

PMComanchePeakPEm Resource

From: Stephen Monarque
Sent: Tuesday, May 19, 2009 11:07 AM
To: ComanchePeakCOL Resource
Subject: FW: TXNB-09011 ER Rev 3 Update Tracking Report
Attachments: TXNB-09011 ER R3 UTR.pdf; ER_UTR_Rev3.pdf

From: John.Conly@luminant.com [mailto:John.Conly@luminant.com]

Sent: Thursday, May 14, 2009 2:09 PM

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Subject: TXNB-09011 ER Rev 3 Update Tracking Report

Luminant has submitted the attached ER Rev 3 Update Tracking Report to the NRC. If there are any questions regarding the report, please contact me or contact Don Woodlan (254-897-6887, Donald.Woodlan@luminant.com).

Thanks,

John Conly
COLA Project Manager NuBuild
Luminant Power
(254) 897-5256

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Ref. # 10 CFR 52

May 14, 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
COMBINED LICENSE APPLICATION UPDATE TRACKING REPORT**

Dear Sir:

Luminant Generation Company LLC (Luminant) hereby submits the Combined License Application (COLA) Update Tracking Report for Comanche Peak Nuclear Power Plant Units 3 and 4. The marked-up pages in the report reflect planned revisions to the Environmental Report (ER) to address topics discussed during the Environmental Review Site Audit conducted in late February 2009. This is the third Update Tracking Report submitted for the ER.

Should you have any questions regarding these marked-up COLA pages or matters relating more generally to Luminant's nuclear generation development program, 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 May 14, 2009.

Sincerely,

Luminant Generation Company LLC

Rafael Flores

Attachment: Combined License Application Update Tracking Report (on CD)

C-

Email Distribution w/ attachment

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May 8, 2009

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application**

**Part 3,
Environmental Report
Update Tracking Report**

Revision 3

Revision History

Revision	Date	Update Description
0	3/31/2009	No technical changes in Rev.0 Editorial Changes in Chapters: Ch.1, 2, 3, 4, 5, 6, 7, 8, 9 and 10
1	4/14/2009	Updated Chapters: Ch. 1, 2, 3, 4, 5, 8, 9
2	4/24/2009	Updated Chapters: Ch. 1, 2, 4, 5, 10
-	4/28/2009	Updated Chapters: Ch. 7 See Luminant Letter TXNB-09013 dated 4/28/2009
3	5/08/2009	Updated Chapters: Ch 2, 3, 4, 5, 6

Chapter 1

Chapter 1 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	1-xv	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
CTS-00462	Table 1.3-2	1.3-5	Match to NUREG 1555	Change section titles of 4.7, 4.8, 5.11 and 5.13.	0
LU-02	Figure 1.1-5	–	Represent line from CPNPP to DeCordova as a new line.	Change color of line from CPNPP to DeCordova from red to green.	1
CTS-00693	Table 1.2-1	1.2-3 1.2-4 1.2-5 1.2-6 1.2-8 1.2-9	Table needs to accurately reflect the permit conditions and permits required.	Table 1.2-1 updated to reflect only those permits that apply.	1
CTS-00694	Table 1.2-1	1.2-3 1.2-4 1.2-5 1.2-6 1.2-8 1.2-9	Editorial	Adjust column setting and row to improve the readability	1
MET-25	Table 1.2-1	1.2-9	ER Site Audit NRC information need	Add TCEQ 30 TAC 116 State Construction Air Permit	1
ALT-11	1.0	1.0-1	Increase information as discussed with the NRC.	Revised subsection to include a concise statement of the purpose and the need for the proposed project.	2
CTS-00693	Table 1.2-1	1.2-9	Editorial	Removed the information for financial institutions	2

Chapter 2

Chapter 2 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	2-xlii	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
CTS-00611	2.1	2.1-1	Erratum	Change "624,067" to "653,320"; "61,115" to "62,306"; "39,875" to "39,987"; "37,976" to "41,564"; "29,184" to "29,689" to match 2006 US Census instead of 2005 US Census.	0
CTS-00611	2.1.1	2.1-2	Updated reference required to provide 2006 data not 2005 data	Change (US Census 2005) to (US Census 2006) notated as US Census Bureau. "American FactFinder – Texas By Place GCT Population Estimates." US Census Bureau, Washington, DC. Available URL: Http://factfinder.census.gov/servlet/home/en/official-estimates.html , Accessed July 24, 2008.	0
CTS-00459	2.3.1.1.5	2.3-4	Erratum	Change "384 ac" to "400 ac".	0
CTS-00455	2.3.3.3.5	2.3-61	Editorial correction	Delete "No" and add "Other than CPNPP Units 1 and 2,".	0
CTS-00648	2.3.1.1.6	2.3-4	Erratum	Change "0.25 ac" to "0.78 ac".	0
MET-04	List of Tables	2-xvii and 2-xviii	Erratum	Add "Dallas" in front of "Fort Worth" and "Airport" after Fort Worth	1
MET-14	List of Tables	2-xix 2-xx	Increase information as discussed with the NRC.	Add tables: 2.7-129, 2.7-130, 2.7-131, 2.7-132, 2.7-133, 2.7-134, 2.7-135	1
LU-05	2.2.1.1	2.2-1	Erratum	Revise paragraph to clarify mineral rights.	1
LU-01	2.2.2	2.2-5	Increase information as discussed with the NRC.	Insert sentence and add "CDP" to Pecan Plantation to clarify Pecan Plantation is a housing development and not an incorporated town.	1

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
LU-11	2.2.2	2.2-5	Increase information as discussed with the NRC.	Insert sentence to clarify zoning along Lake Granbury.	1
LU-09	2.2.3	2.2-6	Increase information as discussed with the NRC.	Revised text to include information on Proctor Lake and adjust numbers accordingly.	1
LU-08	Figure 2.2-3		Increase information as discussed with the NRC.	Show location of state parks.	1
SOC-11	2.5.2.7.2.1	2.5-18	Increase information as discussed with the NRC.	Updated with current information and revised text to discuss public safety and medical services for Hood and Somervell counties.	1
SOC-11	2.5.2.7.2.1	2.5-19	Erratum	Update reference (The Nursing Home Project 2006) to (The Nursing Home Project 2006a).	1
SOC-11	2.5.2.7.2.2	2.5-19	Erratum	Update reference citation from TDPS 2004 to TDPS 2006	1
SOC-11	2.5.2.7.2.3	2.5-19	Increase information as discussed with the NRC.	Add new subsections to discuss Bosque, Erath, Johnson, and Tarrant counties public safety and medical services.	1
SOC-11	2.5.2.7.2.3	2.5-19	Increase information as discussed with the NRC.	Updated with current information and revised text to discuss public safety and medical services for Hood and Somervell counties. Update reference citation from TDPS 2004 to TDPS 2006	1
CR-04	2.5.3.6	2.5-25	Increase information as discussed with the NRC.	New subsection to include background for 2.5.3.	1
CR-04	2.5.6	2.5-29	Increase information as discussed with the NRC.	Add 13 new reference notations that are cited in the new Subsection 2.5.3.6.	1
SOC-13	2.5.4.4	2.5-28	Increase information as discussed with the NRC.	Revised Subsection to include information on subsistence populations.	1

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
SOC-11	2.5.6	2.5-32	Increase information as discussed with the NRC.	Update reference notation from (The Nursing Home Project 2006) to (The Nursing Home Project 2006a)	1
SOC-11	2.5.6	2.5-34	Increase information as discussed with the NRC.	Update reference notation from (TDPS 2004) information to (TDPS 2006) information.	1
SOC-11	2.5.6	2.5-36	Increase information as discussed with the NRC.	Revised to include 11 new reference notations.	1
MET-03	2.7.1.2.4	2.7-11	Erratum	Add "16" to number of day each year and "by county" to wind events to reconcile thunderstorm information.	1
MET-04	2.7.1.2.8	2.7-17	Erratum	Add "the" in front of "Dallas Fort Worth and Airport" after "Fort Worth" to correct the reference to Forth Worth Airport.	1
MET-13	2.7.2.1.2	2.7-19 and 2.7-23	Erratum	Replaced 2001 – 2006 with 2001 – 2004 and 2006 to describe which data years were used.	1
MET-04	2.7.2.1.4	2.7-23	Erratum	Add "Dallas" in front of Fort Worth Airport to correct the reference to Forth Worth Airport.	1
MET-11	2.7.2.1.7	2.7-25	Erratum	Change Table 2.7-34 to Table 2.3-23 to correct reference to the table.	1
MET-13	2.7.3.1	2.7-28	Erratum	Replaced 2001 – 2006 with 2001 – 2004 and 2006 to describe which data years were used.	1
MET-12	2.7.3.1	2.7-28	Erratum	Remove "control room" and replace with "low population zone" to correct reference to control room.	1

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
MET-13	2.7.3.2 And 2.7.4.2	2.7-30 and 2.7-31	Erratum	Replaced 2001 – 2006 with 2001 – 2004 and 2006 to describe which data years were used.	1
MET-14	2.7.4.3	2.7-33	Increase information as discussed with the NRC.	Insert new Subsection to include evaporate pond results.	1
MET-03	Table 2.7-11	2.7-68	Erratum	Change numbers in average per year (#/yr)	1
MET-13	Table 2.7-11	2.7-68	Erratum	Replaced 2006 with 7/31/2006 to describe which data years were used.	1
MET-13	Table 2.7-85	2.7-68	Erratum	Replaced 2001 – 2006 with 2001 – 2004 and 2006 to describe which data years were used.	1
MET-04	Table 2.7-86	2.7-150	Erratum	Add “Dallas” in front of “Fort Worth Airport” to correct the reference to Forth Worth Airport.	1
MET-04	Table 2.7-96	2.7-162	Erratum	Add “Dallas” in front of Fort Worth and “Airport” after “Fort Worth” to correct the reference to Forth Worth Airport.	1
MET-04	Table 2.7-99	2.7-165	Erratum	Add “Dallas” in front of “Fort Worth Airport” to correct the reference to Forth Worth Airport.	1
MET-14	Table 2.7-129 through Table 2.7-135		Increase information as discussed with the NRC.	Add Tables 2.7-129, 2.7-130, 2.7-131, 2.7-132, 2.7-133, 2.7-134, and 2.7-135.	1
SOC-07	List of Tables	2-xi	Increase information as discussed with the NRC.	Changed the Title of Table 2.5-16 from “Hood and Somervell County 2002 and 2007 Property Taxes” to “Economic Region 2002 and 2007 Property Taxes”	2

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
SOC-06	2.5.2.1	2.5-8	Editorial Correction	Removed "counties" Changed Table 5.8-1 to 5.8-2.	2
SOC-06 SOC-03	2.5.2.1	2.5-10	Errata	Changed number of workers from "4300" to "4953" and from "550" to "494"	2
SOC-07	2.5.2.3.1	2.5-13	Editorial Correction	Changed "Hood and Somervell" to "the cities and" and added "in the economic region"	2
SOC-07	2.5.2.3.1	2.5-13	Increase information as discussed with the NRC.	Revised discussion in subsection to discuss the state and local taxes associated with the proposed units.	2
SOC-07	2.5.6	2.5-31	Editorial correction	Revised reference from (Combs 2007) to (Combs 2007a). Added reference (Combs 2009).	2
SOC-07	2.5.6	2.5-35 2.5-31	Increase information as discussed with the NRC.	Removed reference notation for (Combs 2006). Added two new reference notations as a result of the revisions to subsection 2.5.2.3.1.	2
SOC-07	Table 2.5-16	2.5-64	Increase information as discussed with the NRC.	Revised table to increase information for local taxes.	2
LU-03	List of Tables	2-vii	Increase information as discussed with the NRC.	Added Table 2.2-5.	3
NP-15	List of Tables	2-xii	Increase information as discussed with the NRC.	Added Tables 2.5-28 and 2.5-29.	3
LU-03	2.2.2	2.2-5	Increase information as discussed with the NRC.	Added a sentence to refer the reader to Table 2.2-5 for land use acreages in the pipeline right of way.	3

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
LU-03	Table 2.2-5		Increased information as discussed with the NRC.	Added Land Use Table 2.2-5 to provide pipeline land use information.	3
SOC-01 SOC-08	2.5.2.2.3	2.5-11	Increase information as discussed with the NRC.	Revised subsection to provide updated traffic information.	3
NP-15	2.5.2.3.1	2.5-13	Increase information as discussed with the NRC.	Revised subsection to discuss estimates of wages paid.	3
SOC-09	2.5.2.5	2.5-15	Increase information as discussed with the NRC.	Added sentence to discuss the proposed new recreational area at Wheeler Branch reservoir.	3
SOC-09	2.5.2.5	2.5-15	Increase information as discussed with the NRC.	Revised sentence to clarify that light pollution in the area has been lessened by CPNPP efforts to improve the aesthetics of the area.	3
SOC-09	2.5.2.6	2.5-15	Increase information as discussed with the NRC.	Revised reference to Table 5.8-1 to Table 5.8-2.	3
SOC-09	2.5.2.6	2.5-16	Increase information as discussed with the NRC	Changed "10" percent to "9.5" percent.	3
SOC-09	2.5.2.6	2.5-16	Increased information as discussed with the NRC.	Revised subsection to clarify housing information.	3
SOC-09	2.5.2.6	2.5-17	Increase information as discussed with the NRC.	Revised subsection to include additional information on RV Parks.	3
SOC-10	2.5.2.7.1	2.5-17 2.5-18	Increase information as discussed with the NRC	Revised subsection to reconcile inconsistencies between subsections 2.5 and 4.4.	3

