

## PMComanchePeakPEm Resource

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**Subject:** Second Set of Responses to the ER RAI  
**Attachments:** TXNB-09027 ER RAIs.pdf

Luminant has submitted to the NRC the second set of responses to the June 26, 2009 ER RAI. Attachments 1 and 2 (actual RAI responses) are included in this electronic distribution. Stephen Monarque and Michael Willingham each received a 39 Mb CD with additional documents identified as attachments in the various responses.

If there are any questions regarding this submittal, please contact me or contact Don Woodlan (254-897-6887, [Donald.Woodlan@luminant.com](mailto:Donald.Woodlan@luminant.com)).

Thanks,

John Conly  
COLA Project Manager NuBuild  
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**Subject:** Second Set of Responses to the ER RAI  
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Ref. # 10 CFR 52

July 27, 2009

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555  
ATTN: David B. Matthews, Director  
Division of New Reactor Licensing

**SUBJECT:** COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 3 AND 4  
DOCKET NUMBERS 52-034 AND 52-035  
SECOND PARTIAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION  
REGARDING THE ENVIRONMENTAL REVIEW OF THE COMBINED LICENSE  
APPLICATION OF COMANCHE PEAK UNITS 3 AND 4

**REFERENCE:** Letter, M. Willingham to D. Woodlan, "Request for Additional Information Regarding the Environmental Review of the Combined License Application for Comanche Peak Nuclear Power Plant, Units 3 and 4," dated June 26, 2009 (ML091460707)

Dear Sir:

Luminant Generation Company LLC (Luminant) hereby submits the second of three letters responding to specific questions posed in the referenced letter for the Combined License Application for Comanche Peak Nuclear Power Plant Units 3 and 4. A list of the responses included in this letter is provided as an attachment to the letter.

When support documents such as calculations or reports are provided, only the revision used to support the application is submitted. Any subsequent revisions to those documents will be retained and will be available for review or audit on site.

Should you have any questions regarding these responses, please contact Don Woodlan (254-897-6887, Donald.Woodlan@luminant.com) or me.

There are no commitments in this letter.

I state under penalty of perjury that the foregoing is true and correct.

Executed on July 27, 2009.

Sincerely,

Luminant Generation Company LLC

Rafael Flores

- Attachments -
1. List of Responses Included in this Letter
  2. Response to Request for Additional Information Regarding the Environmental Review of the Combined License Application for Comanche Peak Nuclear Power Plant, Units 3 and 4 (electronic)
  3. CD – Pre-flighted “.pdf” Files

Cc - Stephen Monarque, w/ all attachments (CD)  
Michael Willingham, w/all attachments (CD)

Electronic Distribution w/ Attachments 1 and 2

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**LIST OF RESPONSES INCLUDED IN THIS LETTER**

ACC-01	HP-02	MET-01	SOC-09	SOC-24	TE-10
ACC-04	HP-03	MET-11	SOC-11	SOC-25	TE-11
ACC-05	HR-01	NP-01	SOC-12	SOC-26	TE-14
ACC-06	HYD-01	NP-02	SOC-13	SOC-27	TE-15
AE-01	HYD-08	NP-03	SOC-14	SOC-28	TE-17
AE-02	HYD-09	SOC-01	SOC-15	SOC-29	TE-18
AE-03	HYD-20	SOC-02	SOC-17	SOC-30	TE-19
AE-04	HYD-23	SOC-03	SOC-18	SOC-31	
GEN-01	LU-01	SOC-04	SOC-19	TE-06	
GEN-02	LU-03	SOC-06	SOC-20	TE-07	
GEN-03	LU-04	SOC-07	SOC-21	TE-08	
GEN-04	LU-05	SOC-08	SOC-22	TE-09	

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## RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

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**Comanche Peak, Units 3 and 4**

**Luminant Generation Company LLC**

**Docket Nos. 52-034 and 52-035**

### RAI REGARDING THE ENVIRONMENTAL REVIEW

**DATE OF RAI ISSUE: 6/26/2009**

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#### QUESTION NO.: ACC-01 (7.2.2-1)

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.

#### ANSWER:

Electronic copies of the input and output files for the MACCS2 runs were provided in Luminant letter TXNB-09006 dated April 15, 2009 (ML091120279). The basic input files and a brief description of the file modifications made to incorporate site specific data are provided below.

The **ATMOS** file contains inputs related to atmospheric transport of isotopes, radioactive decay, and released plume parameters. The data in the sample file (IN1A.inp) that is made site-specific is as follows:

1. Spatial grids changed to match available site data sources
2. US-APWR core inventory used
3. Release categories are input for various accident scenarios, involving different numbers of plumes released, times to reach emergency condition, release times after accident, release durations, plume heat contents, plume release heights, and release fractions of each isotope group.

The US-APWR core inventory lists several uranium isotopes that were not included because the MACCS2 computer code includes only the 60 radionuclides considered important for nuclear power plant analyses.

The **EARLY** file contains inputs related to exposure, evacuation, and sheltering during the emergency phase. The generic approach (as given in the sample EARLY file, IN2A.INP) was applied to Comanche Peak Units 3 and 4 with the changes mainly reflecting changes in gridding.

The **CHRONC** file contains inputs related to exposure, evacuation, and sheltering during the intermediate- and long-term phases. These inputs emphasize latent health effects and economic impacts. The information that is site-specific includes the fraction of area that is land and the fraction of area devoted to farming.



In addition, the generic cost data was increased by the federal consumer price index to account for inflation since the generic file was developed.

The **MET** files contain inputs related to weather at the Comanche Peak site. Three MET files were used in this analysis since each MET file contains only one year of data. The MACCS2 code inputs require meteorological data for every hour, but most met stations have periods of bad or missing data. The met data provided by Comanche Peak underwent an independent review in which bad data was identified, flagged, and evaluated to determine whether it was acceptable based on the data trends. After this evaluation, the data gaps at Comanche Peak were determined to be minimal (162 hrs out of a total of 26,280 hours). Often only part of the data was missing. When only one hour of data was missing, values were interpolated based on the values immediately before and after the data gap. When more than one hour of data was missing in series, then the data was replaced with data from days with similar meteorological conditions immediately before and after the missing data.

The **SITE** file contains inputs related to population and land use at the Comanche Peak site. These inputs are site-specific:

1. Spatial distances which define the grid overlaid on the site map.
2. Population data for each element in the spatial grid.
3. Fraction of land rather than water in each space of the grid.
4. Region index in each space of the grid. The region index is used to describe the type of land/water setting in the grid.
5. Watershed index in each space of the grid.
6. Crop data, including the fraction of land devoted to various types of crops, and the start and stop days of the growing season.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: ACC-04 (7.2.2-4)**

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.

**ANSWER:**

The total costs of a severe accident were determined for three separate years of meteorological data (2001, 2003, and 2006) and the year with the highest dollar risk was selected. The total mean economic cost, in \$/accident, was obtained directly from the MACCS2 output for each release category. These were

converted to a cost per reactor year by multiplying by the release frequency per year for each release category (from the PRA). An example is provided below:

Release Frequency (per reactor-year) \* Total Economic Cost in \$/accident = Cost for release category (\$/RY). For RC1, this gives:  $7.50E-09/R Y * \$1.32E+10 = \$9.90E+01/R Y$

The value reported (\$714/R Y) is the total of all release categories using the 2006 met data.

Dollar Risk							
STC	Release Frequency (per reactor-year)	Met Data - 2001		Met Data - 2003		Met Data - 2006	
		Output \$/accident	CP \$/RY	Output \$/accident	CP \$/RY	Output \$/accident	CP \$/RY
RC1	7.50E-09	1.08E+10	8.10E+01	1.21E+10	9.08E+01	1.32E+10	9.90E+01
RC2	2.10E-09	5.35E+09	1.12E+01	7.02E+09	1.47E+01	7.87E+09	1.65E+01
RC3	2.00E-08	1.48E+10	2.96E+02	1.59E+10	3.18E+02	1.69E+10	3.38E+02
RC4	1.10E-08	4.23E+09	4.65E+01	4.76E+09	5.24E+01	5.22E+09	5.74E+01
RC5	6.50E-08	2.20E+09	1.43E+02	2.87E+09	1.87E+02	3.00E+09	1.95E+02
RC6	1.10E-06	6.71E+06	7.38E+00	7.06E+06	7.77E+00	7.39E+06	8.13E+00
Total			5.85E+02		6.70E+02		7.14E+02

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

**QUESTION NO.: ACC-05 (7.2.2-5)**

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.

**ANSWER:**

Environmental Report Tables 2.5-1 and 2.5-2 concern demographics relative to the socioeconomic impact of constructing and operating the plant, considering projected population changes in various compass directions at several distances from the CPNPP Units 3 and 4 center points. Those tables are consistent with ESRP 2.5.1 "Demography" that requires "current population distributions, population distributions

predicted at the time of plant startup, and for 10-year increments reaching 40 years from the latest decennial census." This ESRP section does not discuss plant life extension.

The SAMDA analysis supporting the "Monetization of the Base Case" in Subsection 7.3.3 uses a 60-year projection for population and cost. The 60 years assumes a 40-year license (year 2056) with a 20-year life extension. This is consistent with the methodology in NUREG/BR-0184, "Regulatory Analysis Technical Evaluation Handbook" (Section 5.7.3.3). ESRP 7.2 does cite ESRP 2.5.1 as a data source for information. However, in following the methodology from NUREG/BR-0184, a longer plant life is used, conservatively resulting in higher population and higher projected cost.

Assuming a 40-year plant life with a 20-year life extension is conservative in that the additional 20 years gives a higher projected population and higher costs. This will maximize the exposure cost, relocation costs, replacement power costs, cleanup cost, and decontamination costs.

