations-related deliveries expected for Units 3 and 4.	
SOC-24	5.8.2.1-1 [ESRP 5.4.3]	Provide the following information about operations period demography:	
		The basis for the assumption that 50% of new unit employees will be hired locally and that 50% will migrate to the area and bring their families with them	
		An explanation of how the numbers presented in the discussion of the "bust effect" in Section 5.8.2.1 of the ER were calculated.	
		A table or timeline showing the number of CPNPP- related people (workers and family members) entering and leaving the two-county region each year and the annual net loss or gain in population	

SOC-25	5.8.2.2-1 [ESRP 5.4.3]	Provide the following information about the local economy: 1. The basis for the assumption that most, if not	
		all, indirect jobs during the operations period will be filled by the existing workforce	
		The approximate portion of annual operations period expenditures to be spent within the economic impact region for Units 3 and 4.	
SOC-26	5.8.2.2.1-1	Provide the following tax-related information:	
	[ESRP 5.4.3]	The estimated amount of ad valorem taxes to be paid annually on Units 3 and 4 and the expected distribution of those payments among the relevant local government units	
		 The estimated amount of additional sales and use tax to be paid to each relevant jurisdiction in Somervell and Hood Counties during the average year of operations, along with a brief explanation of how those figures were calculated 	
SOC-27	5.8.2.3.4-1	Provide the following information on recreation:	
	[ESRP 5.4.3]	The extent to which the water level of Lake Granbury will be affected by extraction of cooling water and how that is expected to affect recreation	
		The extent to which the water temperature of Lake Granbury would be affected by the cooling process and how that is expected to affect recreation.	
SOC-28	5.8.3-1	Describe how operations period activities could interact with subsistence activities of minority or low-	

	,		
	[ESRP 5.4.3]	income populations to cause adverse impacts	
SOC-29	9.3.4.3.2-1 [ESRP 9.3]	Provide projected operations-period socioeconomic impacts for the alternative sites on the same topics addressed in Sections 5.8.1 and 5.8.2 of the ER	
SOC-30	9.3.4.3.3-1 [ESRP 9.3]	Provide descriptive information and projected environmental justice impacts for the alternative sites on the same topics addressed in Sections 4.4.3 and 5.8.3 of the ER	
SOC-31	9.4.3.1-1 [ESRP 9.3]	Provide descriptive information and projected construction-period socioeconomic impacts for the alternative sites on the same topics addressed in Sections 4.4.1 and 4.4.2 of the ER	
		Historical and Cultural Resources ((HR)
HR-01	2.5.3-1 [ESRP 4.4.5]	In Chapter 2.5.3 of the ER, a baseline cultural sequence and historic and prehistoric context is needed.	In Chapter 2.5.3 of the ER, include a baseline cultural sequence and historic and prehistoric context. A baseline cultural sequence and historic and prehistoric context provides the reader with the necessary information to understand the context of the data presented in this chapter.
HR-02	2.5.3.1-1 [ESRP 4.4.5]	Provide a copy of the document titled: Archaeological Survey Report on the Luminant Waterline Extension Project, Comanche Peak Nuclear Power Plant, Hood And Somervell Counties, TX. Enercon 2008, referenced in Chapter 2.5.3.1 of the ER.	Provide a copy of the document titled: Archaeological Survey Report on the Luminant Waterline Extension Project, Comanche Peak Nuclear Power Plant, Hood And Somervell Counties, TX. Enercon 2008, referenced in Chapter 2.5.3.1 of the ER. This document is needed for reference purposes in completing the EIS.