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
SOC-12	2.5.2.8.2	2.5-20	Increased information as discussed with the NRC.	Revised subsection to clarify public education system in the vicinity of the proposed units.	3
SOC-12	2.5.2.8.3	2.5-20	Increased information as discussed with the NRC.	Added a new subsection "2.5.2.8.3 Counties in the Economic Region" to clarify public education system in the vicinity of the proposed units. Revised subsequent subsection number from "2.5.2.8.3" to "2.5.2.8.4" as a result.	3
NP-15	2.5.6	2.5-31	Increased information as discussed with the NRC.	Added two new reference notations as a result of the revisions to subsection 2.5.2.3.1.	3
SOC-10	2.5.6	2.5-30 2.5-31 2.5-33 2.5-36	Increased information as discussed with the NRC.	Added eight new reference notations as a result of the revisions in Subsection 2.5.2.7.1.	3
SOC-12	2.5.6	2.5-32	Increased information as discussed with the NRC.	Added seven new reference notations (Granbury ISD 2007) as a result of revisions in Subsection 2.5.2.8 and removed two reference notations as a result of the new references.	3
SOC-09	2.5.6	2.5-33 2.5-36	Increased information as discussed with the NRC.	Added 11 reference notations for revisions associated with this issue.	3
SOC-01 SOC-08	2.5.6	2.5-34	Increased information as discussed with the NRC.	Added new reference notation as a result of revisions to Subsection 2.5.2.2.3.	3
SOC-09	Table 2.5-18	2.5-66	Increased information as discussed with the NRC.	Revised number of housing units from "801" to "903."	3
SOC-10	Table 2.5-20	2.5-68 2.5-69 2.5-70	Errata	Added footnotes (a) and (b) to reconcilable inconsistencies between Subsection 2.5 and 4.4.	3

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
NP-15	Table 2.5-28 Table 2.5-29		Increased information as discussed with the NRC.	Added two new tables to summarize information provided in subsection 2.5.2.3.1.	

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

LIST OF TABLES

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2.2-1	USGS Land Use
2.2-2	Agricultural Products in Hood and Somervell Counties
2.2-3	Acres of Zoned Land in Granbury
2.2-4	Transmission Line Land Use
<u>2.2-5</u>	<u>Pipeline Corridor Land Use</u>
2.3-1	USGS Hydrologic Unit Codes for Region 12 - Brazos River Basin
2.3-2	Mean Monthly Evaporation Data for Lake Granbury
2.3-3	USGS Topographic Maps for the Middle Brazos - Palo Pinto and Lake Whitney Watersheds
2.3-4	Major Tributaries Contributing Flow to Brazos River Between Morris Shepherd Dam and De Cordova Bend Dam
2.3-5	Local Stream Tributaries
2.3-6	Selected USGS Gauging Stations
2.3-7	Monthly Mean Streamflow (CFS) of the Brazos River Near Dennis, Texas USGS Gauge Station No. 08090800
2.3-8	Maximum Streamflow (CFS) of the Brazos River Near Dennis, Texas USGS Gauge Station No. 08090800
2.3-9	Minimum Daily Streamflow (CFS) of the Brazos River Near Dennis, Texas USGS Gauge Station No. 08090800
2.3-10	Low Flow Values (CFS) for 1, 7, and 30 Days for Selected Return Periods for the Brazos River Near Dennis, Texas
2.3-11	Monthly Mean Discharge (CFS) at DeCordova Bend Dam - Lake Granbury From October 1969 to September 2006
2.3-12	Maximum Discharges (CFS) at DeCordova Bend Dam - Lake Granbury
2.3-13	Monthly Mean Streamflow (CFS) of the Brazos River Near Glen Rose, Texas USGS Gauge Station No. 08091000

| LU-03

**Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report**

LIST OF TABLES (Continued)

<u>Number</u>	<u>Title</u>
2.5-24	Regional Minority and Low-Income Populations Analysis Results
2.5-25	Minority and Low-Income Percentages for the CPNPP Region
2.5-26	Minority and Low-Income Populations Analysis Results for the 16-km (10-mi) Radius
2.5-27	Farms that Employ Migrant Labor in the CPNPP Region 2002
<u>2.5-28</u>	<u>Construction Worker Wages by Craft</u>
<u>2.5-29</u>	<u>Operation Worker Wages by Specialty</u>
2.7-1	Texas Weather Records
2.7-2	Dallas-Fort Worth, TX (DFW) Normals, Means, and Extremes
2.7-3	Dallas Love Field, TX Normals, Means, and Extremes
2.7-4	Mineral Wells, TX Normals, Means, and Extremes
2.7-5	Glen Rose, TX Normals, Means, and Extremes
2.7-6	Hurricane Landfalls in Texas
2.7-7	Frequency of Tropical Cyclones (by Month)
2.7-8	Tropical Storms Within 50 Miles of CPNPP
2.7-9	Tornadoes in Surrounding Area
2.7-10	Tornadoes in Surrounding Counties by Month
2.7-11	Thunderstorms and High Wind Events
2.7-12	Hail Storm Events
2.7-13	Mixing Height CPNPP Vicinity
2.7-14	Mixing Heights at Stephenville Texas
2.7-15	Mean Ventilation Rate by Month Stephenville Texas
2.7-16	Mixing Height CPNPP Area

NP-15

Comanche Peak Nuclear Power Plant, Units 3 & 4
COL Application
Part 3 - Environmental Report

Additional water intake and discharge pipelines are expected to be constructed for CPNPP Units 3 and 4 extending from the plant to Lake Granbury (Figure 1.1-4). The pipelines are expected to occupy an existing 50-ft ~~right-of-way~~row and are expected to run parallel to the existing water pipelines. Table 2.2-5 shows the land-use acreages in the pipeline ROW. Additional intake and discharge structures are expected to be placed to the north and adjacent to the existing intake and discharge structures on Lake Granbury. As discussed in Subsection 2.4.1.2.2, no wetlands or habitat for threatened or endangered species are located on the pipeline ROW. Vegetation consists mainly of grassland and ashe juniper. Land-use impacts to the ROW during construction are discussed in Subsection 4.1.2.

LU-03

2.2.3 THE REGION

There are 19 counties completely or partially within the 50-mi radius of the site center point, all of which are located in Texas. These counties include: (1) Dallas, (2) Stephens, (3) McLennan, (4) Ellis, (5) Hood, (6) Johnson, (7) Eastland, (8) Erath, (9) Somervell, (10) Hill, (11) Comanche, (12) Bosque, (13) Hamilton, (14) Jack, (15) Wise, (16) Palo Pinto, (17) Parker, (18) Tarrant, and (19) Coryell counties (BTS 2006). The largest cities in the region are Fort Worth (624,067 people), Haltom City (39,875 people), Burleson (29,613 people), and Cleburne (29,184 people) (US Census 2005).

There are five interstate highways within the region of CPNPP: (1) I-20 (approximately 28 mi northwest); (2) I-35W (approximately 33 mi east); (3) I-35E (approximately 44 mi east); (4) I-30 (approximately 32 mi northeast); and (5) I-820 (approximately 33 mi northeast). I-35W and I-35E combine as I-35 north of Denton, Texas, and south of Dallas, Texas. I-35 connects Oklahoma City, Oklahoma to the cities of Dallas and San Antonio, Texas. I-820 is part of Loop 820 that navigates around Fort Worth, Texas (BTS 2006). Major transportation routes in the region are shown in Figure 1.1-1.

The Paluxy River runs from northern Erath County southeast to Somervell County where it joins the Brazos River. The Brazos River runs from northern Texas to the Gulf of Mexico, and passes through Hood and Somervell counties (BTS 2006). The Brazos River is not designated as a National Wild and Scenic River, and is only navigable downstream of the Lake Whitney Dam located 39 mi southeast (USGS 2007), (NWSRS 2007), (USACE 1999). However, 115 river mi of the river in Palo Pinto and Parker counties are designated the John Graves Scenic Riverway by the state of Texas (Reed ACP 2007). There are no ports within the 50-mi region (BTS 2006).

Based on USGS land-use categories and data, the land-uses designation within the 50-mi region are shown in Table 2.2-1 and Figure 2.2-4 (USGS 2001). The principle crops produced in the region according to the 2002 agricultural census are corn (4 million bu), sorghum and sorghum silage (3.4 million bu), and wheat (2.5 million bu). In addition, 5.8 million lb of peanuts are produced in the region.

Within the region of CPNPP, there are ~~five~~four separate federal land holdings as shown in Figure 2.2-2 (US Census 2000). ~~Four~~Three of these federal land holdings are lakes developed by the Army Corps of Engineers: (1) Benbrook Lake at ~~5169~~5483.9 ac; (2) Aquilla Lake at ~~17,294~~17,280 ac; ~~and~~ (3) Lake Whitney at ~~21,841~~21,824 ac; ~~and~~ (4) Proctor Lake at 6505 ac. The remaining federal land holding is Naval Air Station (NAS) Fort Worth, Joint Reserve Base at Carswell. Commissioned on October 1, 1994, the base was previously known as Carswell Air

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TABLE 2.2-5
PIPELINE CORRIDOR LAND USE

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<u>Land Use Type</u>	<u>Acreage</u>	<u>Percent</u>
<u>Water</u>	<u>0.2</u>	<u>0.4</u>
<u>Developed, Open</u>	<u>6.2</u>	<u>12.4</u>
<u>Developed, Low Intensity</u>	<u>1.2</u>	<u>2.3</u>
<u>Developed, Medium Intensity</u>	<u>0.3</u>	<u>0.5</u>
<u>Barren Land</u>	<u>0.2</u>	<u>0.4</u>
<u>Deciduous Forest</u>	<u>6.3</u>	<u>12.6</u>
<u>Evergreen Forest</u>	<u>3.7</u>	<u>7.5</u>
<u>Grassland</u>	<u>31.4</u>	<u>63.1</u>
<u>Cropland</u>	<u>0.4</u>	<u>0.7</u>
<u>Woody Wetlands</u>	<u>0.1</u>	<u>0.1</u>
<u>Total</u>	<u>49.7</u>	<u>100.0</u>
<u>(USGS 2001)</u>		

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and staff who live outside Hood and Somervell counties, an adequate road network is already present to allow those workers to commute to the CPNPP site. An example of this network is US 377, which connects Fort Worth to Granbury. The impacts of construction on local roads are discussed in [Subsection 4.4.1.3](#) while the impacts of operations on transportation are discussed in [Subsection 5.8.1.3](#).

2.5.2.2.2 Road Conditions and Mileage

Both Hood and Somervell have hundreds of miles of public roadways. In Hood County, there is a total of 667 mi of roads while Somervell County has 257 mi of roads. Hood and Somervell counties' road systems are comprised of approximately 175 mi and 92 mi of state maintained roads, respectively. Also, in Hood County, there are 430 mi of county maintained roads; 24 mi of these roads are unpaved. In Somervell County, there are 147 mi of county maintained roads, none of which are listed as unpaved. Interstate 20 (I-20) is the closest interstate highway, is roughly 45 mi north of CPNPP, and travels west from Fort Worth through Weatherford.

According to local officials, the roads in Hood and Somervell counties are in good condition and well-maintained. In particular, US 67, FM 56, and SH 144 are in good repair, and there are no plans to make improvements on those roads in the next few years.

2.5.2.2.3 Traffic Conditions

The roadways in Hood and Somervell counties are best described as primarily rural, with some urban roadways in and near the major population centers of each county. Vehicle volume on roads is obtained from estimated Annual Average Daily Traffic (AADT) counts from the Texas Department of Transportation (TxDOT). These traffic counts ~~are updated every 5 years and were last revised in 2007~~⁵. TxDOT uses AADT counts, traffic volume data, speed of traffic, time of travel, and budget restraints to determine the need for roadway expansion.

SOC-01
SOC-08

According to AADT counts in 2007⁴, FM 56 has a daily average traffic count of 3500 just south of the plant entrance between mile markers 310 and 312. The traffic count heading south on FM 56 from FM 51 is 8500 vehicles between mile markers 304 and 306. For workers heading north from Glen Rose on FM 56, the traffic count is 5000 just north of the city between mile markers 314 and 316. Those travelling south from Granbury on FM 51 have a traffic count of 6000 just south of US 377, between mile markers 320 and 322. This decreases to 3300 just before FM 56, between mile markers 328 and 330. For workers traveling south on FM 56 from Tolar, the traffic count is 4400 between mile markers 298 and 300 increasing to 4700 just before FM 51, between mile markers 302 and 304 (TxDOT 2007).

SOC-01
SOC-08

For workers coming from Cleburne in Johnson County, the traffic count just west of the city on US 67 is 26,000 vehicles between mile markers 458 and 460. This decreases to 10,600 vehicles just east of Glen Rose between mile markers 474 and 476. The traffic counts increase through the city to 13,400 vehicles just before the turn for FM 56, between mile markers 476 and 478 (TxDOT 2007).

For workers traveling from Stephenville in Erath County, the traffic count just east of the city on US 67 is 5600 vehicles between mile markers 506 and 508, while the traffic count on FM 205 between mile markers 508 and 510 is 1750 vehicles. The traffic count on US 67 increased to

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6500 just before the city of Glen Rose, between mile markers 478 and 480. The number of vehicles on FM 205 decreases to 360 before the junction with FM 51 between mile markers 526 and 528 (TxDOT 2007).