While the two sets of regulatory guidance do not agree, they were developed for different reasons and are not contradictory.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: ACC-06 (7.3.2-1)**

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.

**ANSWER:**

Only design alternatives are of interest in the certification process. The Mitsubishi Heavy Industries (MHI) SAMDA analysis presented in Subsection 19.2.6 of the US-APWR DCD is a summary of the complete SAMDA analysis presented in the MHI Environmental Report – Standard Design Certification. In this document, MHI compiled a list of 156 potential SAMDA based on consideration of current pressurized water reactor (PWR) plant designs, information from the US-APWR Probabilistic Risk Assessment (PRA), and design alternatives identified by MHI design personnel. The resulting list contained 29 items, which were screened out because they were not design alternatives. These 29 items were all procedure-related or training-related items that were not evaluated in the SAMDA analysis.

Evaluation of administrative SAMA, such as the 29 procedure or training items screened out, would not be appropriate until the plant design is finalized, and plant administrative processes and procedures are developed. Final Safety Analysis Report (FSAR) Subsection 19.2.5, "Accident Management," was revised to describe that the accident management program will incorporate the instructions provided in NEI 91-04, Revision 1, "Severe Accident Issue Closure Guidelines," and that the training requirements will also be developed as part of the accident management program addressed in DCD Section 18.9. These accident management procedures will capture the important operator actions for severe accident management. The

FSAR revision was provided in FSAR Update Tracking Report, Revision 3, via Luminant Letter TXNB-09026 dated July 24, 2009.

Impact on R-COLA

Subsection 19.2.5 was revised in the Final Safety Analysis Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: AE-01 (2.4.2-1)**

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.

**ANSWER:**

Additional information is being provided about the aquatic community of the Brazos River downstream of Lake Granbury and important species that could be adversely affected by reduced flows or changes in water quality. The additional information and supporting references will be added to Section 2.4 of the Environmental Report (attached).

Impact on R-COLA

See attached marked-up ER Rev. 0 pages 2.4-27 and 2.4-28.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: AE-02 (2.4.2.1-1)**

Provide additional information about the seasonal water quality data summarized in Table 2.4-12.

**ANSWER:**

Squaw Creek Reservoir data were collected February 26 through February 28, 2007 for the winter season; May 7 and May 8, 2007 for the spring season; September 4 through September 6, 2007 for the summer season; and November 13 and November 14, 2007 for the fall season survey using a handheld YSI multiparameter probe. Hardness, alkalinity, and total dissolved solids were determined in the laboratory from 500 mL surface water grab samples (Bio-West 2008a). The seven sampling sites for these studies are shown in Figure 1 of the Bio-West, Squaw Creek Reservoir Characterization Study Report (Bio-West 2008a). The report is attached.

Lake Granbury data were collected January 7 and January 8, 2008, for the winter season; May 9 and May 10, 2007 for the spring season; September 3 through September 5, 2007 for the summer season; and November 12 through November 14, 2007 for the fall season survey (Bio-West 2008b). The five sampling sites for these studies are shown in Figure 1 of the Bio-West, Lake Granbury Characterization Study (Bio-West 2008b). The report is attached.

Table 2.4-12 in Section 2.4 (Ecology) was not intended to relate to Table 2.3-26 in Section 2.3 (Water). Data are not necessarily comparable because of temporal and spatial differences between the collections.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: AE-03 (6.5.2)**

Provide details, including mesh size, about the experimental monofilament gill nets used in 2007/2008 fish collections in Lake Granbury and Squaw Creek Reservoir.

**ANSWER:**

The gill nets used in the 2007-2008 fish collections in Lake Granbury and Squaw Creek Reservoir were 38.1 m (125 ft) long with mesh sizes ranging from 2.5 to 7.6 centimeters (1.0 to 3.0 inches). Each net was set overnight for 13 to 17 hours. A backpack electrofisher and several types of seines with variable mesh sizes were used to sample fish communities in the stream site downstream of the reservoir and the river site (Bio-West 2008a and Bio-West 2008b).

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: AE-04 (2.4.2.2-2)**

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 algae impacts on fisheries should be modified.

**ANSWER:**

Environmental Report Subsection 2.4.2.2 states that “Millions of fish in Lake Granbury have been killed by golden algae blooms in recent years”. This information was obtained from the Texas Parks and Wildlife Department (TPWD) website (Golden Alga Frequently Asked Questions). The TPWD website states “Over four million fish were also killed in the golden algae bloom on Lake Granbury, also in the Brazos River Basin, during Winter and Spring 2005.” The Bio-West report cites another TPWD document (Golden Algae in Texas, 2007) that states over 5 million fish have died as a result of golden algae since 2001. We continue to believe that the information reported in the ER is valid given the support of the TPWD references.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: GEN-01 (1.2-1)**

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.

**ANSWER**

Luminant has participated in the Texas Commission on Environmental Quality’s (TCEQ) Clean Texas Programs for approximately ten years. Initially, CPNPP was recognized at the Partner Level. Subsequent to implementing an Environmental Management System in 2002, and having met all other qualifying requirements, CPNPP achieved Leader recognition in 2005. Although EPA’s Performance Track Program is no longer being implemented (pending replacement by current Administration), CPNPP was accepted into this program in 2005 and was an active member until cancelation of the program in 2009. Documentation of CPNPP’s participation in these programs is included in the attachments.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: GEN-02 (3.0-1)**

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.

**ANSWER:**

The information requested by this RAI has been addressed in Luminant’s response to Information Needs SOC-16, GEN-05, GEN-06 and CR-03 in Luminant letter TXNB-09011, dated May 14, 2009 (ML091460334).

Cumulative impacts associated with preconstruction and construction of CPNPP are listed in Table 4.7-1. Where there are multiple categories of potential impacts for the referenced section, all categories were considered for the estimated impact concerning preconstruction and construction.

Impact on R-COLA

Subsection 4.9 and Table 4.9-1 were added to the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: GEN-03 (3.6.1-1)**

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.

**ANSWER:**

The purpose of the circulating water blowdown evaporation pond is to receive the concentrated effluent stream from circulating water blowdown branched into the blowdown treatment facility (BDTF), supporting the BDTF function of maintaining circulating water blowdown return water to Lake Granbury within 2500 mg/l total dissolved solids (TDS). In the conceptual design, approximately 6000 gpm of the total raw blowdown per unit will be treated in the BDTF. After treatment, approximately 4800 gpm will return to the blowdown line and flow back to Lake Granbury. The remaining 1200 gpm is the concentrate flow to the evaporation pond.

The concentrate stream to the evaporation pond is projected to have chemical characteristics and concentrations shown in the table below. The values are estimates based on typical cooling water blowdown using Lake Granbury water for make-up and a two-stage reverse osmosis unit for blowdown treatment. The calculated TDS concentration of 19,370.2 mg/l is rounded up to 20,000 mg/l for purposes of estimating the rate of precipitate generation in the evaporation pond.

**Projected Typical BDTF Waste Concentrate Chemical Characterization**

<b>Ion</b>	<b>Concentration (mg/l)</b>
Ca	1148.2
Mg	310.5
Na	5416.6
K	71.6
NH4	0
Ba	0
Sr	0
CO3	1.1
HCO3	1108.0
SO4	2309.3
Cl	9004.9
F	0
NO3	0
B	0
SiO2	0
TDS, mg/l	19,370.2
pH	7.5

The evaporation pond and BDTF will be constructed on site property along the blowdown return line to Lake Granbury. Based on the conceptual design, the evaporation pond is approximately 130 acres by 4 feet deep. The evaporation pond operates at a depth of approximately 2 ft to maintain a minimum of 2 ft vertical distance to the point of overflow (freeboard) consistent with Texas Commission on Environmental Quality (TCEQ) requirements. In order to maintain acceptable evaporation pond level with a reduced footprint, a three-month storage pond approximately 47.73 acres by 20 ft deep is constructed adjacent to the evaporation pond. Feed pumps take suction from the storage pond and discharge to a series of misters in the evaporation pond, thereby increasing the evaporation rate when necessary. Flow from the evaporation pond to the storage pond maintains acceptable evaporation pond level and establishes a recirculation flow path between the ponds during operation of the misters. The sizing basis of the ponds in this conceptual design accommodates three months of continuous BDTF operation at 1200 gpm concentrate flow per nuclear unit and considers meteorological conditions unfavorable for net evaporation rate.



The ponds are constructed with geomembrane liners and clay soils. An under drain system is provided to collect and detect potential seepage from the pond. The design and construction of the ponds will comply with TCEQ requirements, including pond liner and size requirements, freeboard, permeability, soil compaction and under drain leak detection.

The TDS precipitates will collect at the bottom of the evaporation pond, which consists of six sections that can alternately be isolated to allow drying and removal of the precipitates. For the purposes of determining the precipitate generation rate, a salt deposition rate of 1 percent is considered consistent with typical evaporation rates for an evaporation pond in the vicinity of the site, and six months of continuous BDTF operation is assumed at 1200 gpm concentrate flow rate per nuclear unit. At a 1 percent deposition rate, 6 months of continuous BDTF operation would result in approximately 6.3E+7 pounds per year of salt deposits in the pond, corresponding to several inches of accumulation. Disposal of waste material generated from the BDTF is planned to be at an off-site non-hazardous landfill.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: GEN-04 (6.0-1)**

Provide a copy of the Environmental Protection Plan (EPP)

**ANSWER:**

The Environmental Protection Plan (EPP) is an attachment to an operating license for a nuclear power plant designed to incorporate into and make part of the license, conditions to protect the environment. The conditions are derived from the Environmental Report prepared as part of the license application and may include obligations for the licensee in the environmental area including monitoring, record keeping and reporting requirements.