HR-03	2.5.3.3-1 [ESRP 4.4.5]	Provide a copy of the stamped Texas Historical Commission Concurrence letter dated February 12, 2007, referenced in Chapter 2.5.3.3 of the ER.	Provide a copy of the stamped Texas Historical Commission Concurrence letter dated February 12, 2007, referenced in Chapter 2.5.3.3 of the ER. This document is needed for reference purposes in completing the EIS.
HR-04	5.1.3.2-1 [ESRP 4.4.5]	Provide a copy of the document titled: Generic Research Design for Archaeological Surveys of ONCOR Electric Delivery/Electric Transmission Line Projects in Texas, ONCOR N.D.	Provide a copy of the document titled: Generic Research Design for Archaeological Surveys of ONCOR Electric Delivery/Electric Transmission Line Projects in Texas, ONCOR N.D. This document is needed for reference purposes in completing the EIS.
		Meteorological and Air Quality (N	MET)
MET-01	2.7.1.1-1 [ESRP 2.7; 10 CFR 51.70(b)]	Provide a corrected version of ER Sections 2.7.1.1, 2.7.4.2, 2.7.3, and 6.4 to clarify the sources of the meteorological data used for each different type of calculation.	To be consistent with ESRP 2.7, the NRC staff must understand the source of the data which is used in each separate meteorological calculation and evaluation. The current ER does not clearly identify which data-years were and were not used for certain evaluations. The correction is required to direct the reader to the precise source of the data used in the ER. Refer to Information Need MET-13.
MET-02	2.7.1.1-2 [ESRP 2.7; 10 CFR 51.70(b)]	Provide the 2005 meteorological data in Reg. Guide 1.23 format.	To be consistent with ESRP 2.7, the NRC staff must understand the source of the data which is used in each separate meteorological calculation and evaluation. The current ER specifies that the 2005 data-year was used for some calculations but not for others due to missing data. The data must be provided the NRC staff to allow independent evaluation of its use within the calculations and DEIS. Refer to Information

			Need MET-23.
MET-03	2.7.2.1.4-1 [ESRP 2.7; 10 CFR 51.70(d)]	Provide moisture data collected onsite during 2008, and the corresponding data from the Mineral Wells and Dallas-Fort Worth (DFW) airport sources.	To be consistent with ESRP 2.7, the NRC staff must independently evaluate the meteorological data provided within the ER. During the site audit, the applicant's staff verbally described the collection of atmospheric moisture data during 2008 and how these data were used by the applicant to verify the applicability of using moisture data from Mineral Wells and DFW within the ER. NRC staff must have access to the onsite data to verify this assumption before using the Mineral Wells and DFW data in the DEIS analysis. Refer to Information Need MET-24.
MET-04	2.7.2.1.7-1 [ESRP 2.7; 10 CFR 51.70(b)]	Provide a corrected version of ER Section 2.7.2.1.7, to correct an incorrect reference to Table 2.7-34 of the Unit 1 and 2 FSAR. The correct reference is to Table 2.3-34.	To be consistent with ESRP 2.7, the NRC staff must understand the source of the atmospheric stability data which is used as part of the atmospheric dispersion calculations. The correction is required to direct the reader to the correct source of the data used in the ER. Refer to Information Need MET-11.
MET-05	2.7.3-1 [ESRP 2.7; 10 CFR 50.34]	Provide in electronic format the input and output files for the PAVAN code used to calculate the X/Q values for the evaluation of design basis accidents (DBA) in the ER. Include all files required to run the code, including the formatted meteorological data file.	To be consistent with ESRP 2.7, the NRC staff has a confirmatory role in evaluating DBA calculations. NRC staff will run the PAVAN code and compare the results of its calculations with the results of the applicant's calculations. Refer to Information Need MET-10, 19, and 21.
MET-06	2.7.4-1 [ESRP 2.7; 10 CFR 50,	Provide in electronic format the XOQDOQ input and output files, including the associated formatted meteorological data file.	To be consistent with ESRP 2.7, the NRC staff has a confirmatory role in evaluating the relative concentration and deposition estimates for assessing the individual doses resulting from the