SOC-01
SOC-08

For workers traveling from Fort Worth in Tarrant County, the traffic count on US 377 just west of Fort Worth between mile markers 310 and 312 is 25,000 vehicles. This decreases to 22,000 between mile markers 328 and 330, and then increases to 34,000 vehicles before the junction with FM 51 between mile markers 334 and 336 (TxDOT 2007).

For workers traveling north from Walnut Springs in Bosque County, the traffic count on SH 144 just north of the city is 2000 vehicles between mile markers 318 and 320. The traffic count increases to 3100 vehicles just south of Glen Rose between mile markers 308 and 310 (TxDOT 2007).

~~a daily average traffic count of 11,780 is recorded on US 67 just east of the intersection with FM 56 (between mile markers 0.8 and 1.2) and an average of 11,730 vehicles are recorded to the west of the intersection. In Hood County, the average daily traffic count just to the west of the intersection of FM 56 and US 377 (near mile marker 0.3) is 9750, and the nearest count to the east of that same intersection is 9560. The traffic count on FM 51 to the east of the junction with FM 56 is 3290. The count to the west of the intersection is 1320, implying a significant amount of the traffic turns south onto FM 56. The traffic count on FM 56 to the south of the plant entrance is 3020 while the closest count to the north, just south of the intersection with FM 51, is 3230.~~

~~No specific capacities or levels of service are known for the highways in Hood and Somervell counties. FM 51 and FM 56 have a LOSA, meaning there are no traffic delays. Local officials have no concern for congestion along FM 56, and there are no current plans to improve the road. Local roads are monitored for needed maintenance and improvements, which are performed as the budget allows. Traffic due to oil and gas drilling in the area has leveled off, if not decreased, in recent years. It is estimated that by the start of construction additional vehicles due to oil and gas are not an issue. Determining the level of service would require a specific study performed by the Texas Department of Transportation.~~

2.5.2.2.4 Road Modifications

In Hood County, TxDOT has approved a contract for \$4,568,333 to add a hot mix overlay to the road surface and shoulders of US 377. This overlay does not add any length to the road system; the only modification this produces is a new surface on the existing roads. In Somervell County, TxDOT has on record a planned bridge replacement on CR 312 at Squaw Creek. Two improvement projects are planned for US 377. However, both projects are in the planning stages and have not received funding. Typically such projects take years to be implemented. The first project affects US 377 west of Granbury through Tolar to the Erath County line. The highway is currently a two-lane highway. Plans are to make it a four-lane divided highway. The second project involves US 377 east of Granbury from SH 144 to FM 167. The highway is currently a five lane highway (four lanes with a turn lane in between). The plan is to expand it to a six-lane highway (four lanes with two designated turn lanes).

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Two recently completed projects include expanding SH 144 to a four-lane divided highway and widening the bridge on US 67 that crosses the Brazos River. There are no plans for modification or expansion of FM 56.

2.5.2.2.5 Rails

Figure 2.5-6 shows railways within the CPNPP region. The Ft. Worth Western Railroad Company owns and operates a railroad line that runs through the City of Tolar approximately 9.5 mi northwest of CPNPP. This line covers the distance between Fort Worth and Brownwood. Amtrak offers no routes along this railway to the public (Amtrak 2007).

An average of two trains per day use this route traveling at speeds up to 40 mph. The railroad has a 50-ft ROW. Four to five cars of hazardous materials from various sources are transported on the main line each month.

2.5.2.2.6 Waterways

The only waterway near CPNPP is SCR, which is not accessible by the public. There is no commercial or recreational traffic on SCR.

2.5.2.2.7 Airports

The largest public airports within the region of CPNPP are shown in Figure 2.5-6. Within the region, there are 19 public airports, 102 private airstrips, 1 military airport, and 42 heliports. All of the airports are minor and do not generate significant commercial activity (AirNav 2007). The closest public airport to the site is Granbury Municipal Airport. Granbury Municipal Airport is located approximately 10 mi north of CPNPP in the City of Granbury with an asphalt runway length of 3603 ft. The airport has 82 single-engine airplanes, and 6 multi-engine airplanes, with 67 percent of the traffic classified as local general aviation and the other 33 percent classified as transient general aviation. On average, there are 73 aircraft operations per day. Besides general aviation, on occasion parachute jumping activity occurs over the field (AirNav 2008a).

2.5.2.3 Taxes and Political Structure

The following subsection discuss how state and local tax are collected and paid as well as political structures that are in place.

2.5.2.3.1 Taxes

The tax structure for Texas is found in Titles 1 through 3 of the Texas Code of Laws 1979 and its revisions: Title 1 deals with property taxes, Title 2 deals with state taxation, and Title 3 deals with local taxation. Expectations are that ~~Hood and Somervell~~ the cities and counties in the economic region are the tax districts most directly affected by the construction and operation of CPNPP Units 3 and 4.

The construction workers are expected to be paid wages based on their crafts. Table 4.4-1 shows the distribution of construction workers by craft. Table 2.5-28 shows the hourly wages by craft based on 2007 wages in the state of Texas. The highest paid craft was boilermakers while the

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NP-15

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lowest paid craft was construction laborers (BLS 2007). The operations workers are expected to be paid wages based on their specialties. Table 2.5-29 shows the annual salaries of operation workers based on national average wages in 2007 (CASEC 2007). While there is no state income tax, these wages contribute to spending in the economic region, which increases sales and use tax revenues.

NP-15

The state of Texas has no personal or corporate income taxes. There is a corporate franchise tax that has a component based on corporate earned surplus. In 2008, however, the margin tax replaces the franchise tax. Under this tax, a company owes one percent of gross receipts less compensation or the costs of goods sold. The rate is reduced to 0.5 percent for retailers and wholesalers, while sole proprietorships, general partnerships, and businesses with total revenues of under \$300,000 are exempt (The Greater Austin Chamber of Commerce 2006).

Sales and use tax is imposed on all retail sales, leases and rental of goods, and taxable services. The state tax rate is 6.25 percent. Local agencies can add an additional 0.25 – 2.0 percent, with the state tax rate plus local tax rate not to exceed 8.25 percent (Combs 2007). Groceries and both prescription and non-prescription drugs are exempt from sales tax. Bosque, Erath, and Hood counties impose a county sales and use tax of 0.5 percent. Johnson, Somervell, and Tarrant counties do not charge a sales and use tax. Cleburne, Granbury, Stephenville, and Tolar tax at a rate of 1.5 percent, while Glen Rose has a sales and use tax of 2 percent. The city of Fort Worth has a tax rate of 1 percent while the Fort Worth MTA and the Fort Worth Crime Control SPD Tax each charge 0.5 percent (Combs 2009). By combining county and city taxes, it can be seen that most populated areas have tax rates at the maximum 8.25 percent.

SOC-07

Texas has no state property tax. Property taxes are levied by counties, cities, school districts, and special districts (junior colleges, hospitals, road districts, and others).

~~In 2002, Hood County levied \$7,455,898 in property taxes while Somervell collected \$5,850,365. The largest school districts collected significantly more: Granbury Independent School District (ISD) collected \$33,209,441 while Glen Rose ISD collected \$18,833,355 (Combs 2002). In 2007, Hood County levied \$13,143,253 in property taxes, almost double the amount of 2002. Granbury Independent School District (ISD) tax revenues levied \$43,428,942, an increase of approximately \$740 million since 2002, while lowering the total tax rate by \$0.560-29. Somervell County showed a similar increase in tax revenues, with an increase of approximately \$2.6 million \$6,483,390 levied. Glen Rose ISD levied show \$21,879,118, an increase of approximately \$53 million while decreasing the tax rate by \$0.2005 (Combs 2007b6). Table 2.5-16 shows property tax rates and amounts for Hood and Somervell counties for 2002 and 2006. All counties show an increase in property tax revenues from 2006 to 2007, with only Bosque and Hood counties increasing their tax rates.~~

SOC-07

Ad valorem taxes are paid on the new CPNPP units. The ad valorem taxes are paid in two categories: (1) personal property and (2) real property. The two categories are assessed at the same rate. The taxed amounts are phased in through the years of construction with the total market value assessed January 1 of the year the units are operational. The taxes on CPNPP Units 3 and 4 are expected to be assessed at the same tax rates in effect on CPNPP Units 1 and 2 for each tax jurisdiction. ~~Currently, CPNPP Units 1 and 2 pay taxes to Somervell County, Somervell County Water District, and Glen Rose ISD. CPNPP Units 3 and 4 are expected to pay taxes at the same rate~~ and to the same jurisdictions as the existing units. Currently, CPNPP Units

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of Commerce to bring new businesses into the area and to enhance the economic base of Hood County and Granbury. In Somervell County, the Glen Rose Chamber of Commerce directs businesses to the Somervell County Development Commission for information and incentives.

Based on US Geological Survey (USGS) land categories and the latest data from the National Land Cover Dataset, the land-use designations within the site are shown in [Figure 2.2-1](#). According to the 2005 USDA soil survey data, approximately 1064 ac of prime farmland are located within the CPNPP site boundary. However, the prime farmland is not utilized ([USDA 2005](#)). The prime farmland is currently herbaceous grassland and sits adjacent to the lands previously developed for commercial purposes.

Based upon USGS land-use categories and data from the USGS website, the land use designated within the vicinity is shown in [Figure 2.2-2](#). According to the data, the largest land use for both counties is farmland. In Somervell County, approximately 84,260 ac of farmland is further divided into 64.6 percent pasture, 25.8 percent cropland, 7.6 percent woodland, and 1.9 percent other uses. In Hood County, those same sub-classifications are applied to 202,130 ac of farmland, resulting in 55 percent pasture, 37.5 percent cropland, 5.2 percent woodland, and 2.3 percent other uses ([USDA 2002c](#)) ([USDA 2002d](#)). The impacts of construction on land use are discussed in [Section 4.1](#). The impact of operations on land use are described in [Section 5.1](#).

2.5.2.5 Aesthetics and Recreation

The 7950-ac site is located in rural Hood and Somervell counties in north central Texas. The two counties are drained by the Paluxy and Brazos Rivers, and contain two major water bodies: Lake Granbury and the SCR. The climate of the vicinity is subhumid subtropical characterized by dry winters and hot summers ([Larkin and Bomar 1983](#)). Hood and Somervell counties are bounded on the east by Johnson County, on the south by Bosque County, on the west by Erath County, and on the north by Parker County.

Hood and Somervell counties are in the Grand Prairie and North-Central Plains physiographic regions. The Grand Prairie region ranges in elevation from 450 ft to 1250 ft and is characterized by low hills. The western portion of the Grand Prairie region includes the Western Cross Timbers, a forested area of predominately post oaks. The North-Central Plains region ranges from 900 ft to 3000 ft in elevation and is characterized by low north-south ridges ([BEG 1996](#)).

The 50-mi region surrounding the CPNPP site is well located geographically for outdoor activities. Lake Granbury is a 7600-ac lake that hosts numerous water sports activities throughout the year including boating, swimming, and fishing. Other parks and outdoor attractions within the 50-mi radius include Cleburne State Park, Dinosaur Valley State Park, the Fort Worth Nature Reserve, Fossil Rim Wildlife Center, Lake Mineral Wells State Park, Lake Whitney State Park, and Meridian State Park. [A new recreational site is planned for Wheeler Branch Reservoir, including a boat launch, fishing pier, swim area, and biking or walking trails \(SCWD 2008\).](#)

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Outdoor activities in the area include backpacking, climbing, camping, and hunting. Several state parks are within the region providing numerous facilities and recreational opportunities. These parks include camping facilities, beach complexes, boating access, and hiking trails.

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In an effort to improve the aesthetics of the area, light pollution from CPNPP Units 1 and 2 was lessened by using low-sodium lighting after residents complained about not being able to see the stars. This practice is continued for CPNPP Units 3 and 4. Further information relating to the visual aesthetics of CPNPP, especially with regard to cooling towers, is detailed in **Subsection 2.2.1.2** and **Section 4.4**. | SOC-09

2.5.2.6 Housing

Construction workers and plant staff are expected to require temporary and permanent housing with exception to those who already reside near the site. A large number of CPNPP employees are expected to live in Hood and Somervell counties. However, a few employees may opt to live in some of the surrounding counties. Table 5.8-24 shows the current pattern of residence for the CPNPP Units 1 and 2 operations workers. Most workers live in the nearby communities of Granbury (38 percent) and Glen Rose (18 percent), but many live in more distant cities and towns such as Cleburne (9.54 percent) and Fort Worth (5.7 percent). Based on this distribution of workers for CPNPP Units 1 and 2, a large number of CPNPP workers are expected to live in Hood and Somervell counties. | SOC-09

The gas exploration and production of the Barnett Shale has brought many workers into the region, with over 55,000 permanent jobs created. The Barnett Shale area includes many of the counties in the region, mainly to the north and east of the site. The increase in workers has increased housing demand in the area by more than 38,000 units since the inception of major drilling (Reuters 2008). | SOC-09

Within the 50-mi radius, residential areas are found in cities, towns, smaller rural communities, and farms. Rental property is scarce in the rural areas but is available in the communities surrounding the area such as Glen Rose, Granbury, and Cleburne. Within the vicinity of the CPNPP, the majority of the residents are clustered in residential neighborhoods within the cities of Glen Rose and Granbury. Outside of these city limits, residents generally live in scattered, single-family homes or mobile homes.