There is no regulatory requirement that every operating license include an EPP. An EPP should be provided when site-specific environmental requirements are identified which are not already controlled by another regulatory tool (regulation, license, permit, etc.) and whose implementation is necessary to avoid a significant adverse environmental impact. Any items in an EPP should result from and be addressed by the Final Environmental Impact Statement for the facility.

The Environmental Report for Comanche Peak Nuclear Power Plant Units 3 and 4 does not identify any issues that warrant inclusion in an EPP and therefore a proposed EPP has not been drafted and is not provided in response to this question.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: HP-02 (4.4.1.5-1)**

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.

**ANSWER:**

Information and data on attenuated noise levels (dBA) expected from construction equipment are provided in the new ER Table 4.4-4 (attached). See also changes to ER Subsections 4.4.1.5 and 4.4.4.

Impact on R-COLA

See attached marked-up ER Rev. 0 pages 4.4-6, 4.4-27 and new Table 4.4-4.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: HP-03 (4.5.2-1)**

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 and 2, provide any information that is needed to address the contribution of direct radiation from the ISFSI to construction workers on proposed Units 3 and 4 and nearby residents.

**ANSWER:**

Environmental Report Subsection 4.5.2.1 currently states: "The distance from the CPNPP Unit 3 and 4 construction area to any potential ISFSI site is well over 1000 ft. For conservatism, a distance of 1000 ft is assumed. Neglecting attenuation in the air and applying the inverse square relation, a 5 mrem/hr dose rate within the confines of the ISFSI (at an assumed distance of one ft from the source) is reduced to 5.0E-06 mrem/hr at 1000 ft from the ISFSI facility. Considering an exposure period of 2500 hr/yr, the annual dose to a construction worker from direct radiation emanating from the ISFSI is 1.25E-02 mrem/yr." Therefore this information is already provided in the Environmental Report.

FSAR Subsection 12.4.1.9.2.1 has the same statement.

However, during the course of the HP Safety Site Visit, the Staff asked about other potential direct radiation sources that could potentially affect construction workers, both at the proposed CPNPP Units 3 and 4 site locations and the modification to the existing Sanitary Sewage Treatment Facility to accommodate additional volume (see HP Safety Site Visit Information Need HPSV-07). Other direct radiation sources

from planned and existing areas have been identified. These include the existing Warehouse C Dry Active Waste and Fixed Contamination Tool area, the planned Outage Laydown Area east of the CPNPP Units 1 and 2 Fuel Building, and the existing Storage Level "D" Zone where Class B and C radioactive waste is stored. All of these areas will be maintained at the fence area boundary with dose rates < 2 mrem/hr in accordance with the current site Radiation Protection Program entitled "General Health Physics Plan" STA-650. Distances from these areas to the CPNPP Units 3 and 4 proposed construction area are much greater than 1000 feet. Distances between these facilities and a proposed modification to the Sanitary Sewage Treatment Facility to accommodate additional volume, range from approximately 1100 to 1600 feet. As a result, and considering that the dose rates will be maintained <2 mrem/hr at the source fence boundary, the construction worker will not be affected by any of these direct radiation sources.

Impact on R-COLA

FSAR Subsection 12.4.1.9.2.2 has been revised to reflect the addition of other direct radiation sources as provided in Luminant letter TXNB-09026 dated July 24, 2009.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: HR-01 (2.5.3-1)**

In Chapter 2.5.3 of the ER, a baseline cultural sequence and historic and prehistoric context is needed.

**ANSWER:**

The information requested by this RAI has been addressed in ER Update Tracking Report, Revision 1, submitted via Luminant letter TXNB-09007 dated April 16, 2009 (ML091130575), in response to Information Need CR-04.

Impact on R-COLA

Subsections 2.5.3.6 and 2.5.6 were revised in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: HYD-01 (2.3.1-1)**

Provide site-specific detailed profiles of geology and aquifer units beneath the Comanche Peak Nuclear Power Plant.

**ANSWER:**

Geology is well described in FSAR Section 2.5 and a narrative summarizing the geology and the aquifer units is presented in FSAR Subsection 2.4.12. Lithologic cross-sections depicting the shallow soils and upper Glen Rose Formation were submitted on the docket to response to Information Need HYD-01 via Luminant letter TXNB-09008 dated April 27, 2009. Additional information describing the post-construction site geology will be presented in response to the Hydrologic Safety Site Visit as Item HYDSV-17.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION.: HYD-08 (2.3.1-8)**

Provide proposed construction and design information for the proposed onsite storage and evaporation 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.

**ANSWER:**

The required information has been provided in response to Information Need HYD-08 in Luminant letter TXNB-09008 dated April 27, 2009.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: HYD-09 (2.3.1-9)**

Provide the composition and toxicity of the salts in the evaporation ponds.

**ANSWER:**

The required information has been provided in response to Information Need HYD-09 in Luminant letter TXNB-09008 dated April 27, 2009.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: HYD-20 (6.3-1)**

Provide justification and rationale for the construction, preoperational, and operational radiological monitoring proposed for groundwater.

**ANSWER:**

Current practice for CPNPP Units 1 and 2 groundwater monitoring and the basis for a future monitoring plan was provided in response to Information Need HYD-11 via Luminant letter TXNB-09008 dated April 27, 2009. The groundwater monitoring plan will include the sampling frequency and analysis programs and sampling locations for radiological groundwater monitoring. This issue was further discussed during the Hydrology Safety Site Visit as Information Need HYDSV-26. During the course of the site visit, Luminant agreed to update FSAR Subsection 2.4.12.4 to reflect that a groundwater monitoring plan would be developed prior to fuel load, consistent with what has been used with other COL applications. FSAR marked-up pages will be submitted in late-August 2009.

Impact on R-COLA

Subsection 2.4.12.4 will be revised in the Final Safety Analysis Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: HYD-23 (9.4.2.2.5-1)**

Provide a discussion on the viability of routing the mixed effluent from the treated (BDTF) and untreated (BDTF bypass) blowdown water at ambient or below ambient 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.

**ANSWER:**

The alternative of routing the mixed effluent from the treated (BDTF) and untreated (BDTF bypass) blowdown water at ambient or below-ambient chloride and TDS concentrations and temperature to the cooling tower basins for reuse presents the following challenges:

- Demands on the BDTF, in order to maintain the TDS and chloride concentration of blended effluent of treated and untreated blowdown at ambient (or below), are increased in comparison to the design concept presented in ER Subsection 3.6.1.1.
- Size requirements of the evaporation pond and three-month storage pond (refer to the response to GEN-03 herein) are increased.
- The rate of precipitate accumulation in the evaporation pond, requiring periodic removal and disposal, are increased.
- Water chemistry control demands would be increased to accommodate higher cycles of concentration that would be associated with zero liquid discharge.

The option described in ER Subsection 3.6.1.1, with a combination of blowdown treatment and discharge, is considered a more viable approach because it addresses the design constraints of BDTF, evaporation, water chemistry, and water usage in a more balanced manner.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: LU-01 (2.2.2-2)**

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.

**ANSWER:**

The information has been provided in ER Update Tracking Report, Revision 3, via Luminant letter TXNB-09011 dated May 14, 2009 (ML091460334) in response to Information Need LU-03. Environmental Report Table 2.2-5 provided in the letter illustrates the land use obtained from the USGS National Land Cover Data Set (USGS) for the entire pipeline, as well as the areas denoted for the new water intake and discharge pipelines. Although the USGS data set indicated wetlands as described on Table 2.2-5, no wetlands were found during reconnaissance of that area.

Impact on R-COLA

Subsection 2.2.2 was revised in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: LU-03 (5.5.1.1.2-1)**

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).

**ANSWER:**

The composition of the waste is found in the response to Question GEN-03 and the waste is defined as non-hazardous.

1. The total weight of salt accumulation estimated in the pond based on 1 percent salt precipitation by weight during 6 month of BDTF operation per year is  $6.29E+7$  pounds and  $1.31E+6$  square feet which corresponds to a height of 2.81 inches in the bottom of the pond.
2. The salt will be passed through a filter press to de-water the solids, packaged, and shipped for disposal. The waste will be characterized for off-site disposal in accordance with the Texas Commission on Environmental Quality's current solid waste disposal regulations and in accordance with the selected off-site disposal facility's permit requirements.
3. The potential disposal options include state-permitted non-hazardous waste industrial landfills located in Texas. Other beneficial options are being reviewed, such as recycling salts for drilling material or de-icing roadways.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: LU-04 (9.3.5-1)**

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.

**ANSWER:**

The data to support the weighted score for each candidate site is found in the McCallum-Turner Report, which discusses the criteria starting on page D-85. The process for converting the raw scores to a weighted score for each site is found on pages 13-18. The report was revised to remove personal names and references, and submitted to the NRC via Luminant letter TXNB-09002 dated February 13, 2009 (ML090490419).

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: LU-05 (3.7.2-1)**

Provide information from ONCOR regarding the process and procedures for identifying and obtaining approval for new transmission line routes.

**ANSWER:**

The ONCOR process and procedures for identifying and obtaining approval for new transmission line routes are based on the regulatory requirements stated in the following:

Texas Utilities Code §37.056, "Grant or Denial of Certificate"

PUCT Procedural Rule §22.52(a), "Notice in Electric Licensing Proceedings"

PUCT Substantive Rule §25.101(b)(3), "CCNs for New Electric Transmission Lines"

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: MET-01 (2.7.1.1-1)**

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.



**ANSWER:**

ER Subsection 2.7.1.1 does not need to be changed since it addresses the "General Climate" conditions and does not explicitly discuss the meteorology conditions used in the calculations. ER Subsections 2.7.3.1 and 2.7.4.2 identify the meteorological data used in the calculations and were revised in ER Update Tracking Report, Revision 3, submitted via Luminant letter TXNB-09011, dated May 14, 2009 (ML091460334). Additionally, the meteorological data used in the short-term and long-term atmospheric dispersion calculations, as well as in the evaporation pond calculation, was clarified further in response to FSAR RAI No. 3, submitted via Luminant letter TXNB-09017, dated May 8, 2009 (ML091330346). The explanation on the meteorological data used in the calculations provided in response to RAI No. 3 further clarifies the response to Information Need MET-13.