	Appendix I]		routine release of radioactive effluents to the atmosphere. NRC staff will run the XOQDOQ code and compare the results of its calculations with the results of the applicant's calculations. Refer to Information Need MET-10, 19, and 21.
MET-07	2.7.4-2 [ESRP 2.7; 10 CFR 50, Appendix I]	Provide for evaluation and reference the long-term atmospheric dispersion and deposition estimates for the evaporation pond.	To be consistent with ESRP 2.7, the NRC staff has a confirmatory role in evaluating the relative concentration and deposition estimates for assessing the individual doses resulting from the routine release of radioactive effluents to the atmosphere. The evaporation ponds will contribute to those effluents, so they must be included within the calculations of routine releases from the proposed project. Refer to Information Need MET-14.
MET-08	4.4.1.6-1 [ESRP 4.4.1; 10 CFR 51.71(c)]	Provide for evaluation and reference quantitative estimates of air emissions associated with construction activities. Include number of workers, number of daily worker trips, number of daily deliveries, manner of deliveries (truck, rail, or other), area of site disturbance, volume of excavation, manner of removal/disposal of excavated materials, duration of construction activities, length and type (dirt or asphalt) of access roads, construction vehicle and heavy equipment traffic (exhaust emissions and dust generation), emissions from specialized equipment (cement batch plant), and emissions associated with earthmoving and/or blasting activities.	The NRC staff must evaluate the quantity and type of emissions associated with construction activities to evaluate the need for air quality permits, compliance with permits, and/or impacts associated with emissions in the DEIS. Refer to Information Need MET-07.
MET-09	4.4.1.6-2 [ESRP 4.4.1; 10 CFR	Provide for reference a description of the process used to develop and implement air quality monitoring requirements, including means of communicating	NRC staff must evaluate how the applicant intends to implement air emissions controls and best management practices (BMP) during the

	51.71(c)]	requirements to workers, during the construction phase.	construction phase, and include results of the evaluation in the DEIS. Refer to Information Need MET-09.
MET-10	5.3.3.1-1 [ESRP 5.3.3.1; 10 CFR 51.71(d)]	Provide in electronic format the input and output files for the SACTI code used to calculate the heat dissipation plume characteristics in the ER. Include all files required to run the code, including the formatted meteorological data file.	To be consistent with ESRP 5.3.3.1, the NRC staff has a confirmatory role in evaluating the characteristics of the heat dissipation plume. NRC staff will evaluate the SACTI code results to independently evaluate the conclusions. Refer to Information Need MET-10, 19, and 21.
MET-11	5.8.1.6-1 [ESRP 5.8.1; 10 CFR 51.71(c)]	Provide for reference current air permit materials, including TCEQ Air Permit No. 19225, and the Renewal Application dated February 19, 2004.	The NRC staff must list all air permits, and the compliance status for such permits, that will be required for the proposed action. The air quality permits required for the proposed action will depend not only on the emissions associated with the new units, but will jointly incorporate emissions associated with the existing units. Therefore, the existing air permit information must be discussed and referenced in the DEIS. Note – section header 5.8.1.6 is missing, as a typographical error, in the current ER. The text is in place, but is missing this section header. Refer to Information Need MET-01 and MET-25
MET-12	5.8.1.6-2 [ESRP 5.8.1; 10 CFR 51.71(c)]	Provide for evaluation and reference quantitative estimates of air emissions associated with operations of Units 3 and 4. Include worker vehicle traffic (exhaust emissions and dust generation), emissions from specialized equipment (such as boilers and generators), and any other emissions sources that may be regulated under the facility's Clean Air Act permit.	The NRC staff must evaluate the quantity and type of emissions associated with operations to evaluate the need for air quality permits, compliance with permits, and/or impacts associated with emissions in the DEIS. Refer to Information Need MET-08.

	He	ealth Physics, Non-Accident Radiological Dose, Publi	c Health, and Noise (HP)		
HP-01	3.5.1.3-1 [ESRP 5.4]	Provide information on the design (including location) and planned operation of the evaporation pond to limit tritium concentration in Squaw Creek reservoir.	The request information is needed to do an adequate review of the tritium releases from the site. Refer to Information Need HP-05		
HP-02	4.4.1.5-1 [ESRP 4.4.1]	Provide information and data on the noise levels generated by construction equipment and the calculated attenuated noise levels at points of interest as cited on p. 4.4-5 and 4.4-6 in the ER.	The requested information is needed to evaluate the anticipated noise levels at specific locations. The ER cites the requested data as supposedly being in Table 4.4-3 (as cited on p. 4.4-5 and p. 4.4-6). However, the Table 4.4-3 in the current version of the ER deals with labor availability, not noise levels. The referenced table with the noise data seems to be missing from the ER.		
HP-03	4.5.2-1 [ESRP 4.5]	The ER (4.5.2.1) assessment of the dose to construction workers indicated no contribution from an onsite independent spent fuel storage installation (ISFSI). If an ISFSI is planned for storage of spent fuel from existing Units 1 & 2, provide any information that is needed to address the contribution of direct radiation from the ISFSI to construction workers on proposed Units 3 & 4 and nearby residents.	Provide information on the expected date of operation, design, location, and estimated direct radiation (including sky-shine contribution of photons and neutrons) contribution to construction worker dose of any planned ISFSI. The requested information is needed to address the contribution of direct radiation from any planned ISFSI to construction workers on proposed Units 3 & 4 and nearby residents. Refer to Information Need HP-06.		
	Environmental Impacts of Accidents (ACC)				
ACC-01	7.2.2-1 [ESRP 7.1 and 7.2]	Provide information on how the site-specific input files to MACCS were created and the sources of information used to create, update, or modify all files used. Provide electronic copies of all input and output files for the MACCS2 runs.			