In 2007, there were a total of ~~20,340~~19,105 housing units in Hood County of which ~~17,460~~16,176 were occupied. Of the total housing units, ~~13,404~~13,132 were owner occupied (65.968.7 percent), ~~4,056~~3,044 were renter occupied (19.915.9 percent), and ~~2,880~~2,929 were vacant (14.215.3 percent) (US Census 2007a). ~~Of the vacant housing units, 432 were for rent, 308 were for sale, and 1,540 were~~ Detailed information concerning vacant housing was only available from the 2000 Census. In 2000, 14.7 percent of vacant housing units were for rent, 10.5 percent were for sale, and 52.6 percent for seasonal, recreational, or occasional use. According to the US Census Bureau, the remainder of the vacant housing was classified as one of three other categories: rented or sold but not occupied; for migratory workers; or listed as "Other vacant" (US Census 2000a). | SOC-09

American Community Survey data for 2007 is not available for Somervell County as the survey does not include areas with a population of less than 20,000 people. In 2000, there were a total of 2750 housing units in Somervell County of which 2438 were occupied. Of the total housing units, 1825 were owner occupied (66.4 percent), 613 were renter occupied (22.3 percent), and 312 were vacant (11.3). Of the vacant housing units, 40 were for rent, 36 were for sale, and 43 were for seasonal, recreational, or occasional use. According to the US Census Bureau, the | SOC-09

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remainder of the vacant housing was classified as one of three other categories: rented or sold but not occupied; for migratory workers; or listed as "Other vacant" (US Census 2000b).

American Community Survey data is not available for Bosque County. According to the 2000 Census, there were a total of 8644 housing units in Bosque County of which 6726 were occupied. Of the total housing units, 5225 were owner occupied (60.4 percent), 1501 were renter occupied (17.4 percent), and 1918 were vacant (22.2 percent). Of the vacant housing, 6.2 percent were for rent, 8.6 percent were for sale, and 51.6 percent were for seasonal, recreational, or occasional use. According to the US Census Bureau, the remainder of the vacant housing was classified as one of the three other categories: rented or sold but not occupied; for migratory workers; or listed as "Other vacant" (US Census 2000f).

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According to the American Community Survey, in 2007 there were a total of 15,223 housing units in Erath County of which 12,750 were occupied. Of the total housing units, 7703 were owner occupied (50.6 percent), 5047 were renter occupied (33.2 percent), and 2473 were vacant (16.2 percent) (US Census 2007b). Based on 2000 Census data, 32.5 percent of the vacant housing units were for rent, 9.7 percent were for sale, and 15.9 percent were for seasonal, recreational, or occasional use. The remainder of the vacant housing was classified as one of the three other categories: rented or sold but not occupied; for migratory workers; or listed as "Other vacant" (US Census 2000g).

According to the American Community Survey, in 2007 there were a total of 51,628 housing units in Johnson County of which 46,920 were occupied. Of the total housing units, 36,150 were owner occupied (70 percent), 10,770 were renter occupied (20.9 percent), and 4708 were vacant (9.1 percent) (US Census 2007c). Based on 2000 Census data, 23.3 percent of the vacant housing units were for rent, 19.7 percent were for sale, and 12 percent were for seasonal, recreational, or occasional use. The remainder of the vacant housing was classified as one of the three other categories: rented or sold but not occupied; for migratory workers; or listed as "Other vacant" (US Census 2000h).

According to the American Community Survey, in 2007 there were a total of 657,259 housing units in Tarrant County of which 591,745 were occupied. Of the total housing units, 375,675 were owner occupied (57.1 percent), 216,070 were renter occupied (32.9 percent), and 65,514 were vacant (10 percent) (US Census 2007d). Based on 2000 Census data, 54.4 percent of the vacant housing units were for rent, 15.4 percent were for sale, and 6.0 percent were for seasonal, recreational, or occasional use. The remainder of the vacant housing was classified as one of the three other categories: rented or sold but not occupied; for migratory workers; or listed as "Other vacant" (US Census 2000i).

Table 2.5-18 presents detailed 2000 Census data on vacant housing in communities closest to CPNPP: Granbury, Glen Rose, Tolar, and Pecan Plantation CDP. Total housing units, occupation status, vacant housing units, and housing units for rent for each of these communities are included. Table 2.5-19 shows the age of housing for the same communities. Temporary housing is available at one of the many local hotels and motels in Granbury and Glen Rose areas. In 2009~~7~~, Glen Rose had ~~eight~~five hotels with ~~471~~253 hotel rooms. In 2009~~7~~, Granbury had ~~439~~746 hotel or motel rooms ~~and 74 bed and breakfast rooms. Construction of five new hotels in Granbury is planned or complete, creating 384 additional rooms with construction of another hotel planned, creating 88 more rooms~~ (City of Granbury 2008a)(City of Granbury 2008b). In 2007,

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Granbury had 74 bed and breakfast rooms (Dillard 2007). With the exception of one hotel, the hotels in the area accept long-term occupants and are frequented by the outage workers from CPNPP Units 1 and 2. Hotel rooms are awarded on a first-come first-serve basis and only ~~one~~two hotel reserves spaces for recreational users. Thus during outages, CPNPP outage workers and transients are competing for housing. This competition is expected to increase when the construction workers enter the area.

| SOC-09

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There are several hotels and motels in the surrounding communities. Stephenville and Cleburne are both located approximately 30 minutes away from the CPNPP site. Cleburne had 260 rooms available for rent in 2008, while Stephenville had 363 rooms for rent in 2004 (City of Cleburne 2008), (City of Stephenville 2004). The proximity of the cities to the CPNPP site makes it likely that workers seeking temporary housing would travel to those hotels for lodging.

There are also temporary housing opportunities at the local campgrounds and RV parks. There are six RV parks located in Glen Rose and Rainbow in Somervell County: B Street RV Park, Cedar Ridge Cabins and RV Park, Dinosaur Valley State Park, Jurassic RV Park, Oakdale Park, and Tres Rios River Ranch. These six RV parks have a total of 428 RV spots. Outage workers stay at the RV parks during CPNPP Units 1 and 2 outages. Of these parks, only Jurassic RV Park intends to expand if they become consistently full, with plans for 30 additional spots.

There are five RV parks located in Granbury in Hood County: 377 Market Place RV Park, Countryside RV Park, Midway Pines RV Park, The Cove Marina and RV Park (formerly Pier 144 RV Park), and Thorp Spring RV Park. Combined, these parks have a total of 191 RV spots. Outage workers stay at all of the parks with the exception of 377 Market Place RV Park. Midway Pines RV Park even takes reservations solely for outage workers. Midway Pines RV Park intends to add 24 RV spots to their facility with plans to add another 60 spots in the next 3 – 4 years. Several additional RV parks are located in the nearby communities of Stephenville, Cleburne, Joshua, and Alvarado.

The Stephenville Chamber of Commerce identifies seven RV parks located in and around Stephenville (Stephenville COC 2009). The Cleburne Tourism and Travel department lists four RV parks in Cleburne and surrounding areas. Doc's City RV Park offers 65 spots and has received outage workers in the past. The Ranch Oaks Mobile Home Park in Cleburne also has 65 spots which are solely for long-term rent. Both RV parks intend to expand if demand increases.

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All of these temporary housing opportunities are also shared by visitors to the area. **Subsection 4.4.2.4** discusses housing impacts due to construction while **Subsection 5.8.2.3.2** discusses the impacts related to operations.

2.5.2.7 Community Infrastructure and Public Services

Public Services and community infrastructure consist of public water and wastewater treatment systems, police and fire departments, medical facilities, social services, and schools. They are typically located within municipalities or near population centers. Schools are described in **Subsection 2.5.2.8**. The other services are described below.

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2.5.2.7.1 Public Water Supplies and Wastewater Treatment Systems

In Hood and Somervell counties, there are multiple ways residents obtain their water. Depending on geographic location, residents of these two counties are able to get water from their municipality or from private wells.

In Hood County, the Lake Granbury Surface Water and Treatment System is run by the Brazos River Authority and can supply water to the City of Granbury and the Acton Municipal Utility District (AMUD), as well as other entities in neighboring Johnson County. ~~However, the plant is not currently being utilized.~~ The SWATS facility has a water treatment capacity of 10,500,000 gpd and a current usage of 6,062,000 gpd (Brazos River Authority 2008a). The Brazos River Authority planned a complete retrofit of the facility in 2008 (Brazos River Authority 2008b). The City of Granbury obtains water from wells and also operates a drinking water treatment facility. The facility draws its water from Lake Granbury and the Trinity aquifer, and has the capacity to treat 500,000 gpd. The water distribution system currently serves approximately 43,000 connections with 700 – 800 of those connections to entities and individuals that are physically located outside of the city limits of Granbury. Plans are in place for a new 1,500,000 gpd water treatment plant north of Granbury to serve the growing population. The new plant would be capable of being expanded up to 7,500,000 gpd and would allow the city of Granbury to discontinue purchasing water from the Lake Granbury SWATS facility. Wastewater processing occurs at a facility in Granbury with a 2,000,000-gpd capacity that typically operates at 1,000,000 gpd. Portions of Hood County around Lake Granbury and the Brazos River receive water from the AMUD, including a number of subdivisions and undeveloped agricultural land. The AMUD treatment plant has a maximum capacity of 4,130,000 gpd and is currently operating at 1,900,000 gpd (TCEQ 2007b). ~~Wastewater processing occurs at a facility in Granbury with a 2,000,000-gpd capacity that typically operates at approximately 1,000,000 gpd. Plans are being made for a new 10,000,000-gal treatment plant north of Granbury to serve the growing population.~~ The City of Tolar receives its water from wells and has a maximum capacity of 280,000 gpd. The city is currently utilizing 75,000 gpd. The Tolar Wastewater Treatment Plant has a capacity of 100,000 gpd and is currently operating at 70 percent capacity. Plans for expansion of the plant are expected to be made within the next few years. Residents outside of these water systems are on different systems, which are outlined in the [Table 2.5-20](#).

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In 2009, the TCEQ designated 13 counties including Hood, Johnson, and Tarrant counties as the North-Central Texas and Woodbine Aquifers Priority Groundwater Management Area (PGMA). The TCEQ further recommended that 8 of those counties including Johnson County form a Groundwater Conservation District (GCD). A PGMA is an area that is experiencing, or is expected to experience, critical groundwater problems including shortage of surface water or groundwater within 25 years (TCEQ 2009). This shortage is most likely to affect the city of Tolar, as its municipal water is drawn solely from wells.

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~~‡~~ The Somervell County Water District operates the only water treatment plant in Somervell County.; ~~†~~ The drinking water for the City of Glen Rose and other county residences comes directly from the Trinity aquifer, and is only treated with chlorine before it is distributed to the customers. The system has a maximum capacity of 1.426 mgd, and the community has an average daily consumption of 0.488 mgd. The City of Glen Rose has the largest wastewater treatment plant. At maximum capacity, the plant can handle 600,000 gpd but only operates at 320,000 gpd. The rest of the county operates on septic systems, meaning wastewater is treated

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on-site in privately owned septic systems. The City of Glen Rose water distribution system provides service to 1294 service connections (TCEQ 2007a).

In 2008, the TCEQ designated five counties including Somervell and Bosque counties as the Central Texas Trinity Aquifer PGMA (TCEQ 2009). In an effort to decrease Somervell County's dependency on groundwater, the Somervell County Water District recently created Wheeler Branch Reservoir, located to the north of the city of Glen Rose. The reservoir was completed in 2008 and construction on the water treatment and distribution system is expected to begin in 2010. The reservoir has a capacity of 1.3 billion gal and is expected to provide access to an estimated 1,800,000 gpd of water to the city of Glen Rose and other county users (SCWD 2008).

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In Bosque County, the city of Walnut Springs receives its drinking water from two wells with an average use of 6000 gpd. No capacity numbers are available for the drinking water treatment plant. However, the city currently has 315 connections and could increase to 2000 connections with the existing groundwater supply. The wastewater treatment plant has a current usage of 63,000 gpd and an approximate maximum capacity of 120,000 gpd.

In Erath County, the city of Stephenville has a water treatment plant with a maximum capacity of 5.5 million gpd. The plant provides water to 5512 connections, and the average daily consumption is 2.3 million gpd. The wastewater treatment plant has a capacity of 9 million gpd and a current utilization of 1.4 million gpd (City of Stephenville 2007).

In Johnson County, the City of Cleburne receives its drinking water from Lake Pat Cleburne, Lake Aquilla, and groundwater. However, groundwater supplies are diminishing so plans are in place to make use of unused water rights to Lake Whitney, with initial capacity of 2.1 million gpd in 2013. The water treatment plant has a capacity of 15 million gpd with plans to expand to 20 million gpd by 2011 in response to increased population and industrial demand. Average daily consumption is 7.3 million gpd with peak demand of 11.3 million gpd, usually occurring in the month of August. The city has two wastewater treatment plants with a combined total capacity of 7.5 million gpd (City of Cleburne 2008b). The average daily usage is 6.6 million gpd (City of Cleburne 2008d). There are plans to increase the plants capacity using new technology in the next few years, with a plant expansion 4-5 years after that as demand dictates.