ER Section 6.4 does not need to be clarified further since the response to Information Need MET-24 resulted in revisions to ER Sections 6.4 and 6.7, where the meteorological data sources were identified. These changes were provided in ER Update Tracking Report, Revision 3, submitted via Luminant letter TXNB-09011, dated May 14, 2009 (ML091460334). Further, short-term and long-term atmospheric dispersion evaluations meteorological data used are now adequately addressed in the aforementioned ER sections and FSAR Subsections 2.3.2.1.2, 2.3.2.1.3, 2.3.2.2.4, 2.3.4, 2.3.5.2.1, and 2.3.5.2.2.

For consistency between the ER and the FSAR and to provide further clarification, FSAR Subsection 2.3.5.2.1 on page 2.3-46 (attached) has been revised to reflect the meteorological data from years 2001-2004 and 2006 that were used for the long-term atmospheric calculation, even though the section currently says 5 years of data are presented in Tables 2.3-340, 2.3-341, 2.3-342, 2.3-343, 2.3-344, 2.3-345, and 2.3-346.

Impact on R-COLA

Subsections 2.7.3.1, 2.7.4.2, 6.4 and 6.7 were revised in the Environmental Report. See attached marked-up FSAR Rev. 0 page 2.3-46.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: MET-11 (5.8.1.6-1)**

Provide for reference current air permit materials, including TCEQ Air Permit No. 19225, and the Renewal Application dated February 19, 2004.

**ANSWER:**

The Texas Commission on Environmental Quality (TCEQ) Air Permit No. 19225 was reviewed with the NRC Staff during the Environmental Review Site Visit in February 2009. A copy of this permit is attached. The application renewal dated February 19, 2004, was an internal working draft. The application actually submitted to the TCEQ was dated March 12, 2004 and is attached.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: NP-01 (8.0-1)**

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.

**ANSWER:**

An updated version of ER Chapter 8 “Need for Power” was provided in ER Update Tracking Report Revision 1, submitted via Luminant letter TXNB-09007 dated April 16, 2009 (ML091130575).

Impact on R-COLA

Chapter 8 was revised in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: NP-02 (8.0-2)**

Provide a revised version of the introductory discussion in Section 8 of the ER to clarify the Applicant’s principal objectives in proposing the CPNPP Units 3 and 4, including a discussion of baseload power generation for the merchant wholesale market.

**ANSWER:**

A revised version of the introductory discussion was provided in ER Update Tracking Report Revision 1, submitted via Luminant letter TXNB-09007 dated April 16, 2009 (ML091130575).

Impact on R-COLA

Chapter 8 was revised of the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: NP-03 (8.0-3)**

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.

**ANSWER:**

The effects and implications of the developments listed above on the need for power were addressed in ER Update Tracking Report Revision 1, submitted via Luminant letter TXNB-09007 dated April 16, 2009 (ML091130575).

Impact on R-COLA

Chapter 8 was revised of the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-01 (2.2.1.2-1)**

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.

**ANSWER:**

Of the 11 towns and unincorporated communities provided in the section, two are listed by the United States Census Bureau (USCB) as towns, one is listed as a census designated place (CDP), and eight have no USCB population data available. The USCB estimated the 2007 population of Glen Rose and Tolar to be 2,771 and 658, respectively. The USCB 2000 population of Pecan Plantation CDP was 3,544. Census designated places are updated with the decennial census, with the next anticipated update occurring in 2010. The eight other towns are populated places designated by the USGS in the Geographic Names Information System database. The populations in these areas are accounted for in the USCB SF1 and SF3 data sets at block and block group geographies. They are not specifically delineated by the USCB at this time and do not currently have corresponding population data.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

**QUESTION NO.: SOC-02 (2.5.1.1.2-1)**

For each municipality listed in Table 2.5-6, provide the distance from the CPNPP site (by road and by straight line).

**ANSWER:**

Based on a discussion with the NRC reviewers on July 2, 2009, it is Luminant's understanding that only municipalities with population greater than 5,000 need to be included in this response. The straight line distance was calculated, using the distance measurement tool in ArcGIS, from the CPNPP site center point to the point designating the municipalities' historical center (e.g. town hall, courthouse, etc.). For the distance by road, MapQuest was used by providing the address of CPNPP and the municipality in question. The resulting distance measurements are listed below.

<b>Municipality</b>	<b>Straight Line Distance (mi)</b>	<b>Distance Via Road Network (mi)</b>
Azle	43	58
Benbrook	32	41
Burleson	32	45
Cleburne	24	29
Crowley	32	47
Eagle Mountain	46	59
Everman	37	53
Forest Hill	40	57
Fort Worth	40	57
Granbury	10	14
Haltom City	46	64
Hillsboro	44	58
Keene	28	37
Kennedale	41	59
Mansfield	42	56
Midlothian	48	57
Mineral Wells	40	51
North Richland Hills	49	65
Rendon	37	51
Richland Hills	48	67
River Oaks	40	49
Saginaw	46	58
Stephenville	25	28
Watauga	50	65
Weatherford	31	38
White Settlement	37	49

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-03 (2.5.2.1-1)**

Provide the name and location of any large industrial or commercial facilities located within 10 miles of the CPNPP site.

**ANSWER:**

Industries and commercial facilities located within 5 miles of the CPNPP site are discussed in FSAR Subsection 2.2.2. The facilities located between 5 miles and 10 miles from the CPNPP site are listed below:

<b>Facility</b>	<b>City</b>
AES Wolf Hollow	Granbury
Bond Arms	Granbury
DeCordova Steam Electric Station	Granbury
Granbury SE Waste Water Treatment Plant	Granbury
Meg Texas Gas Service	Tolar
Professional's Choice Ropes	Tolar
Saber Manufacturing	Granbury
Tolar City Sewage Plant	Tolar
City of Glen Rose Landfill	Glen Rose
Ingram Ready Mix Plant	Glen Rose
Carson Pest Management	Glen Rose

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-04 (2.5.2.2.1-1)**

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.

**ANSWER:**

Based on NRC discussion during a teleconference with Luminant on July 2, 2009, the information provided in the table below satisfies this request for additional information.

The table below provides the description, length and width of the FM-56 turn lane near the plant entrance.

Description	Width (ft.)	Length (ft.)
North Bound FM 56 – Right turn lane into site access road	12	360
North Bound FM 56 – Acceleration lane leaving the site access road	12	750
South Bound FM 56 – Left turn into site access road	12	430

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-06 (2.5.2.2.4-1)**

Provide the following information about local road modifications:

1. Projected start and end dates for the two planned improvements projects for US 377 discussed in Sect. 2.5.2.2.4 of the ER.
2. The nature and schedule of the improvements to SH 144 that are currently underway (mentioned in Section 5.8.1.3 of ER).
3. Any other planned improvements to important roads in the vicinity of the CPNPP site.

**ANSWER:**

Based on a discussion with the NRC reviewers on July 2, 2009, Luminant understands that the information requested by this RAI is addressed to the reviewer's satisfaction by Luminant's response to NRC Information Needs SOC-01 and SOC-08 in ER Update Tracking Report, Revision 3, submitted via Luminant letter TXNB-09011 dated May 14, 2009 (ML091460334).

Impact on R-COLA

Subsections 2.5.6, 4.4.1.3, 4.4.1.5, 4.4.4 and 5.8.4 were revised in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-07 (2.5.2.3.1-1)**

Provide the definition of "net taxes" used in Table 2.5-17

**ANSWER:**

As defined in ER Table 2.5-17, the net tax allocation established for each jurisdiction is the result of subtracting potential tax discounts or tax credits from Comanche Peak's gross tax liability payment established for each jurisdiction. ER Table 2.5-17 references TXU 2006a and TXU 2006b (attached) indicate that no tax discounts were applied and the net tax payment amount is the same as the gross tax liability amount for all jurisdictions.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-08 (2.5.2.5-1)**

Provide the following additional information on recreation:

1. Whether the applicant has any plans to open the Squaw Creek Reservoir to the public for fishing.
2. 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).

**ANSWER:**

Luminant management does not expect to allow general public access to Squaw Creek Reservoir.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-09 (2.5.2.6-1)**

Provide the following information about housing:

1. 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 developments...already 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

**ANSWER:**

The information was addressed in ER Update Tracking Report, Revision 3, submitted via Luminant letter TXNB-09011 dated May 14, 2009 (ML091460334), in response to Information Need SOC-09 and included the number of hotel rooms.

The six RV Parks in Somervell County had a limited number of long-term spots available on average. B Street RV Park has approximately 23 long-term spots available on average, with fewer during plant outages. Cedar Ridge Cabins and RV Park has approximately 25 – 30 spots available on average, but is full during outages. Jurassic RV Park has 20 long-term spots available on average. Any of the spots at



Oakdale Park can be used for long-term rent if the fees are paid. Generally, 10 spots are available for long-term rent. Dinosaur Valley State Park RV Park does not offer long-term rental. Tres Rios River Ranch is a private membership resort, but would make available approximately 50 spots for long-term rent for CPNPP Units 3 and 4.

In Granbury in Hood County, 377 Market Place RV Park offers no long-term rental spots. Midway Pines RV Park, Countryside RV Park, and Thorp Spring RV Park are full all year. The Cove Marina RV Park typically has one-third of its 26 long-term spots available. A new RV park in Granbury, Bennett's RV Ranch, has 44 total spots, 33 of which are available for long-term stays. On average, 16 spots are available, though the number decreases during outages when outage workers are at the site.