ACC-02	7.2.2-2 [ESRP 7.1 and 7.2]	Provide the bases for assuming 100 percent of the population is evacuated. Demonstrate that assuming 99.5 percent of the population is evacuated would not substantially change the results. Provide the input and output MACCS files used in this sensitivity evaluation.	
ACC-03	7.2.2-3 [ESRP 7.1 and 7.2]	Are the meteorological data used in the MACCS2 analysis consistent with the meteorological data used to calculate X/Q values for routine releases and release for DBA? If not, why not? If different, justify using different meteorological data sets for different purposes.	
ACC-04	7.2.2-4 [ESRP 7.1 and 7.2]	Section 7.2.2 states the bases for the total cost of severe accidents at the CPNPP site (\$714/RY). Specifically, show its formulation or if an output parameter is from an analysis code, identify the analysis code and output parameter being used.	
ACC-05	7.2.2-5 [ESRP 7.1 and 7.2]	Provide the bases for the selection of 2056 as the year for projecting population. Explain why this is different than the 60 year licensing period used in Section 7.3.3 for the severe accident mitigation alternatives analysis.	
ACC-06	7.3.2-1 [ESRP 7.3]	Explicitly state the disposition of the twenty-nine (29) severe accident mitigation alternative (SAMA) items that were screened out because they were not design alternatives. Provide the SAMA evaluation for each of these items or justification for their exclusion.	
		Fuel Cycle, Radiological Waste, and Decomm	issioning (FC)
	None	,	
		4.	

		Transportation (TRN)	
TRN-01	3.8-1 [10 CFR 51.52, Transportation Impact Analysis]	Provide a full and detailed transportation impact analysis (Transportation Analysis Report) including the RADTRAN and TRAGIS input and output files as well as the calculation package that supports the analysis. The calculation package should also provide rationale and reference for multiplier for population growth in future.	The calculation packages (TXUT-001-ER-3.8-CALC-008 and TXUT-001-ER-3.8-CALC-009) that support the ER transportation sections are needed to perform an adequate review of the transportation impacts. Refer to Information Need TR-02 and TR-05.
TRN-02	3.8-2 [10 CFR 51.52, Transportation Impact Analysis]	Provide revised text in Section 3.8.1.11 and Table 3.8.1 of the ER to accurately represent the number of fuel assemblies per package and number of packages per truck, for fresh fuel shipments.	Required to correct typographical errors in the ER. Refer to Information Need TR-01.
TRN-03	3.8-3 [10 CFR 51.52, Transportation Impact Analysis]	Provide revised description of the total number of shipments assumed in section 3.8.1.11, paragraph 5 in the ER.	Required to correct typographical errors in the ER. Refer to Information Need TR-03.
TRN-04	3.8-4 [10 CFR 51.52, Transportation Impact Analysis]	Provide reference source and description of rationale for input data used in RADTRAN code for aerosol, respirable and total release fractions from spent fuel cask during transportation accident.	Refer to Information Need TR-09.
TRN-05	3.8-5	Provide references and analysis to demonstrate that	Refer to Information Need TR-06.