In Tarrant County, the city of Fort Worth receives its drinking water from six sources: Benbrook Lake, Cedar Creek Lake, Lake Bridgeport, Eagle Mountain Lake, Richard-Chambers Reservoir, and Lake Worth. Lake Worth is owned by the City of Fort Worth. Benbrook Lake is owned by the Army Corps of Engineers. The other four lakes are owned by the Tarrant Regional Water District. The city has four water treatment plants. The North and South Holly Water Treatment Plant have a combined capacity of 180 million gpd, the Rolling Hills plant has a capacity of 200 million gpd, and the Eagle Mountain plant has a capacity of 105 million gpd for a total capacity of 485 million gpd. The average daily consumption is 164.8 million gpd with a peak of 335.2 million gpd. Fort Worth has one wastewater treatment plant: the Village Creek Wastewater Treatment Plant. The plant has a capacity of 166 million gpd with an average flow of 108.5 million gpd (City of Fort Worth 2009a).

There are no active landfills in Hood or Somervell counties. Solid waste from Somervell County is gathered at the IESI Somervell County Transfer Station while waste in Hood County is gathered at the IESI Granbury Transfer Station. In 2005, the IESI Somervell County Transfer Station

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through Child Protection Services; 3,173 adoptions; 45,392 investigations of in-home adult abuse or neglect through Adult Protection Services; and 8,169 facility investigations for adult abuse or neglect (Texas DFPS 2005a). The total operating expenditures on all social programs by the Texas DFPS for the 2005 fiscal year was \$899,357,894 (Texas DFPS 2005b).

2.5.2.8 Education

The following subsections discuss information about the local educational system throughout the region.

2.5.2.8.1 Public Schools – Pre-Kindergarten through Grade 12

There are 102 school districts that are either wholly or partially contained within the 50-mi radius of the CPNPP center point. According to data compiled from the National Center for Education Statistics, the schools of these districts that are located within the radius had more than 287,000 enrolled students for the 2004 – 2005 school year (NCES 2005a).

2.5.2.8.2 Hood and Somervell Counties

There are three school systems contained within Hood County: Granbury ISD, Lipan ISD, and Tolar ISD, each providing PK-12 education. For the 2006~~4~~ – 2007~~5~~ school year, these districts had enrolled ~~6637~~6830, ~~281~~590, and 59~~5~~4 students, respectively (NCES 2007~~a~~5~~b~~). Granbury ISD has twelve schools under its jurisdiction, Lipan ISD has one school, and Tolar ISD has two schools. According to Texas House Bill 72, elementary school classes are required to have a student-teacher ratio of 22:1 (TEA 2002). Granbury ISD has a student-teacher ratio of 14.2, Lipan ISD has a student teacher-ratio of 11.2, and Tolar ISD has a student-teacher ratio of 13.1.

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There are two school districts contained within Somervell County: Brazos River Charter School and Glen Rose ISD. Brazos River Charter School provides education for grades ~~8~~9 – 12, while Glen Rose ISD provides PK-12 education, For the 2006~~4~~ – 2007~~5~~ school year, these districts had 135~~7~~ and 1684~~06~~ students enrolled, respectively (NCES 2007~~b~~5~~e~~). Brazos River Charter School has one school under its jurisdiction while Glen Rose ISD has four schools. Brazos River Charter School has a student-teacher ratio of 15.9 while Glen Rose ISD has a student-teacher ratio of 11.6.

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Glen Rose ISD has a maximum capacity of 2862 students with 1657 students enrolled for the 2007 - 2008 school year. Total capacity numbers for Granbury ISD were not available. However, local officials indicated the district was not at capacity. The maximum capacity of Granbury ISD is 8665 with enrollment of 6882 for the 2007 - 2008 school year (Granbury ISD 2007). The district has seen an enrollment growth rate of less than 2 percent over the last 4 years. Granbury ISD is developing a long range plan for the district, with a final report due in January 2008.

Both Granbury ISD and Glen Rose ISD are Chapter 41 schools, meaning they are subject to the "Robin Hood" laws. Any funds above the state-set limit per student are recaptured and distributed to poorer school districts as part of the state aid administered by the Foundation School Program. Recapture amounts are based on the wealth per weighted student in average attendance. Neither school district has a designated district partner. Preliminary estimates show

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that Glen Rose ISD's recapture cost for the 2007 – 2008 year was \$6,976,397. Granbury ISD did not have any recapture cost for the 2007 – 2008 school year (TEA 2008).

Impacts of construction on education are discussed in Subsection 4.4.2.5 while impacts due to operations are discussed in Subsection 5.8.2.3.3.

2.5.2.8.3 Counties in the Economic Region

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Bosque County contains seven Independent School Districts(ISD): Clifton, Cranfills Gap, Iredell, Kopperl, Morgan, Valley Mills, and Walnut Springs. These districts had a total of 2657 students for the 2006 – 2007 school year. The largest district is Clifton ISD with 1173 students in four schools. Based on the CPNPP Units 1 and 2 operation workers settlement patterns discussed in Subsection 5.8.2.1, the district most likely to be affected by CPNPP Units 3 and 4 construction and operations workers is Walnut Spings ISD. The district provides PK – 12 education and had an enrollment of 208 students for the 2006 – 2007 school year. The district has a student-teacher ratio of 10.7 (NCES 2007c). Walnut Springs ISD is not a Chapter 41 district.

Erath County contains nine ISD: Bluff Dale, Dublin, Erath Excels Academy, Huckabay, Lingleville, Morgan Mill, Paradigm Accelerated Charter School, Stephenville, and Three Way. Total enrollment for the 2006 – 2007 school year was 5712 students. The districts most likely to be affected are Stephenville ISD and Three Way ISD. Stephenville is the largest district in the county with 3536 students enrolled at 6 schools. The district provides PK – 12 education, and student-teacher ratio is 15.4. Three Way ISD has a single elementary school with 61 students and a student-teacher ratio of 7.3. The district provides PK – 8 education (NCES 2007d). Neither Stephenville ISD nor Three Way ISD are Chapter 41 districts.

Johnson County contains nine ISD: Alvarado, Burleson, Cleburne, Godley, Grandview, Joshua, Keene, Rio Vista, and Venus. The total enrollment of these districts for the 2006 – 2007 school year was 29,087 students. Based on the operation settlement pattern, the district most likely to be affected is Cleburne ISD. The district has 11 schools and provides PK – 12 education. In 2006 – 2007, there were 6638 students enrolled with a student-teacher ratio of 15 (NCES 2007e). Cleburne ISD is not a Chapter 41 district.

Tarrant County has 28 ISD. Excluding non-regular districts and those outside the region leaves 14 districts: Arlington, Azle, Birdville, Castleberry, Crowley, Eagle Mt-Saginaw, Everman, Fort Worth, Hurst-Euleless-Bedford, Keller, Kennedale, Lake Worth, Mansfield, and White Settlement. The largest district in the county and the one most likely to be affected by CPNPP Units 3 and 4 construction and operation workers is Fort Worth ISD. The district had 79,457 students enrolled for the 2006 – 2007 school year and a student-teacher ratio of 16.4. The district provides PK – 12 education and has 147 total schools (NCES 2007f). Fort Worth ISD is not a Chapter 41 district.

Impacts of construction on education are discussed in Subsection 4.4.2.5 while impacts due to operations are discussed in Subsection 5.8.2.3.3.

2.5.2.8.4 Colleges and Universities

There are thirteen 2-year and 4-year colleges and universities within the CPNPP region. Total enrollment for these schools is more than 95,000 students (NCES 2005d). The 2-year and 4-year

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TABLE 2.5-18
HOUSING IN COMMUNITIES CLOSEST TO CPNPP

	Glen Rose	Granbury	Tolar	Pecan Plantation CDP	
Year			2000		
Total Housing Units	801 <u>903</u>	2727	217	1568	SOC-09
Total Occupied	801	2391	186	1475	
Owner-Occupied	474	1321	140	1410	
Renter-Occupied	327	1070	46	65	
Vacant Units	102	336	31	93	
For Rent	20	160	5	11	

(US Census 2000d)

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TABLE 2.5-20 (Sheet 1 of 3)
PUBLIC WATER SYSTEMS WITHIN HOOD AND SOMERVELL COUNTIES

Name	Number of Connections	Max Capacity (MGD)	Average Daily Consumption (MGD)
Hood County			
Acton MUD	5483	4.13	1.9
Acton Water Co. Royal Oaks	68	0.053	0.017
Arrowhead Shores	392	0.072	0.112
Bentwater on Lake Granbury	145	0.504	0.09
Blue Water Shores	297	0.268	0.049
Boynton Water Co	65	0.061	0.141
Brazos River Acres	139	0.208	0.54
Canyon Creek Addition	373	0.175	0.106
City of Granbury	4329	2.146	1.605
City of Lipan	286	0.319	0.087
City of Tolar ^(a)	305	0.32	0.067
Comanche Cove & Heritage Heights	353	0.133	0.093
Comanche Harbor & Port Ocall	449	0.194	0.116
Comanche Peak North	101	0.105	0.051
Country Meadows Subdivision	105	0.171	0.021
Eastwood Village	153	0.083	0.028
Fall Creek Utility Company	65	0.101	0.02
Granbury Acres Water System	88	0.018	0.004
Hideaway Bay Estates	53	0.043	0.009
Hunterwoods Subdivision Water System	93	0	0.016
Laguna Tres Subdivision	191	0.15	0.045
Laguna Vista Subdivision	170	0.187	0.047

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TABLE 2.5-20 (Sheet 2 of 3)
PUBLIC WATER SYSTEMS WITHIN HOOD AND SOMERVELL COUNTIES

Name	Number of Connections	Max Capacity (MGD)	Average Daily Consumption (MGD)	
Lake County Acres	196	0.07	0.054	
Lake Granbury Surface Water and Treatment System ^(b)	23,187	14.2	5.36	SOC-10
Lakeside Hills	62	0.026	0.015	
Long Creek Water Co.	102	0.121	0.039	
Mallard Pointe Subdivision	99	0.215	0.035	
Messa Grande WSC	117	0.108	0.028	
Midhaven Estates	51	0.065	0.019	
Montego Bay Estates	118	0.072	0.064	
Mooreland Water Co	117	0.131	0	
Mountain View Subdivision	274	0.209	0.074	
Nolan Creek Estates	52	0.044	0.014	
North Fork Creek	49	0.039	0.01	
North Fork Creek II	115	0.046	0.034	
Oak Trail Shores	1413	1.262	0.383	
Peninsula Addition	55	0.21	0.023	
Rain WSC	44	0.059	0	
Rancho Brazos Subdivision	99	0.075	0.017	
Ridge Utilities Inc	105	0.108	0.029	
River Country Acres	74	0.105	0.017	
River Run Subdivision	83	0.132	0.162	
Rock Harbor Estates	143	0.164	0.026	
Rolling Hills Water Service Inc	111	0.145	0	
Scenic Ridge Addition	32	0.05	0.009	

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TABLE 2.5-20 (Sheet 3 of 3)
PUBLIC WATER SYSTEMS WITHIN HOOD AND SOMERVELL COUNTIES

Name	Number of Connections	Max Capacity (MGD)	Average Daily Consumption (MGD)
Shady Grove Subdivision	93	0.072	0.031
Sky Harbour WSC	346	0.429	0.059
South Harbor Subdivision	76	0.102	0.04
Summerlin Addition	27	0.053	0
Sunchase Meadows	98	0.034	0.014
Sunset Acres Mobile Home Park	27	0.029	0.011
Sunset Canyon Water Moore Estates	32	0.019	0.053
Western Hills Harbor	391	0.112	0.076
Whipporwill Bay Subdivision	247	0.216	0.079
Somervell County			
Cheyenne Hills Water Supply	16	0.073	0
City of Glen Rose	1294	1.426	0.488
Country Meadows	27	0.025	0.004
Greenfields on Squaw Creek	13	0.091	0.004
Happy Hill Farm	42	0.388	0.17
Oak River Ranch	28	0.04	0.007
Squaw Creek Subdivision Water System	74	0.135	0.02
Sunset Park Subdivision	27	0.078	0.012

(a) Amounts presented differ from those provided by local officials.

(b) Amounts in the text are from 2009.