Information on three RV parks in Cleburne was obtained. The Ranch Oaks Mobile Home Park offers long-term RV spot rentals, but the number varies and no average was available. The manager stated that more spots would be added if the demand was sufficient. Cleburne State Park does not offer any long-term RV spots. Doc's City RV Park has 65 long-term spots for rent, of which approximately 5 spots are available on average.

In Stephenville, the Hoof Prints Ranch RV Park has 15 spots, all of which can be rented long-term. The number available varies. The Lost Creek RV Park has 16 long-term spots, with an average of 12–15 available. The Shady Oaks RV Park declined to provide information.

Alvarado has the Dodge City RV Park with 85 total spots. They do not reserve a specific number for long-term renters and usually have approximately 75 spaces available. The ABC RV Park in Alvarado has 50 long-term spots with 20 available on average. Stewart's RV Park has 50 long-term spots and the number available varies.

The City of Joshua has no RV parks, but has several mobile home parks such as Shady Brook Mobile Home Park, Sunset Mobile Home Park, and 4-J Mobile Home Park.

Several RV parks have plans to expand if the demand is sufficient. In addition, new RV parks are expected to be created to accommodate the influx of workers, as was the case during the construction of CPNPP Units 1 and 2. A new 100-spot RV park called Rio Brazos Festival Park is being planned south of Granbury and is in the preliminary approval stages. According to the Director of Development and Compliance of Hood County, there has been a high interest in RV parks in the county, and he anticipates several more applications for new RV parks will be submitted to him. These parks would most likely be established outside of the city of Granbury. The Office of Economic Development of Somervell County did not know of any new RV parks for the county and did not identify any areas of the county that are particularly likely locations for such parks.

Information on housing developments in Granbury was available from the Brazos River Conservation Coalition and the City of Granbury Planning and Zoning department. Planned or recently developed residential areas include the following (BRCC 2008):

- Abe's Landing: 350-lot single family residential development on N. Hwy 51 along the lake. Addition Phase 2A consists of 42 patio home lots with utilities in and homes being constructed. Addition 3A consists of 18 single family and 12 patio homes. The final plat and zoning has been approved.
- Ashley Oaks: 130 single family lots on Old Granbury Road. They are currently installing streets.
- Cobblestone Court: 30 town home lots on Davis Road. They have completed Phase I and all infrastructure is installed.
- Cordell Terrace: 40 town home lots on Old Granbury Rd. The preliminary plat and PD zoning is in place.

- Granbury Place Apartments: 40 apartment units on Meadows Dr. They are completing the finish out of Phase I with 44 additional units in a future phase.
- Heron's Nest: 18 luxury condo units adjacent to Harbor Lakes.
- Homes on the Brazos: 60-80 apartments on Davis Rd. They are currently reviewing engineering and final plat.
- Josiah Estates: 75-lot single family residential development on Waters Edge Drive.
- Lakeside Apartments: 90 apartment units on Meadows Dr. They expected completion in August 2009.
- North Gate Residential: 180 lots near DeCordova,
- Gardens of DeCordova: a senior housing development with 76 lease town home/duplex units and 35-40 patio homes for sale.
- Old Granbury Villas: 30 town home lots on Old Granbury Rd between Old Granbury Estates and Ashley Oak. They have approved preliminary plat and zoning.
- Old Mill Crossing: 26 single family lots on Counts Alley. They are installing utilities.
- Gemstone Estates: has developed Phase II off of Old Granbury Road and is planning Phase IV off of Highway 377.
- Shannon's Run: planned 43-lot duplex development on Hwy 377 near Neister's. Completion is subject to resolving some serious drainage problems.
- Stanton Heights: a two-story town home development on Meadows Dr. and S. Hwy 51.
- Villa Vista: planned 400-lot residential area located on Highway 4 and Loop 567.
- The Vineyards at Harbor Lakes: 39 luxury condo units located within Harbor Lakes.
- Victoria's Ct.: 9 single family homes on E. Moore St. Three homes have already been constructed.
- Watermark: Luxury senior housing near the new convention facility where the old mobile home park was previously located. The complex will contain 25 patio homes, a four story apartment building with 130 units and parking on the bottom floor, a three story building with assisted living containing 60 units, and a two story memory unit with 20 units on Pearl St. The senior housing project is currently under construction.

The number of listed properties in Granbury and Glen Rose that were for rent in September 2007 was 19 in Granbury and 0 in Glen Rose (NAR 2007).

#### Impact on R-COLA

See attached marked-up ER Rev.0 pages 2.5-18, 2.5-19, 2.5-43, 2.5-46, and new Table 2.5-30.

#### Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-11 (2.5.2.7.2-1)**

Provide the following information about local public safety and medical services:

1. 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.
3. Existing plans for expansion of police and fire services in the CPNPP vicinity (mentioned in Section 4.4.2.3 of the ER).

**ANSWER:**

1. As referenced in Section 2.5.2.7.2, the term “daily load” represents the average daily bed occupancy at Lake Granbury Medical Center in Hood County and Glen Rose Medical Center in Somervell County. A Glen Rose Medical Center representative reported that the hospital’s peak occupancy is 13 out of the 16 beds occupied, while 7 out of 16 occupied beds is their average daily occupancy. Glen Rose has expanded their emergency room (July 2009) with an additional 11 beds in addition to the current 16. A Lake Granbury Medical Center representative reported that their total number of hospital beds has increased in the June –July 2009 timeframe. The hospital is now at 89 beds and the average peak is 30 to 33 occupied beds per day. The hospital expects to add an additional 24 beds (113 total) with a 3<sup>rd</sup> floor expansion anticipated to be completed at the end of October 2009 and should average 50 occupied beds per day.
2. State officials confirmed that Texas has not set standards that define a ratio for hiring firefighter or law enforcement personnel based on a jurisdiction’s population. The number of personnel employed by any given department is normally driven by available budget and need.
3. As described in revised ER Subsection 4.4.2.3, some of the jurisdictions in the vicinity have plans to expand police and fire services. Granbury Police Department anticipates adding 3 to 4 officers per year and is investigating the option of building a new police station. Hood County is in the process of adding fire department infrastructure in response to population growth. Somervell County Volunteer Fire Department has some paid staff; however, it is primarily a volunteer unit and expansion plans are need based. The Somervell County Fire Department and Sheriff’s Department have no current infrastructure upgrade plans in place, but will add as budget allows or need arises.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

**QUESTION NO.: SOC-12 (2.5.2.8.2-1)**

Provide the following information about education:

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.

**ANSWER:**

The information was addressed in ER Update Tracking Report, Revision 3, submitted via Luminant letter TXNB-09011 dated May 14, 2009 (ML091460334), in response to Information Need SOC-12.

The Granbury School District calculated its maximum capacity based on current buildings and classroom design capacities. This indicates that the maximum capacity can be accommodated with current equipment levels. The Glen Rose School District was contacted and reported that they could handle approximately 1200 additional students, with a maximum capacity of 2862.

As stated in Subsection 2.5.2.8.2, the Granbury School District had 6882 students enrolled with a student to teacher ratio of 14.2:1 for the 2007-2008 school year. In Subsection 2.5.2.8.2, the Glen Rose School District had 1657 students enrolled with a student to teacher ratio of 11.6:1 for the 2007-2008 school year. To identify the maximum capacity student teacher ratios, the maximum capacity was divided by the number of teachers derived from the current student teacher ratios. These ratios were then compared to the state student to teacher ratio requirement of 22:1. The maximum capacity student to teacher ratios for Granbury and Glen Rose School Districts fell below the state ratio requirement. Therefore additional teaching staff is not required by Texas House Bill 72 to maintain the maximum capacities reported by the school districts.

The statements from the school districts and the state requirements being met by currently staffing levels, implies that both school districts already have the buildings and teachers necessary to handle an additional 2879 students between the districts. As stated in Subsection 4.4.2.5, there are expected to be an additional 794 students added to these school districts due to peak construction implying that the number of expected students during peak construction will not approach the maximum capacity of the school districts.

Impact on R-COLA

Subsections 2.5.2.8.2, 2.5.6, 4.4.2.5, 4.4.4 and 5.8.2.3.3 were revised in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-13 (2.5.4-1)**

Provide the following information about environmental justice:

1. 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.
3. 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.

**ANSWER:**

1. There have been no customs or traditional behaviors of minorities or low-income populations in the region identified pertaining to subsistence hunting, fishing, or farming. The process for finding subsistence activities was initiated with a scientific literature review and internet searches. Social and historical leads identified from this process were evaluated for temporal persistence, cultural practices, race, income, and location. Finding no current subsistence population based on literature review methods resulted in an attempt to contact organizations that have specific knowledge of the geographic area and local populations. Area universities and various federal, state, and local government agencies were contacted (see Attachment SOC-13-B). No subsistence populations were identified. Based on this analysis we have concluded that subsistence populations are not likely to exist in the region.
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 are in Attachment SOC-13-B.
3. The low-income analysis originally included areas outside the region. The percent of low-income census blocks shown in Table 2.5-24 was updated to only include areas inside the region. The revised table is more consistent with Figure 2.5-19.

Impact on R-COLA

See attached marked-up ER Rev. 0 page 2.5-40 and Table 2.5-24.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-14 (4.1.2-1)**

Provide the following information about transmission corridors:

1. Whether the Whitney or DeCordova transmission lines would require new Rights of Way
2. A description of the aesthetic impacts expected from the construction of new towers on the Whitney and DeCordova Rights of Way

**ANSWER:**

Oncor Electric Delivery Company LLC (Oncor) is the transmission service provider for CPNPP. Luminant understands that the interconnect solution proposed by Oncor will require new right of way for both the Whitney and DeCordova transmission lines. Existing lines that support CPNPP Units 1 and 2 have a height varying between 105 – 110 feet. It is anticipated that the new towers will be similar to the existing towers.