	[10 CFR 51.52, Transportation Impact Analysis]	NRC has approved higher enrichments and burnup that exceed basis in the S-4 table.	
TRN-06	3.8-6 [10 CFR 51.52, Transportation Impact Analysis]	Provide reference and analysis of decay heat load from spent fuel in comparison to Table S-4.	Refer to Information Need TR-04.
TRN-07	7.4-1 [10 CFR 51.52, Transportation Impact Analysis]	Provide a full and detailed analysis of radioactive inventory of spent fuel, including input and output files from ORIGEN-ARP for results presented in Table 7.4-1.	Refer to Information Need TR-08.
		Need for Power and Benefit Cost (NP)
NP-01	8.0-1 [10 CFR 51.71(d)]; ESRP 8.2.1]	Provide an updated version of the "need for power" discussion in Section 8 of the ER to include data more recent than those contained in the 2007 ERCOT assessment.	Throughout the need for power section in the ER, the Applicant relies solely on the 2007 ERCOT assessment. Newer data are now available, and we request that the applicant update its need for power analysis based on the new information released by ERCOT since the original filing. We request that the applicant compare these new forecasts with the ones originally supplied in the ER, discuss them within the context of forecasting uncertainty, and discuss whether new trends markedly change

			the conclusions in the ER.
NP-02	8.0-2 [10 CFR 51.71(d)]; ESRP 8.0]	Provide a revised version of the introductory discussion in Section 8 of the ER to clarify the Applicant's principal objectives in proposing the new Units 3 & 4, including a discussion of baseload power generation for the merchant wholesale market.	At present, the referenced discussion in the ER draws no distinction between the utility of the new facilities for specific power needs.
NP-03	8.0-3 [10 CFR 51.71(d)] ESRP 8.2.1]	Provide a discussion of the effects and implications of the following new developments on the need for power: (1) The State has imposed new mandates on parts of the power system to encourage energy saving, which ERCOT includes in its new forecasts. (2) The ERCOT is switching from a zonal to a modal marketing power management grid. (3) The system is moving toward digital metering, which could affect better load shape management.	The ER does not discuss a number of new developments in the ERCOT region that may influence the need for power. The requested discussion should address each of the highlighted issues would affect the need for power from the proposed Units 3 & 4.
		Alternative Sites and Alternative Plant Sys	etems (ALT)
ALT-01	9.2.3.1.1.2-1 [ESRP 9.2.3; 10 CFR 51.71(d)]	Provide an estimate for the land use requirements for the six-unit 3,180 MW(e) coal-fired plant alternative described in the ER based on the land use requirements of actual large coal plants.	In Section 9.2.3.1.1.2, Land Use [Coal], the ER states that 5,406 acres would be needed for the alternative six coal-fired units based on the NUREG-1437 estimate of 1700 acres per 1000 MW(e). However, the NRC acknowledges that this reference provides an unrealistically high estimate resulting in projected land needs that exceed the available land at the Comanche Peak site. In order to determine the ability for the proposed coal-fired alternative to be located at the Comanche Peak site, a more realistic estimate is needed. The land use requirements will impact the need for additional land or the need to locate a portion of the generating

			capacity at another location. Use a minimum of three regional plants or other plants in Luminant's fleet to provide an average land use requirement in acres per MW(e). Provide the names, locations, and sizes of each plant used in the estimate. Refer to Information Need ALT-06.
ALT-02	9.2.3.3.4-1 [ESRP 9.2.3; 10 CFR 51.71(d)]	Provide a corrected version of ER Section 9.2.3.3.4. Please correct the economic comparison references and/or cost values.	In Section 9.2.3.3.4, Economic Comparison, the ER provides a reference for nuclear energy levelized costs per kWh (NINI 2004) but the costs presented in this section for coal and gas are much higher than the values presented in NINI 2004 and the values presented in previous sections of the ER (see below). If the NINI 2004 reference is not the appropriate reference for the coal and gas figures in this section, the appropriate reference should be provided.
			The levelized costs for the other power sources presented in other sections of the ER are:
			Wind – \$0.03 to \$0.05 per kWh - BW 2005
			Solar – \$0.18 to \$0.23 per kWh - EERE 2006
			Hydro – \$0.04 - DOE 2001
			Geothermal – \$0.04 to \$0.08 per kWh – CGT 2007
			Biomass – \$0.052 to \$0.067 per kWh – SORR undated
			Coal (pulv) – \$0.033 to \$0.041 per kWh - NETL 2007

	Gas – \$0.035 to \$0.048 per kWh – no source given
	Nuclear - \$0.02 to \$0.035 per kWh - NINI 2004