(TCEQ 2007b) and (TCEQ 2007c)

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TABLE 2.5-28
CONSTRUCTION WORKER WAGES BY CRAFT

NP-15

<u>Craft</u>	<u>Hourly Wage</u>
<u>Asbestos Workers</u>	<u>\$16.46</u>
<u>Boilermakers</u>	<u>\$23.45</u>
<u>Carpenters</u>	<u>\$14.35</u>
<u>Cement Masons</u>	<u>\$12.97</u>
<u>Electricians</u>	<u>\$18.36</u>
<u>Ironworker</u>	<u>\$14.28</u>
<u>Laborers</u>	<u>\$10.00</u>
<u>Millwrights</u>	<u>\$20.67</u>
<u>Operating Engineers</u>	<u>\$14.06</u>
<u>Painters</u>	<u>\$13.30</u>
<u>Pipefitters</u>	<u>\$19.08</u>
<u>Roofers</u>	<u>\$11.99</u>
<u>Sheet Metal Workers</u>	<u>\$14.99</u>
<u>Steamfitters</u>	<u>\$19.08</u>
<u>(BLS 2007)</u>	

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TABLE 2.5-29
OPERATION WORKER WAGES BY SPECIALTY

NP-15

<u>Specialty</u>	<u>Annual Wages</u>
<u>Mechanical Technician</u>	<u>\$66,581</u>
<u>Electrical Technician</u>	<u>\$67,517</u>
<u>Instrumentation & Control Technician</u>	<u>\$72,238</u>
<u>Chemistry Technician</u>	<u>\$70,990</u>
<u>Radiation protection Technician</u>	<u>\$69,056</u>
<u>Non-licensed Operator</u>	<u>\$70,793</u>
<u>Reactor Operator</u>	<u>\$77,782</u>
<u>Senior Reactor Operator</u>	<u>\$85,426</u>
<u>(CASEC 2007)</u>	

Chapter 3

Chapter 3 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	3-xix	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
CTS-00452	3.3.1.1	3.3-2	Editorial correction	Change "average" to "estimated".	0
CTS-00452	3.3.1.2	3.3-2	Editorial correction	Change "average" to "estimated".	0
CTS-00452	3.3.1.3	3.3-3	Editorial correction	Change "average" to "estimated".	0
CTS-00452	3.3.1.3	3.4-5	Editorial correction	Remove "monthly average".	0
CTS-00660	3.4.2.1	3.4-6	Editorial correction	Add a sentence about passive screens of the intake system.	0
CTS-00495	Table 3.4-1	3.4-8	Editorial correction	Superscript the number to represent scientific notation as opposed to a whole number	0
CTS-00612	3.5.1.1.2	3.5-5	To reflect DCD terminology	Add "containment Vessel" before reactor so that it reads: containment vessel reactor coolant drain tank, and change the acronym (RCDT) to (CVDT)	0
CTS-00612	3.5.1.1.2	3.5-6	Erratum	Change the acronym (RCDT) to (CVDT)	0
CTS-00613	3.5.1.5	3.5-8	Editorial correction	Remove "gaseous or airborne" and add "liquid" after radioactive	0
CTS-00468	3.5.4	3.5-16	Erratum	Change "179 gpm" to "7 gpm".	0

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00614	3.5.4	3.5-16	Erratum	Change "119.79 gallons per hour (gal/hr)" to "approximately 2 gpm".	0
CTS-00615	3.7.1	3.7-1	Editorial correction	Change "CPNPP Units 3 and 4 Switching Station (CPNPP Units 3 and 4 Switching Station)" to "Plant Switching Station".	0
CTS-00649	3.7.1	3.7-1	Editorial correction	Change "plant switching station" to "Plant Switching Station".	0
CTS-00615	3.7.2	3.7-2	Editorial correction	Change "CPNPP Units 3 and 4 Switching Station" to "Plant Switching Station".	0
CTS-00615	3.7.2	3.7-2	Editorial correction	Change "Main Power Transformer (MPT)" to "Main Transformer (MT)".	0
CTS-00616	3.7.2	3.7-3	Editorial correction	Change "MPT" to "MT"	0
CTS-00615	3.7.2	3.7-3	Editorial correction	Change "CPNPP Units 3 and 4 Switching Station" to "Plant Switching Station".	0
CTS-00617	3.9.4	3.9-11	Erratum	Change "four" to "five".	0
CTS-00617	3.9.4	3.9-11	Erratum	Change "94" to "74".	0
CTS-00617	3.9.4	3.9-11	Erratum	Change "50" to "37".	0
CTS-00618	3.9.4.1.1	3.9-12	Erratum	1st paragraph Change "five" to "four". Change "three" to "one". Change "three" to "one". Change "304" to "309".	0
CTS-00618	3.9.4.1.2	3.9-12	Erratum	Change area dimensions from "167" to "180", and from "321" to "355"	0

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00618	3.9.4.1.2	3.9-12	Erratum	Change "three" to "four".	0
CTS-00691	Table 3.8-4	3.8-14	Update the proprietary status of information	Remove "Withheld from Public Disclosure Under 10 CFR 2.390 (a) (4)" from the title. Remove "Note: Luminant considers the location of alternative site proprietary."	1
TR-06	3.8.1.5	3.8-2	Increase information as discussed with the NRC.	Revised subsection to increase information for the decay heat.	3
LU-10	Figure 3.1-2	--	Increase information as discussed with the NRC.	Revised figure to show batch plant contained within the property boundaries.	3
TR-04	3.8.1.10	3.8-4	Increase information as discussed with the NRC.	Added new subsection 3.8.1.11 to discuss the decay heat. Changed subsequent subsection number "3.8.1.11"	3
TR-01	3.8.1.11	3.8-4	Increase information as discussed with the NRC.	Revised subsection to address inconsistency between assemblies per truck and per package for Subsection 3.8.1.11 and Table 3.8-1.	3
TR-07	3.8.2	3.8-8	Increase information as discussed with the NRC.	Added sentence to describe how many hours per km were used as stop time.	3
TR-01	Table 3.8-1	3.8-10	Errata	Revised table to agree with US-APWR and revised normalization factor numbers.	3
TR-03 TR-06	Table 3.8-2	3.8-11 3.8-12	Increase information as discussed with the NRC.	Added additional information to the table regarding shipments per day and applicability to Table S-4.	3
CTS-00701	Table 3.8-2	3.8-11	Editorial	Added commas to five digit numbers for readability.	3
TR-03	Table 3.8-3	3.8-12 3.8-13	Increase information as discussed with the NRC.	Revised to clarify number of shipments per day and applicability to Table S-4.	3

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00702	Table 3.8-3	3.8-13	Editorial	Added footnote designations	3
CTS-00700	Table 3.8-5	3.8-15 3.8-16	Editorial corrections	Provided formatting changes for readability. Replaced Alternative Site A, B and C with Luminant A – Coastal, Luminant B – Pineland, and Luminant C – Trading House, respectively.	3
TR-02	Table 3.8-5	3.8-15	Errata	Removed row item Min/Max radii of annular area around truck stop and revised information with regards to the stop time. Removed information from sheet 3 of 3.	3
TR-07	Table 3.8-7	3.8-19	Errata	Revised normalized average annual shipments from “1.5” to “3.4” and revised cumulative annual does, person-rem per reference reactor year.	3
CTS-00700	Table 3.8-7	3.8-19	Editorial corrections	Provided formatting changes for readability. Replaced Alternative Site A, B and C with Luminant A – Coastal, Luminant B – Pineland, and Luminant C – Trading House, respectively.	3
TR-02	Table 3.8-9	3.8-21	Errata	Revised Minimum and maximum row item information to cite the NUREG and to correct the parameter values.	3
LU-12	3.9.3.7	3.9-9	Increase information as discussed with the NRC.	Revised subsection to include information on the location of on site soil retention areas based on evaluation of certain selection criteria.	3

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3.8.1.1 Reactor Core Thermal Power

Subparagraph 10 CFR 51.52(a)(1) requires that the reactor have a core thermal power level not exceeding 3800 MW. The US-APWR rated core thermal power is 4451 MWt which exceeds the requirements of 10 CFR 51.52(a)(1).

The core power level was established as a condition in paragraph 51.52(a)(1) because higher power levels typically indicated the need for more fuel and therefore more fuel shipments than were evaluated in the basis for Table S-4. This is not the case for the new LWR designs due to the higher unit capacity and higher burnup for these reactors. The annual fuel reloading for the reference reactor analyzed in WASH-1238 was 30 metric tons of uranium (MTU) while the average annual fuel loading for the US-APWR is approximately 35 MTU. When normalized to equivalent electric output, the annual fuel requirement for the US-APWR is approximately 21 MTU or less than two-thirds that of the reference LWR. Although the rated core thermal power level of the US-APWR exceeds the criteria of §10 CFR 51.52(a)(1), the number of annual fuel shipments is less resulting in a lower environmental impact.

3.8.1.2 Fuel Form

Subparagraph 10 CFR 51.52(a)(2) requires that the reactor fuel be in the form of sintered UO₂ pellets. As presented in the DCD, the US-APWR has a sintered UO₂ pellet fuel form.

3.8.1.3 Fuel Enrichment

Subparagraph 10 CFR 51.52(a)(2) requires that the reactor fuel have a uranium-235 enrichment not exceeding 4 percent by weight. The maximum fuel enrichment for the US-APWR is less than five percent by weight and the equilibrium cycle fuel enrichment is 4.55 percent by weight. The US-APWR fuel enrichment exceeds the 4 percent U-235 condition in §10 CFR 51.52(a)(2).

3.8.1.4 Fuel Encapsulation

Subparagraph 10 CFR 51.52(a)(2) requires that the reactor fuel pellets be encapsulated in zircaloy rods. The acceptance criteria for emergency core cooling systems for light-water nuclear power reactors given in 10 CFR 50.46 addresses uranium oxide pellets within cylindrical zircaloy or ZIRLO cladding as being equivalent. According to the DCD, the US-APWR uses ZIRLO clad fuel rods and, therefore, meets the intent of §10 CFR 51.52(a)(2).

3.8.1.5 Average Fuel Burnup

Subparagraph 10 CFR 51.52(a)(3) requires that the average burnup not exceed 33,000 megawatt-days per MTU. The US-APWR fuel rod burnup exceeds 33,000 megawatt-days per ton specified in 10 CFR 51.52 but is bounded by 62,000 megawatt days per ton as considered by the NRC in NUREG-1437 (Addendum 1, page 30). Therefore, the US-APWR does not meet this evaluation condition. Section 3.2 of the CPNPP Environmental Report lists an average discharged burnup of 46,200 MWd/MTU and the maximum burnup as 54,200 MWd/MTU for a reference equilibrium core. This section uses a burnup of 62,000 MWd/MTU to generate a bounding decay heat load and source term.

TR-06

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3.8.1.10 Transportation of Radioactive Waste

Subparagraph 10 CFR 51.52(a)(5) requires that the mode of transport of low-level radioactive waste be either truck or rail. Shipment of radioactive waste from the CPNPP (or the alternative sites) will comply with this requirement.

Radioactive waste shipments are subject to a weight limitation of 73,000 pounds per truck and 100 tons per cask per rail car. Radioactive waste will be shipped in compliance with federal or state weight restrictions.

3.8.1.11 Decay Heat

The decay heat load of one spent fuel assembly is 1970 watts. Therefore, the total decay heat of one spent fuel container (four assemblies) is 7880 watts (26.888 BTU/hr). This is less than the value of 250,000 BTU/hr given in Table S-4 of 10 CFR 51.52.

TR-04

3.8.1.12 Number of Truck Shipments

As a method of limiting the environmental impact of transportation, Table S-4 limits traffic density to less than one truck shipment per day or three rail cars per month. The number of truck shipments that will be required has been estimated assuming that all radioactive materials (fuel and waste) are received at the site or transported offsite via truck.

Table 3.8-1 summarizes the number of truck shipments of unirradiated fuel. The table also normalizes the number of shipments to the electrical output for the reference reactor analyzed in WASH-1238. When normalized for electrical output, the number of truck shipments of unirradiated fuel for the US-APWR is less than the number of truck shipments estimated for the reference LWR.

The numbers of spent fuel shipments were estimated as follows. For the reference LWR analyzed in WASH-1238, it was assumed that 60 shipments per year will be made, each carrying 0.5 MTU of spent fuel. This amount is equivalent to the annual refueling requirement of 30 MTU per year for the reference LWR.

For this transportation analysis, the shipment rate for the US-APWR was equal to the annual refueling requirement. The equilibrium cycle core reload is 128 assemblies and the shipping cask was assumed to hold ~~28~~12 assemblies resulting in ~~2.35~~3 shipments per year. After normalizing for electrical output, ~~the number of spent fuel shipments is 1.4 per year~~and adding in the initial core loading of 257 assemblies, the average number of new fuel shipments is 3.4 per year over the 40 year lifetime of the plant. $\left[\frac{(257/12+64/12*39)}{1.69}\right]/40$ The normalized spent fuel shipments will be less than the reference reactor that was the basis for Table S-4.

TR-01

The solid waste management system (SWMS) provided to collect, package, and ship solid waste is described in Section 11.4 of the US-APWR DCD. This system prepares all solid waste for transport to offsite storage facilities. The SWMS is designed to use DOT-approved containers for the packaging of radioactive wastes. These containers include drums, high-integrity containers, B-25 boxes, and other containers that are DOT-approved and accepted by waste disposal facilities. The packaging and shipment of radioactive solid waste for disposal complies with

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The numbers of spent fuel shipments for the transportation impacts analysis were based on 128 assemblies per 24 month refueling cycle and 4 assemblies per shipment. The normalized annual shipments values and corresponding population dose estimates per reactor-year are presented in [Table 3.8-11](#). The population doses were calculated by multiplying the number of spent fuel shipments per year by the per-shipment doses. For comparison to Table S-4, the population doses were normalized to the reference LWR analyzed in WASH-1238.

As shown in [Table 3.8-11](#), population doses to the onlookers for the US-APWR exceed Table S-4 values. One of the key reasons for these higher population doses relative to Table S-4 is the shipping distances assumed for these analyses relative to the assumptions used in WASH-1238. The analyses in WASH-1238 used a "typical" distance for a spent fuel shipment of 1609 km (1000 mi). The shipping distances used in this assessment were between 2568 km (1596 mi) and 3095 km (1923 mi) as presented in [Table 3.8-8](#).

Use of the newer shipping cask designs will reduce the number of spent fuel shipments and decrease the associated environmental impacts because the dose rates used in the impacts analysis are fixed at the regulatory limit rather than actual dose rates based on the cask design and contents. If the population doses were adjusted for the longer shipping distance and larger shipping cask capacity, the population doses from incident-free spent fuel transportation from the CPNPP and the alternative sites should fall within Table S-4 requirements.