As discussed in Subsection 2.2.2, the land use in the DeCordova right of way consists mainly of grassland, while the land use along the Whitney right of way consists primarily of grassland with some deciduous and evergreen forest. The aesthetic impacts of any new towers associated with these two lines have not been addressed and Luminant understands that Oncor will be responsible for both construction and operation, as well as any related impacts associated with those actions.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-15 (4.4.1.1-1)**

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
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
3. The basis for the assumption that 25% of the immigrating construction workforce will move their families to the region
4. The basis for the assumption that 50% of immigrating 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.

**ANSWER:**

1. The licensing process for Units 1 and 2 included several unique programs including a Comanche Peak Response Team Program and a Comanche Peak Steam Electric Station (CPSES) Corrective Action Program. These programs, as well as other activities, were designed to ensure that technical concerns and allegations related to CPSES design and construction activities would be addressed in a coordinated and integrated manner. The concerns and allegations were related to design adequacy and quality of construction. As a result, major efforts were undertaken on nearly complete units to review, modify as necessary, and revalidate the design; re-inspect significant portions of the plant; identify, evaluate, and correct issues found; modify and update the support documentation; and, where necessary, modify the as-built plant. These efforts required that an abnormally high number of design and inspection personnel be on site in order to complete the tasks as quickly as reasonably possible. The NRC's overview of these activities is documented in NUREG-0797, the safety evaluation report for these units, and in the 27 supplements to that report. It is inappropriate to compare the workforce for CPNPP Units 3 and 4 to the workforce employed for Units 1 and 2 because of these unique and unusual programs needed for Units 1 and 2.

A combined operating license with a standard design approved prior to reactor construction will be used for CPNPP Units 3 and 4. This will reduce schedule delays by reducing updates to the reactor design and revalidation during construction. The design will already be validated, reducing the need for changes and eliminating the need for cost recovery attempts due to a slipping schedule. Additionally with an operating license already approved, the time for construction financing will be further reduced. With reduced scheduling delays and less time for construction financing, the motivating factors to use extra construction workers are not expected to occur during the construction of CPNPP Units 3 and 4.

2. The total craft labor was revised to 4953 workers at peak construction in ER Update Tracking Report, Revision 2, submitted via Luminant letter TXNB-09009 dated April 28, 2009 (ML091260719). ER Table 4.4-1 (attached) was revised to incorporate the Nonmanual Labor category into each craft category. The number of workers for each craft for each year of construction is summarized below.

**The Projected Number of Workers in Each Craft for Each Year of Construction**

Craft	2010	2011	2012	2013	2014	2015	2016	TOTAL
<i>Asbestos Workers Total</i>	0	0	0	17	165	157	15	<b>354</b>
<i>Boilermakers Total</i>	0	0	1	12	21	20	9	<b>64</b>
<i>Cement Masons Total</i>	0	0	7	45	64	46	5	<b>168</b>
<i>Carpenters Total</i>	21	102	161	545	628	414	43	<b>1,914</b>
<i>Electricians Total</i>	0	0	0	71	589	582	169	<b>1,411</b>
<i>Ironworker Total</i>	3	22	132	698	1,082	587	35	<b>2,560</b>
<i>Laborers Total</i>	60	299	301	425	643	402	51	<b>2,181</b>
<i>Millwrights Total</i>	0	8	15	44	242	237	24	<b>570</b>
<i>Operating Engineers Total</i>	14	70	81	197	380	250	33	<b>1,026</b>
<i>Pipefitters Total</i>	13	76	116	163	616	607	121	<b>1,711</b>
<i>Painters Total</i>	0	2	8	31	42	31	4	<b>119</b>
<i>Roofers Total</i>	0	0	2	8	13	9	1	<b>34</b>
<i>Steamfitters Total</i>	4	20	36	65	200	197	55	<b>577</b>
<i>Sheet Metal Workers Total</i>	0	2	8	68	113	65	10	<b>266</b>
<i>Teamsters Total</i>	4	19	17	32	154	136	22	<b>384</b>
<b>TOTAL CRAFT LABOR</b>	<b>119</b>	<b>621</b>	<b>886</b>	<b>2,423</b>	<b>4,953</b>	<b>3,739</b>	<b>598</b>	<b>13,338</b>

3. The assumption that 25 percent of the in-migrating construction workforce will move their families into the region is based on industry standards presented in previous COL applications.
4. The construction worker distribution is discussed in detail in Subsection 4.4.2.1 and some additional detail is provided in the response to Question SOC-24. CPNPP Units 1 and 2 operations workers are discussed in ER Subsection 5.8.1.1. A timeline for CPNPP Units 1 and 2 outage workers, CPNPP Units 3 and 4 construction workers, and CPNPP Units 3 and 4 operations workers can be found in Figure 4.4-1. CPNPP Units 3 and 4 construction-related deliveries are discussed in Subsection 4.4.1.3, Paragraph 6. CPNPP Units 3 and 4 outage workers are discussed in Subsection 5.8.2.1, Paragraph 4. CPNPP Units 1 and 2 deliveries are addressed in the response to Question SOC-23.

Impact on R-COLA

Subsections 2.5.2.1, 4.4.1.3, 4.4.1.5.3 and Table 4.4-2 were revised and added Figure 4.4-1 to the Environmental Report. See attached marked-up ER Rev. 0 Table 4.4-1.



Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-17 (4.4.2.2-1)**

Provide the following information about the local 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
2. The approximate portion of annual construction period expenditures to be made within the economic impact region (Bosque, Erath, Hood, Johnson, Somervell, and Tarrant Counties)

**ANSWER:**

1. The assumption that most, if not all, indirect jobs created by the construction period will be filled by the existing regional workforce is based on information provided in response to Information Need SOC-12 in Luminant letter TXNB-09011 dated May 14, 2009 (ML091460334). In ER Subsection 2.5.2.1, unemployment numbers of 4 percent or below are considered full employment by the Texas Workforce Commission. In Subsection 2.5.2.1, a total of 34,398 people in 2006 were unemployed and the unemployment rate was 5.0 percent within the economic region. Based on the 4 percent or less criteria from the Texas Workforce Commission, at least one percent (6880 people) of the unemployed workers in the economic region is available for work.

Subsection 4.4.2.2, provides the total number of indirect jobs expected to be created during the peak construction period. Since these jobs are service-related, the expertise will not have to be imported into the economic region like the highly specialized nuclear operators. Given that the estimated number of available unemployed workers in the economic region (6880 at a minimum) is greater than the estimated number of indirect jobs available (1800) there is enough of an available workforce in the economic region to support the indirect jobs.

2. The expected annual expenditures are listed in Subsection 4.4.2.2; however, the expected portions of these expenditures for each county are not yet available.

Impact on R-COLA

Subsections 2.5.6, 4.4.2.5, 4.4.4 and 5.8.2.3.3 were revised in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-18 (4.4.2.2.1-1)**

Provide the following tax-related information:

1. The method by which the assessed value of CPNPP 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.

**ANSWER:**

The information for the response to this question was provided in response to Information Need SOC-07 in ER Update Tracking Report Revision 2, via Luminant letter TXNB-09009 dated April 28, 2009 (ML091260719).

Luminant's understanding is that ad valorem taxes are assessed on the new units according to the same federal and state tax laws applicable to CPNPP Unit 1 and 2. The ad valorem taxes are expected to be distributed to the same local government entities as are the taxes paid on existing units.

Sales and use taxes are estimated by multiplying the annual construction expenditures (\$240 million average, \$516 million peak) by the sales and use tax rate in the economic region (8.25 percent). Thus, the estimated sales and use taxes per year would be \$19.8 million with a peak of \$42.6 million, as discussed in Subsection 4.4.2.2.1

Impact on R-COLA

Subsections 2.5.2 and 2.5.6 and Table 2.5-16 were revised in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-19 (4.4.2.3-1)**

Explain the meaning of "annual yield" in the discussion of the capacity of Wheeler Branch Reservoir in Section 4.4.2.3 of the ER.

**ANSWER:**

The term "annual yield" refers to the firm annual yield of the Wheeler Branch Reservoir. The firm annual yield of a reservoir is defined as the maximum quantity of water that can be withdrawn each year, on a dependable basis, during a repetition (approximately 40 years) of the most critical drought of record.

Firm yields of reservoirs are estimated based on water that would be available through a repeat of the historic drought of record, which includes the effects of reduced runoff and high evaporation rates during the drought period.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-20 (4.4.2.4-1)**

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 immigrants is likely to exceed the number of available units and the prediction of LARGE impacts in Section 4.4.3.2.

**ANSWER:**

The initial analysis was based on the assumption that all of the in-migrant workers would live in two counties, Somervell and Hood. This analysis was revised based on additional information concerning the spatial distribution patterns of the current workforce. The settling patterns of the in-migrant construction workforce was changed to mirror those of the current workforce. ER Subsection 4.4.2.4 was revised to include six counties (Bosque, Erath, Hood, Johnson, Somervell, and Tarrant) rather than two (Somervell and Hood). The number of housing units found in the six county area exceeds the expected number of in migrant workers, reducing the impact from "LARGE" to "SMALL to MODERATE."

Impact on R-COLA

See attached marked-up ER Rev. 0 page 4.4-24.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-21 (4.4.3-1)**

Describe how construction period activities could interact with subsistence activities of minority or low income populations to cause adverse impacts.

**ANSWER:**

Based on the analysis described in Subsection 2.5.4.4, no subsistence populations were identified within the region. Therefore, it is not likely that construction period activities would interact with subsistence

activities of minority or low-income populations. In the event that subsistence activities are occurring, information related to construction impacts on local wildlife and fish are discussed in Section 4.3. All construction related impacts to ecology are SMALL; therefore, subsistence related impacts would also be SMALL.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-22 (4.4.3-2)**

Describe the main socioeconomic and environmental justice impacts of preconstruction activities at the site

**ANSWER:**

The information requested by this RAI is addressed in Luminant's response to Information Needs SOC-16, GEN-05, GEN-06, and CR-03 in ER Update Tracking Report Revision 3, submitted via Luminant letter TXNB-09011 dated May 14, 2009 (ML091460334).