Other conservative assumptions in the spent fuel transportation impacts calculation include:

- The shipping casks assumed in the Yucca Mountain EIS transportation analyses were designed for spent fuel that has cooled for 5 years ([DOE 2002](#)). In reality, most spent fuel will have cooled for much longer than 5 years before it is shipped to a possible geologic repository. The NRC developed a probabilistic distribution of dose rates based on fuel cooling times that indicates that approximately three-fourths of the spent fuel to be transported to a possible geologic repository will have dose rates less than half of the regulatory limit (NUREG/CR-6672). Consequently, the estimated doses in [Table 3.8-11](#) could be divided in half if more realistic dose rate projections are used for spent fuel shipments from the CPNPP and the alternative sites.
- Use of 30 minutes as the average time at a truck stop in the calculations is conservative. Many stops made for actual spent fuel shipments are short duration stops (i.e., 10 minutes or less) for brief visual inspections of the cargo (checking the cask tie-downs). These stops typically occur in minimally populated areas, such as under an overpass or on a freeway ramp in an unpopulated area. Based on data for actual truck stops, the NRC concluded that the assumption of a 30 minute stop for every 4 hours of driving time used to evaluate other potential ESP sites will overestimate public doses at stops by at least a factor of two (NUREG-1811, NUREG-1815, NUREG-1817). [This analysis used 0.0014 hours per km as the stop time, which is conservative.](#)

TR-07

Consequently, the doses to onlookers given in [Table 3.8-11](#) could be reduced by a factor of at least two to reflect more realistic truck shipping conditions.

The impact of accident free transportation of unirradiated and spent fuel will be SMALL and does not warrant additional mitigation.

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TABLE 3.8-1
NUMBER OF TRUCK SHIPMENTS OF UNIRRADIATED FUEL (PER UNIT)

Reactor Type	Number of Shipments/Unit			Unit Electric Generation MWe	Capacity Factor	Normalized Shipments Total ^(a)	Normalized Shipments Annual ^(b)
	Initial Core ^(c)	Annual reload	Total ^(d)				
Reference LWR	18 ^(e)	6.0	252	1100	0.8	252	6.3
US-APWR	40 22 ^(f)	2.3 5.3 ^(f)	100 230	1600 ^(g)	0.93 ^(h)	60 136 ⁽ⁱ⁾	1.5 3.4 ⁽ⁱ⁾

- a) Normalized to electric output for WASH-1238 reference plant (i.e., 1100 MWe) plant at 80 percent factor (or a net electrical output of 880 MWe).
- b) Annual average for 40-year plant lifetime.
- c) Shipments of the initial core have been rounded up to the next highest whole number.
- d) Total shipments of fresh fuel over 40-year plant lifetime (i.e., initial core load plus 39 years of average annual reload quantities).
- e) The initial core load for the reference PWR in WASH-1238 was 100 MTU resulting in 18 truck shipments of fresh fuel per reactor.
- f) Initial core load is 257 assemblies, with ~~28~~12 assemblies per shipment assumed. Reload for an equilibrium cycle core is 128 assemblies every two years. | TR-01
- g) Unit generating capacities from the US-APWR DCD.
- h) Capacity factor was assumed.
- i) Normalization factor is (1600*0.93)/(1100*0.80)=1.69 | TR-01

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TABLE 3.8-2
NUMBER OF RADIOACTIVE WASTE SHIPMENTS (PER UNIT) ANNUAL
ESTIMATED SOLID WASTE INVENTORY

Waste Type	Shipped Volume (ft ³)	Waste Classification
Low Activity Spent Resin	250	A
High Activity Spent Resin	290	B
High Activity Spent Filter	17	B
Low Activity Spent Filter	35	A
Spent Carbon	14	A
Sludge	42	A
High Activity Dry Active Waste	1430	B
Low Activity Dry Active Waste	13,200	A

CTS-00701

Reactor Type	Waste Volume, ft ³ /yr, per unit	Electrical Output, MWe, per site	Capacity Factor	Normalized Waste Volume Rate, ft ³ /reactor-year ^(a)	Normalized Shipments/reactor-year ^(b)
Reference LWR	3800	1100	0.80	3800	46
US-APWR	15,278	1600	0.93	9035	109.4

CTS-00701

a) Annual waste generation rates normalized to equivalent electrical output of 880 MWe for reference LWR (1100-MWe plant with an 80 percent capacity factor) analyzed in WASH-1238.

b) The number of shipments was calculated assuming the average waste shipment capacity of 82.6 ft³ per shipment. The number of waste shipments, before normalization, is equal to 15,278 cuft/yr / 82.6 cuft/shipment = 185 shipments/yr.

TR-03

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TABLE 3.8-3 (Sheet 1 of 2)
US-APWR COMPARISONS TO TABLE S-4 REFERENCE CONDITIONS

Characteristic	Table S-4 Condition	US-APWR ^(a) Single Unit 1600 MWe	
Reactor Power Level (MWt)	Not exceeding 3800 per reactor	4451	
Fuel Form	Sintered UO ₂ pellets	Sintered UO ₂ pellets	
U235 Enrichment (%)	Not exceeding 4	The maximum fuel enrichment is less than five percent by weight and the equilibrium cycle fuel enrichment is 4.55 percent by weight. <u><5%^(d)</u>	CTS-00702
Fuel Rod Cladding	Zircaloy rods	ZIRLO	
Average burnup (MWd/MTU)	Not exceeding 33,000	46,200 ^(e)	CTS-00702
Unirradiated Fuel			
Transport Mode	Truck	Truck	
No. of shipments for initial core loading		40 <u>22</u>	TR-03
No. of reload shipments per year		2-3 <u>5.3</u>	TR-03
Irradiated Fuel			
Transport mode	Truck, rail or barge	Truck, rail	
Decay time prior to shipment	Not less than 90 days is a condition for use of Table S-4	5 years	
No. of spent fuel shipments by truck		16 per year	
No. of spent fuel shipments by rail		Not analyzed	
Radioactive Waste			
Transport mode	Truck or rail	Truck	
Waste form	Solid	Solid	
Packaged	Yes	Yes	
No. of waste shipments by truck ^(b)		409 <u>185</u> ^(b) per year	TR-03

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TABLE 3.8-3 (Sheet 2 of 2)
US-APWR COMPARISONS TO TABLE S-4 REFERENCE CONDITIONS

Characteristic	Table S-4 Condition	US-APWR ^(a) Single Unit 1600 MWe	
<u>Heat Decay (per irradiated fuel cask in transit)</u>	<u>250,000 BTU/hr</u>	<u>26,888 BTU/hr</u>	TR-03
Traffic Density			
Trucks per day ^(c) (normalized total)	Less than 1	<1	
Rail cars per month	Less than 3	Not analyzed	TR-03

a) US-APWR DCD.

b) Table provides the total numbers of truck shipments of fuel and waste. These values are then normalized based on electric output and summed for comparison to the traffic density condition in Table S-4.

c) Total truck shipments per year calculated after normalization of estimated fuel and waste shipments for equivalent electrical output to the reference reactor analyzed in WASH-1238.

d) The maximum fuel enrichment is less than five percent by weight and the equilibrium cycle fuel enrichment is 4.55 percent by weight. CTS-00702

e) The US-APWR fuel rod burnup exceeds 33,000 MWd/t specified in 10 CFR 51.52. Average burnup of 46,000 MWd/MTU for discharged fuel from a reference equilibrium cycle core.

f) Normalized total shipments are based on: 109 waste shipments (Table 3.8-2) + 3.4 new fuel shipments (Table 3.8-1) + 9.5 spent fuel shipments (Table 3.8-11)=122 shipments/yr. TR-03

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TABLE 3.8-5 (Sheet 1 of 3)
RADTRAN 5 INPUT PARAMETERS FOR ANALYSIS OF UNIRRADIATED FUEL SHIPMENTS

Parameter	Parameter Value	Comments and Reference
Package		
Package dimension	5.2 meters	NUREG/CR-6672
Dose rate at 1 meter from vehicle	0.1 mrem/hr	(AEC 1972) CTS-00700
Fraction of emitted radiation that is gamma	1.0	Assumed the same as for spent nuclear fuel
Crew		
Number of crew	2	(AEC 1972), and (DOE 2002)
Distance from source to crew	2.0 meters	(Sand 2007)
Crew shielding factor	1.0	No shielding - Analytical assumption
Route-specific parameters		
Rural Suburban Urban	55 mph	Conservative in-transit speed of 55 mph assumed (predominately interstate highways used).
Number of people per vehicle sharing route	2.0	The bureau of transportation services suggests a value of 1.2 persons per vehicle. 2 persons per vehicle is chosen for conservatism based on direction in the RADTRAN manual. CTS-00700
One-way traffic volumes	Varies	Vehicle densities from Appendix D of the RADTRAN manual. National averages used for Texas and Nevada. CTS-00700
Minimum and maximum distances to exposed resident off-link population	10 to 800 meters	NUREG/CR-6672 CTS-00700

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TABLE 3.8-5 (Sheet 2 of 3)
RADTRAN 5 INPUT PARAMETERS FOR ANALYSIS OF UNIRRADIATED FUEL SHIPMENTS

Parameter	Parameter Value	Comments and Reference	
Truck Stop Parameters			
Min/Max radii of annular area around vehicle at stops	1 to 10 meters	NUREG/CR-6672	CTS-00700
Population density surrounding truck stops	64,300 persons/km ²	NUREG-1817	CTS-00700
Shielding factor applied to annular area around vehicle at stops	1.0	NUREG/CR-6672	CTS-00700
Min/Max radii of annular area around truck stop	1 to 10 meters		TR-02
Stop time	30 minutes per 4 hour driving time <u>stops of 30 minutes duration</u>	NUREG/CR-6672 <u>Based on 0.0014 hours of stop time per km of travel</u>	TR-02, CTS-00700
Shipments per year	4.5 <u>3.4</u> (normalized)	Table 3.8-1	TR-02, CTS-00700

Routing Characteristics for Transport of New Fuel
from Port at San Diego to CPNPP and Alternative Sites From the TRAGIS Computer Code

Port Node	Population				Distance				Time	
	Rural (person / sq km)	Suburban (person / sq km)	Urban (person / sq km)	Total (within 800m of route)	Rural (km)	Suburban (km)	Urban (km)	Total (km)	Total (hours:minutes)	
Comanche Peak	8.6	334.2	2571.7	387,287	1754.5	308.8	60.3	2123.6	24:12	CTS-00700
Alternate Site - A <u>Luminant A - Coastal</u>	8.0	359.6	2528.8	443,332	1880.7	300.3	73.4	2254.4	25:56	CTS-00700

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TABLE 3.8-5 (Sheet 3 of 3)
RADTRAN 5 INPUT PARAMETERS FOR ANALYSIS OF UNIRRADIATED FUEL SHIPMENTS

Parameter	Parameter Value									Comments and Reference
Alternate Site B - Luminant B - Pineland	8.6	358.1	2477.5	548_075	2078.3	409.7	86.7	2574.6	29:29	CTS-00700
Alternate Site C - Luminant C - Trading House	8.6	335.6	2577.1	400_900	1812.1	324.5	61.5	2198.1	25:16	CTS-00700
Routing Characteristics for Transport of Spent Fuel from CPNPP and Alternative Sites to Yucca Mountain Repository From the TRAGIS Computer Code										
Comanche Peak	8.1	344.6	2268.0	347748	2198.3	316.6	52.6	2567.5	32:23	TR-02
Site A	7.3	346.5	2362.5	350545	2479.7	316.0	52.6	2848.4	34:14	TR-02
Site B	8.5	380.3	2393.3	674606	2501.8	488.6	104.8	3095.2	37:53	TR-02
Site C	8.1	341.7	2243.7	353194	2226.9	324.0	54.4	2605.3	32:30	TR-02

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TABLE 3.8-7
CUMULATIVE RADIOLOGICAL IMPACTS OF TRANSPORTING
UNIRRADIATED FUEL

Reactor Type	Normalized Average Annual Shipments	Cumulative Annual Dose, person-rem per reference reactor year			
		Transport Workers	General Public- Onlookers	General Public- Along Route	
Reference LWR ^(a)	6.3	0.0110	0.0420	0.0010	
CPNPP					
Alternate Site A <u>Luminant A - Coastal</u>	4.53 <u>4</u>	4.11E-03 <u>9.31E-03</u>	7.13E-03 <u>7.17E-03</u>	1.62E-02 <u>1.63E-02</u>	TR-07 CTS-00700 TR-07
Alternate Site B <u>Luminant B - Pineland</u>	4.53 <u>4</u>	4.98E-02 <u>1.13E-02</u>	7.29E-03 <u>7.29E-03</u>	1.65E-02 <u>1.65E-02</u>	CTS-00700 TR-07
Alternate Site C <u>Luminant C - Trading House</u>	4.53 <u>4</u>	4.25E-03 <u>9.62E-03</u>	7.16E-03 <u>7.16E-03</u>	1.62E-02 <u>1.62E-02</u>	CTS-00700 TR-07
10 CFR 51.52	365	4	3	3	
Table S-4 Condition	<1 per day				

a) Table 6-5 of NUREG-1817

Note: Doses are on a per unit basis.