Impact on R-COLA

Section 4.9 and Table 4.9-1 were revised in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-24 (5.8.2.1-1)**

Provide the following information about operations period demography:

1. 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
2. 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
3. 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

**ANSWER:**

1. The information for the response to this question was addressed in the ER Update Tracking Report, Revision 2, submitted via Luminant letter TXNB-09009 dated April 28, 2009 (ML091260719), in response to SOC-04, and includes the basis for the assumption that 50 percent of CPNPP Unit 3 and 4 operations workers will be hired from within the 50-mile region as well the additional information below.
2. Information regarding the influx of CPNPP Unit 3 and 4 operation worker population numbers relative to the general population numbers in the counties where the “bust effect” of construction workers leaving is discussed in Subsection 5.8.2.1. The values reported were not calculated; rather they were extracted from the ramp up – ramp down information detailed in Figure 4.4-1 and Table 4.4-2.
3. The numbers of construction and operation workers and their family moving into the region and a timeline of their arrival and exodus is discussed in Subsection 4.4.1.1 and illustrated in Figure 4.4-1, a graph illustrating the CPNPP total project staffing. The influx of CPNPP operational workers is described in Subsection 5.8.2.1. There is no data available that anticipates operational workers, and their families, potential annual migration patterns into and out of the region during the operational phase.

Impact on R-COLA

Subsections 5.8.1 and 5.8.2 were revised in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-25 (5.8.2.2-1)**

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
2. The approximate portion of annual operation period expenditures to be spent within the economic

**ANSWER:**

The information for the response to this question was addressed by Luminant response to Information Need SOC-06 in the ER Update Tracking Report, Revision 2, via Luminant letter TXNB-09009 dated April 28, 2009 (ML091260719), to include indirect workers anticipated to be created in the region during the operation phase.

1. As explained in Subsection 5.8.2.2 and Luminant response to Question SOC-17, the indirect jobs created during the operational phase are service-related and it is not expected that the individuals who fill these jobs will need highly specialized training. Luminant response to Question SOC-17

further details that as of 2006, the number of unemployed persons in the economic region exceeds available jobs. Because both the number of available workers and required expertise exists in the economic region, no indirect workers are expected to migrate into the region to fill these jobs.

2. As described in Subsection 5.8.2.2, the expected annual expenditures anticipated to be spent in support of Units 3 and 4 has been provided. A specific breakdown of the proportion of expenditures expected to be spent within the region is not yet available.

Impact on R-COLA

Subsections 4.4.2.2 and 5.8.2.2 were updated in the Environmental Report.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-26 (5.8.2.2.1-1)**

Provide the following tax-related information:

1. 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
2. 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

**ANSWER:**

See the response to Question SOC-18.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-27 (5.8.2.3.4-1)**

Provide the following information on recreation:

1. 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.

**ANSWER:**

The lake levels of Lake Granbury are governed by the Brazos River Authority (BRA). The BRA provides historical lake elevation data since the lake was completed in 1969. The top of the conservation pool is at elevation 693-ft. Since completion of the lake:

- 23 percent of the time the elevation has been below 692-ft
- 9 percent of the time the elevation has been below 691-ft
- 4 percent of the time the elevation has been below 690-ft
- The lowest recorded elevation is 685.5-ft

The BRA is permitted by the state to annually withdraw up to 100,000 ac-ft for water sales from Lake Granbury. Over the last 25 years, annual inflow to Lake Granbury has averaged about 470,000 ac-ft per year (BRA 2009).

Luminant has requested a water supply of up to 90,000 ac-ft per year for CPNPP Units 3 and 4. Of the water diverted from Lake Granbury for CPNPP Units 3 and 4, two-thirds is consumed by evaporation in the cooling towers and one-third is returned to Lake Granbury. As discussed in Subsection 5.2.2.2, based on published elevation storage relationships, the 171 ac-ft/day consumptive water use for CPNPP Units 3 and 4 would result in a negligible (less than 0.1 ft) decrease in water level elevation on Lake Granbury. During average rainfall years and wet years, there is no effect on lake levels. However, the additional water used by CPNPP Units 3 and 4 could result in the lake level being as much as 1.5-ft lower than it would have been during drought conditions which is about 30 percent of the time. During extreme drought, such as experienced in the 1950s, the lake could be as much as 4-ft lower than it would have been without any water use by CPNPP Units 3 and 4. This data is for year 2020 lake conditions (BRA 2009).

The fluctuations in water level are not expected to impact the recreational users of Lake Granbury. As described in Subsection 2.3.2.2.2, recreational use in the vicinity is supported by numerous state parks and by public facilities for boating and camping at various lakes and reservoirs. Lake Granbury has five public access areas for picnicking and fishing, four of which have primitive camping sites. A boating capacity study identified 6000 private boat slips and boat ramp access at 12 launch ramps. The survey indicated that the majority of Lake Granbury boaters appear to spend most of their time on the lake waterskiing (26.7 percent), cruising (21.8 percent), fishing (21.6 percent), on personal watercraft (10.1 percent), or swimming (9.9 percent). The lake is currently listed by the Texas Parks and Wildlife Division as having a fluctuation of one foot or less. This fluctuation is not impacted by CPNPP Units 3 and 4 during average or wet rainfall years. During drought conditions, the fluctuation is only increased by a maximum of 1.5 feet. A fluctuation of this magnitude does not impact boat access to the lake or access to swimming areas. Only during extreme drought conditions are the lake levels affected more than 1.5 feet. However, even during low-flow conditions, lake-level reduction associated with consumptive water losses resulting from CPNPP Units 3 and 4 is not expected to affect recreational boating and fishing in summer, when lake use is at its highest, due to the length of time for drawdown (see Table 2.3-38). Also, the withdrawal of water for use by CPNPP Units 3 and 4 is anticipated to have minimal impact on boating and fishing downstream of the dam. Thus, issues of water level due to the plant operations do not impact recreational use of the lake.

The temperature affect on Lake Granbury due to CPNPP Units 3 and 4 is restricted to the area near the DeCordova Bend Dam where the multiport diffuser is placed. The maximum temperature of water discharged into the reservoir is 93°F. As discussed in Subsection 5.2.3.1, CORMIX was used to simulate the thermal plume that is anticipated in Lake Granbury due to CPNPP Units 3 and 4. Results of these

simulations predict a small thermal plume that dissipates quickly. Directional flow of the reservoir water toward the dam pulls the plume towards the dam where it can mix with ambient water from the lake. Also, the thermal plume is smallest in the summer, the season of maximum recreational usage.

Two public access areas are located near the DeCordova Bend Dam. The first is a recreation area on the north side of the lake, containing a boat launching ramp, fishing pier, picnic tables, a swimming area, and overnight camping. The second is an observation point with picnic tables. Both sites are upstream from the proposed diffuser. Thus, the thermal discharge into Lake Granbury is not expected to impact recreation.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-28 (5.8.3-1)**

Describe how operations period activities could interact with subsistence activities of minority or low-income populations to cause adverse impacts

**ANSWER:**

Based on the analysis described in Subsection 2.5.4.4, no subsistence populations were identified within the region. Therefore, it is not likely that operation period activities would interact with subsistence activities of minority or low-income populations. In the event that subsistence activities are occurring, information related to operations impacts on local wildlife and fish are discussed in Section 5.3 and 5.5. All operations related impacts to ecology are SMALL, therefore subsistence related impacts would also be SMALL.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-29 (9.3.4.3.2-1)**

Provide projected operations-period socioeconomic impacts for the alternative sites on the same topics addressed in Section 5.8.1 and 5.8.2 of the ER.



**ANSWER:**

Evaluation of alternative sites is based on the site selection and evaluation process identified in Chapter 9.3 of the Environmental Report and in the McCallum-Turner Report provided to the NRC as a public document. This effort describes the comprehensive and systematic approach used by Luminant in arriving at candidate sites in our region of interest (ROI). This selection process evaluated 60+ possible sites in the ROI to narrow the list to four candidate sites using the EPRI site selection criteria. The McCallum-Turner Report was an independent validation to ensure that the process was systematic and in the resulting ranking of sites that no site was obviously superior or environmentally superior to the selected site. The extent of the number of weighting factors help to establish a balance of environmental, socioeconomic and land use factors in ranking the suitability of the sites and to prevent one factor from skewing the results.

The information provided in the McCallum-Turner Report contains the discussion and conclusions regarding specific site selection criteria and no additional studies or evaluations are available.

Finally, the information and discussion of the construction and operational impacts (McCallum-Turner Report Section D.3.1 and D.3.2) bound this area and quantify its significance to ensure that no obviously superior or environmentally superior site existed to the selected site in the Luminant ROI.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-30 (9.3.4.3.3-1)**

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.

**ANSWER:**

See the response to Question SOC-29.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: SOC-31 (9.4.3.1-1)**

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.

**ANSWER:**

See the response to Question SOC-29.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: TE-06 (2.4.1.1-2)**

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.

**ANSWER:**

Efforts to maintain or enhance biodiversity are detailed and managed through a Wildlife Management Plan, currently in development as part of the Clean Texas Program. The Texas Parks and Wildlife Department (TPWD) and the Texas AG Extension Service are providing technical support to Luminant for site specific wildlife management issues anticipated for CPNPP. Through the Wildlife Management Plan, controlled/maintenance measures for invasive species have also been described. Currently, the Wildlife Management Plan is in review with the TPWD.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: TE-07 (2.4.1.1-3)**

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/DesktopDefault.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, small eye 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.

**ANSWER:**

Consultation with the United States Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department (TPWD) indicated that the black-capped vireo, golden-cheeked warbler, bald eagle, Brazos water snake, Texas horned lizard, timber (canebrake) rattlesnake, sharpnose shiner, and the pistolgrip were the only species that could potentially be impacted by the proposed project, when suitable habitat is present. All species listed above are discussed in the ER.

Additional information is being provided on the rare species listed by USFWS and TPWD as occurring in Hood and Somervell counties, but not previously discussed in the Environmental Report. The additional information and supporting references will be added to Section 2.4 of the Environmental Report (attached).

Impact on R-COLA:

See attached marked-up ER Rev. 0 pages 2.4-15 through 2.4-18 and 2.4-33 through 2.4-40.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: TE-08 (2.4.1.1-4)**

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.

**ANSWER:**

Design and construction measures to avoid, where possible, stream and riparian areas will be described in the Storm Water Pollution Prevention Plan (SWPPP). The existing plan for CPNPP Units 1 and 2 will be modified to include CPNPP Units 3 and 4. The plan will detail the specific erosion control plan and the best management practices that will be utilized to avoid and minimize impacts on sensitive areas, including stream and riparian areas.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

**QUESTION NO.: TE-09 (2.4.1.1-5)**

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.

**ANSWER:**

Native grasses would be re-introduced in disturbed areas through seed broadcasting as permitted in accordance with the required security measures for the site. Native grasses are the preferred cover for most disturbed areas. However, in some situations native grasses are not the optimal choice for re-vegetation due to high erosion probability and/or seasonal conditions, or along fence lines. In these areas, improved grasses; i.e. buffalo and rye grass, would be utilized to quickly establish cover of disturbed areas. Where practical, natural regeneration of native grasses would be permitted in areas where improved grasses were utilized to control erosion. Undesirable and/or invasive species will be controlled through measures identified in a Wildlife Management Plan currently under review by the Texas Park and Wildlife Department as part of the Clean Texas Program.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO: TE-10 (2.4.1.1-6)**

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.

**ANSWER:**

Additional information is being provided on the rare plant species possibly occurring in Hood and Somervell counties. The additional information and supporting references will be added to Section 2.4 of the Environmental Report (attached).

Impact on R-COLA

See attached marked-up ER Rev. 0 pages 2.4-15 and 2.4-32 through 2.3-28.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: TE-11 (5.3.3.2.3-1)**

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.

**ANSWER:**

Based on the conceptual design of the blowdown treatment facility, there will be two ponds, an evaporation pond approximately 130 acres by 4 feet in depth and a three-month storage pond approximately 47 acres by 20 feet in depth. However, the location of the ponds in relationship to the transmission lines is in the preliminary design stage. If the transmission lines cross the ponds, bird deterrents or other devices may be employed to protect birds. Wildlife protection will be decided during the final design stage based on discussions with the Texas Parks and Wildlife Department and the U.S. Fish and Wildlife Service.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: TE-14 (4.3.1.4-2)**

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.

**ANSWER:**

Because design of the proposed plant facilities has not been finalized, potential impacts to wetlands and associated mitigation plans are still preliminary. Upon the completion of the final design for CPNPP Units 3 and 4 associated impacts to aquatic resources, including wetlands, will be evaluated and appropriate permits will be obtained from the U.S. Army Corps of Engineers (USACE) prior to construction. The USACE coordination will include the analysis of the identified impacts, according to each design alternative, and such analysis will include an avoidance, minimization, and compensation sequence. Any remaining impacts will be offset as described in a USACE-approved conceptual mitigation plan for the final design as part of the Section 404 permitting process. If a Section 404 permit is required by USACE, required mitigation for the adverse impacts to the preferred alternative will be addressed.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: TE-15 (4.3.1.4-3)**

Please provide a functional assessment for any mitigation proposed for aquatic resources, including wetlands, which demonstrates replacement of lost wetland functions.

**ANSWER:**

As discussed in response to Question TE-14, the final design for the site is not complete. Based on preliminary designs, the impact to aquatic resources, including wetlands, is expected to be minimal. Upon completion of the final design of CPNPP Units 3 and 4, USACE will be notified of impacts through the Section 404 permit notification process. During the Section 404 permit process, required mitigation for the adverse impacts associated with the preferred alternative will be addressed. This permitting process will include a functional assessment of the proposed mitigation plan to ensure in-kind replacement of the lost resources.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: TE-17 (5.3.3.2.3-1)**

Provide information stating the expected nature and magnitude of the impacts to areas of wetlands and lake surface from cooling tower fogging and icing.

**ANSWER:**

Environmental Report Table 5.3-5 provides a quantitative summary of the predicted fog and icing occurrence resulting from the proposed CPNPP Units 3 and 4 cooling towers. The data on the table is output from a calculation that utilized the Seasonal/Annual Cooling Tower Impacts (SACTI) code developed by the Electric Power Research Institute (EPRI). As indicated on Table 5.3-5, the plume will have the greatest impact at about 0.25 miles in both the north and south directions and includes a portion of Squaw Creek Reservoir and a small amount of wetlands. Considering the average winter low temperature, the icing impact will likely consist of rime ice only. The predicted spatial extent and duration of fog and ice is not extensive and will occur when the vegetation is dormant. Therefore, the impact will be minimal.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: TE-18 (5.6.1-1)**

Provide information supporting conclusion that electrocution threat to raptors from transmission lines is small, including any references to documents in support of the conclusion.

**ANSWER:**

Deterrents have been installed on transmission towers to deter large avian species (e.g. great blue herons and eagles) from perching or nesting on the towers. The deterrents are inverted "Vs" aligned along tower arms which discourage perching and nesting behaviors along the arms and lowers the chance for electrocution.

The conclusion that the electrocution threat to raptors from transmission lines is SMALL is based on historical experience from CPNPP Units 1 and 2. Based on a review of the Unit 1 and 2 corrective action program, there have been instances of great blue herons building nests on transmission towers and subsequent trips associated with their droppings, but there has been only one reported occurrence of bird mortality. The lack of previous occurrences combined with deterrence efforts, provide reasonable assurance that the threat of electrocution is minimal.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD

None.

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**QUESTION NO.: TE-19 (5.6.1-2)**

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](http://www.darksky.org) for information on light pollution).

**ANSWER:**

Light pollution mitigation efforts proposed by Luminant include converting lighting fixtures to low pressure sodium (LPS) vapor and other measures such as light positioning and fixture design. The yellow LPS

lamps attract fewer insects and have less impact on habitat and life cycle behavior. The monochromatic wavelength emitted by the yellow tinted sodium vapor lights can be more easily filtered to minimize negative effects. Light pollution minimization will be factored into the design while accounting for security concerns. These considerations are a direct result of CPNPP Units 1 and 2 operating experience and modifications made to minimize the light pollution after operations began.

Impact on R-COLA

None.

Impact on S-COLA

None.

Impact on DCD



**LIST OF ATTACHMENTS ON CD**

Question No.	Location of Attachment	File Name	Name of Document	Document Date	Type of Document
<b>AE-01</b>	AE-01 Folder	AE-01.pdf	ER Markup for AE-01	None	ER Markup
<b>AE-02</b>	AE-02 Folder	AE-02-A	Squaw Creek Reservoir Characterization Study Final Report (Bio-West 2008a)	March 2008	Report
		AE-02-B	Lake Granbury Characterization Study Final Report (Bio-West 2008b)	March 2008	Report
<b>GEN-01</b>	GEN-01 Folder	GEN-01-A.pdf	EPA Letter Acceptance letter to the Environmental Performance Track Program	November 23, 2005	Letter
		GEN-01-B.pdf	Offer to become a Charter Member in the CLEAN TEXAS program	October 12, 2000	Letter
		GEN-01-C.pdf	EMS Audit Decision for TXU Comanche Peak	April 26, 2005	Letter
		GEN-01-D.pdf	Charter Member achievement report notice	June 15, 2004	Letter
		GEN-01-E.pdf	Approval letter for CLEAN TEXAS program application	March 28, 2001	Letter
<b>HP-02</b>	HP-02 Folder	HP-02.pdf	ER Markup for HP-02	None	ER Markup
<b>MET-01</b>	MET-01 Folder	MET-01.pdf	FSAR Revision for RAI MET-01	None	FSAR Revision
<b>MET-11</b>	MET-11 Folder	MET-11-A.pdf	CP Renewed Air Permit	June 17, 2004	Letter
		MET-11-B.pdf	CP Renewal Air Permit application	March 12, 2004	Letter
<b>SOC-07</b>	SOC-07 Folder	SOC-07-A.pdf	TXU Generation Company LP Ad Valorem Tax Tracking Report	Tax Year 2006	Data
		SOC-07-B.pdf	TXU Generation Company LP Ad Valorem Tax Tracking Report	Tax Year 2006	Data
<b>SOC-09</b>	SOC-09 Folder	SOC-09.pdf	ER Revision for SOC-09 Markup	None	ER Markup
<b>SOC-13</b>	SOC-13 Folder	SOC-13.pdf	ER Revision for SOC-13 Markup	None	ER Markup
		SOC-13-B.pdf	Attachment for SOC-13-1	None	Attachment
<b>SOC-15</b>	SOC-15 Folder	SOC-15.pdf	ER Revision for SOC-15 Markup	None	ER Markup
<b>SOC-20</b>	SOC-20 Folder	SOC-20.pdf	ER Revision for SOC-20 Markup	None	ER Markup
<b>TE-07</b>	TE-07 Folder	TE-07.pdf	ER Markup for TE-07	None	ER Markup
<b>TE-10</b>	TE-10 Folder	TE-10.pdf	ER Markup for TE-10	None	ER Markup