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TABLE 3.8-9
RADTRAN 5 INPUT PARAMETERS FOR ANALYSIS OF SPENT NUCLEAR
FUEL SHIPMENTS

Parameter	Parameter Value	Comments and Reference
Package		
Package dimension	5.2 meters	NUREG/CR-6672
Dose rate at 1 meter from vehicle	13 mrem/hr	NUREG/CR-6672. Higher values cannot be chosen in RADTRAN due to the 10 mrem/hr limit at 2 meters per 49 CFR 173.441.
Fraction of emitted radiation that is gamma	1.0	Escape probability is higher for Gamma Rays than neutrons
Crew		
Number of crew	2	(AEC 1972) and (DOE 2002)
Distance from source to crew	2.0 meters	Minimum distance away from the cask that the drivers can be from the RADTRAN manual
Dose Rate to Crew	2 mrem/hr	49 CFR 173.441
Stop times	8 stops of 30 minutes duration	Based on 0.0014 hours of stop time per km of travel (9 stops for Alternate B site location)
Route-specific parameters		
Rural Suburban Urban	55 mph	Conservative in-transit speed of 55 mph assumed: predominately interstate highways used.
Number of people per vehicle sharing route	2.0	The bureau of transportation services suggests a value of 1.2 persons per vehicle. 2 persons per vehicle is chosen for conservatism based on direction in the RADTRAN manual.
One-way traffic volumes	Varies	Vehicle densities from Appendix D of the RADTRAN manual. National averages used for Texas and Nevada.
Minimum and maximum distances to exposed resident off-link population	1 to 10 meters <u>10 meters to 800 meters</u>	<u>NUREG/CR-6672</u>
Shipments per year per reactor	16 Average 9.5 (normalized)	128 assemblies per refueling and 4 assemblies per shipment assumed.

TR-02

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areas, fabrication and maintenance shops, the power block, the batch plant facility, measuring and testing equipment, and intake and discharge areas.

3.9.3.5 Temporary Construction Facilities

Temporary construction facilities, including offices, warehouses for receiving and storage, temporary workshops, sanitary toilets, training and personnel access facilities would be constructed. The site of the concrete batch plant would be prepared for aggregate unloading and storage, and the cement storage silos and concrete batch plant would be erected.

3.9.3.6 Laydown, Fabrication, Shop Area Preparation

Activities to support preparation of the laydown, fabrication, and shop areas include:

- Performing a construction survey to establish local coordinates and benchmarks for horizontal and vertical control.
- Grading, stabilizing, and preparing the laydown areas.
- Installing construction fencing.
- Installing shop and fabrication areas including the concrete slabs for formwork laydown, module assembly, equipment parking and maintenance, fuel and lubricant storage, and rigging loft.
- Installing concrete pads for cranes and crane assembly.

3.9.3.7 Clearing, Grubbing, and Grading

~~Temporary spoils, borrow, and topsoil storage areas and a closed landfill area would be established on the southwest parts of the CPNPP site property.~~ Clearing and grubbing of the site would begin with the removal of vegetation. Topsoil would be moved to a storage area for later use in preparation for excavation. The general plant area, including the switchyard and ultimate heat sink (UHS) areas would be brought to plant grade at an approximate elevation of 822 ft mean sea level (msl) in preparation for foundation excavation. Existing buried utilities in the site area would be removed. The site utilization plans illustrate the areas to be cleared and graded.

LU-12

Approximately 5.3 million cubic yards of soil and rock will be excavated (cut material) during construction of CPNPP Units 3 and 4 footprint. Cut material that cannot be reused in the footprint will be retained on-site in two excavated soil retention areas located in the south portion of the site. One 30-acre area is bounded by the property line and the transmission line on the west and the security training facility and gun range on the northeast. It can accommodate approximately 367,000 cubic yards of material. East of this area is a 149-acre site, which includes the location of the blowdown treatment facility (BDTF), and can accommodate up to 3.3 million cubic yards of material.

LU-12

The excavated soil retention areas were selected based on the following: habitat for endangered species, potential wetland impacts, potential storm water runoff impacts, existing and proposed

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transmission line locations, transport distances, existing or planned area usage, beneficial reuse, and potential impacts to Squaw Creek Reservoir.

LU-12

Emphasis will be placed on providing beneficial reuse of the cut material. It is estimated that approximately 1 million cubic yards of the cut material will be available for reuse as site excavation backfill material to help achieve final grade elevation of the footprint. Approximately 3.3 million cubic yards can be beneficially reused to prepare the BDTF area for development. Approximately 367,000 cubic yards can be beneficially reused in the expansion of the security training facility and gun range. In addition, suitable rock material will be used in swales and other applications. Any remaining soil that can not be suitably located in one of the two areas will be transported offsite to a construction/demolition landfill or permitted landfill in accordance with state and federal regulations.

CPNPP will comply with applicable regulations and the existing Stormwater Pollution Prevention Plan will be revised to include the excavated soil retention areas. BMPs will be employed throughout the site including use of hay bales, fencing, dust control, sod, mulch, retention ponds, etc. throughout all phases of the project to reduce sediment runoff and minimize impacts to the environment as a result of these activities.

3.9.3.8 Underground Installations

Non-safety-related underground fire protection, water supply piping, sanitary system, compressed air and gas piping, and electrical power and lighting duct bank would be installed and backfilled.

3.9.3.9 Unloading Facilities Installation

The existing rail line would be upgraded with adjacent construction laydown areas to support receipt of the bulk commodities. A spur into the batch plant area to support concrete materials unloading may also be installed during the upgrade. Concurrently, any crane foundations would be placed, and a heavy lift crane would be erected.

3.9.3.10 Intake/Discharge Cofferdams and Piling Installation

Excavation and dredging of the intake structure, the pump house erection, and the installation of mechanical, piping, and electrical systems would follow the sheet pile installation, bracing system, and dewatering, and would continue through site preparation into plant construction. Excavated and dredged material would be transported to a designated area.

3.9.3.11 Power Block Earthwork (Excavation)

The power block consists of an area encompassing the nuclear island and turbine building areas, which include the following buildings for each unit (Figure 3.1-1):

- Reactor building, including the prestressed concrete containment vessel.

Chapter 4

Chapter 4 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	4-xvii	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
CTS-00650	4.1.1.1	4.1-1	Erratum	Change "275 ac" to "675 ac".	0
CTS-00650	4.1.1.1	4.1-1	Erratum	Add "the Blowdown Treatment Facility (BDTF) area,"	0
CTS-00459	4.1.1.1	4.1-1	Erratum	Change "384 ac" to "400 ac".	0
CTS-00459	4.1.2	4.1-4	Erratum	Change "384 ac" to "400 ac".	0
CTS-00459	4.2.1.1.5	4.2-3	Erratum	Change "384 ac" to "400 ac".	0
CTS-00619	4.2.1.2	4.2-4	Editorial correction	Change "cooling water" to "makeup water and blowdown".	0
CTS-00620	4.2.1.4	4.2-5	Editorial correction	Change "cooling water" to "makeup water and blowdown system".	0
CTS-00620	4.2.1.4.1	4.2-6	Editorial correction	Change "cooling water" to "makeup water and blowdown system".	0
CTS-00621	4.2.1.4.1	4.2-6	Editorial correction	Change "cooling" to "makeup".	0
CTS-00621	4.2.1.4.1	4.2-6	Editorial correction	Change "cooling water system" to "CWS and UHS".	0

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00622	4.2.2.1	4.2-9	Editorial correction	Change "cooling water system" and "raw water system" to "makeup water and blowdown system", respectively.	0
CTS-00623	Table 4.2-1	4.2-14	Erratum	Change population count from "8186" to "6354" and average daily consumption from "0.383" to "0.362".	0
CTS-00459	4.3.1	4.3-2	Erratum	Change "384 ac" to "400 ac".	
CTS-00651	4.3.1	4.3-2	Update	Change acreages on page 4.3-2 of ER that describe area of soil disturbed during construction to agree with the new survey of the BDTF.	0
SOC-11	4.4.2.3	4.4-14	Increase information as discussed with the NRC.	Updated with current information and revised text to discuss public safety and medical services for Hood and Somervell counties.	1
SOC-11	4.4.2.3	4.4-15	Increase information as discussed with the NRC.	Delete paragraph to revise text to discuss public safety and medical services for Hood and Somervell counties.	1
SOC-11	4.4.4	4.4-20	Increase information as discussed with the NRC.	Revised to include 2 new reference notations.	1
SOC-03	List of Tables	4-v	Erratum	Changed title of Table 4.4-2 from "Total Number of Workers per Year for Construction of CPNPP Units 3 and 4" to "Total Number of On-site Workforce per Year for Construction of CPNPP Units 3 and 4"	2
SOC-03	List of Figures	4-vi	Increase information as discussed with the NRC.	Added figure 4.4-1 to show the CPNPP total project staffing	2
SOC-03	4.4.1.1	4.4-1	Increase information as discussed with the NRC.	Revised paragraph to include a discussion of the on site workforce for each quarter.	2

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
SOC-03	4.4.1.1	4.4-1	Errata	Changed "4300" to "5201 in 2014" Added "construction" before "workforce"	2
SOC-03	4.4.1.3	4.4-3	Increase information as discussed with the NRC.	Revised paragraph to include on site peak workforce.	2
SOC-03	4.4.1.3	4.4-3	Errata	Changed "2150" to "2601" and "4300" to "5201"	2
SOC-03	4.4.1.3	4.4-4	Erratum	Changed "4300" to "4395" Changed "2150" to "2601"	2
SOC-03 MET-07	4.4.1.5.3	4.4-8	Errata	Changed "2150" to "2601" Replaced "4300 construction workers" with "5201 total on-site workers" Changed "4300" to "4953"	2
MET-07	4.4.1.6	4.4-8	Increase information as discussed with the NRC.	Revised subsection to discuss air quality impacts from vehicle emissions.	2
MET-07	4.4.1.6	4.4-9	Increase information as discussed with the NRC.	Revised subsection to address additional air quality impacts.	2
MET-09	4.4.1.6	4.4-9	Increase information as discussed with the NRC.	Revised subsection to describe the process to be used to develop and communicate air permit compliance monitoring requirements during construction.	2
SOC-03	4.4.2.1	4.4-10 4.4-11	Increase information as discussed with the NRC.	Revised subsection to provide discussions based on new and updated construction workforce populations for the proposed units.	2
SOC-03	4.4.2.1	4.4-10	Increase information as discussed with the NRC.	Added "six counties of the" before economic region to clarify the number of counties.	2
SOC-06	4.4.2.2	4.4-11	Editorial Correction	Changed Table 5.8-1 to Table 5.8-2	2
SOC-06	4.4.2.2	4.4-11	Increase information as discussed with	Revised subsection to include basis for assumptions.	2

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
			the NRC.		
SOC-06	4.4.2.2	4.4-12	Increase information as discussed with the NRC.	Revised subsection to include basis for assumptions. Added "economic" in front of "the region"	2
SOC-07	4.4.2.2.1	4.4-12	Increase information as discussed with the NRC.	Revised subsection to provide additional information and to provide clarification.	2
SOC-07	4.4.2.2	4.4-13	Increase information as discussed with the NRC.	Added sentence "During the construction period, ad valorem taxes, sales and use taxes, and property taxes increase in the economic region." Added "economic" in front of "region"	2
MET-07	4.4.4	4.4-20 4.4-21	Increase information as discussed with the NRC	Added four new reference notations as a result of revisions to subsections 4.4.1.6.	2
SOC-03	Table 4.4-2	4.4-24	Increase information as discussed with the NRC	Changed the title from "Total Number of Workers per Year for Construction of CPNPP Units 3 and 4" to "Total Number of On-site Workforce per Year for Construction of CPNPP Units 3 and 4" Expanded the table to include Construction and Operation and revised total worker numbers	2
SOC-03	Figure 4.4-1		Increase information as discussed with the NRC	Added table to show total project staffing.	2
GEN-05 GEN-06 SOC-16 CR-03	List of Tables	4-v	Increase information as discussed with the NRC.	Added Table 4.9-1.	3
LU-10	Figure 4.1-1	--	Increase information as discussed with the NRC.	Revised figure to show batch plant contained within the property boundary.	3

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
TE-07 TE-12	4.3.1	4.3-2 4.3-3 4.3-4	Increase information as discussed with the NRC.	Revised subsection to increase discussion regarding the temporary and permanent habitat disturbance plan.	3
SOC-01 SOC-08	4.4.1.3	4.4-3 4.4-4	Increase information as discussed with the NRC.	Revised subsection based on research and evaluation of existing traffic data and provided additional information.	3
SOC-01 SOC-08	4.4.1.5	4.4-8	Increase information as discussed with the NRC.	Revised the number of daily truck deliveries from "100" to "60" based on research of existing traffic data.	3
NP-15	4.4.2.2.1	4.4-12	Increase information as discussed with the NRC.	Revised subsection to provide demonstration of wages paid.	3
SOC-10	4.4.2.3	4.4-13 4.4-14	Increase information as discussed with the NRC.	Revised subsection to reconcile inconsistency between Subsection 2.5 and 4.4.	3
SOC-09	4.4.2.4	4.4-15	Increase information as discussed with the NRC.	Revised subsection to include updated housing information.	3
SOC-12	4.4.2.5	4.4-16	Increase information as discussed with the NRC.	Revised subsection to clarify the discussion of the public education system in the vicinity of the proposed units and added Granbury School District.	3
SOC-12	4.4.4	4.4-20	Increase information as discussed with the NRC.	Added a new reference notation for (Census 2000) as a result of revisions to Subsection 4.4.2.5.	3
SOC-01 SOC-08	4.4.4	4.4-20	Increase information as discussed with the NRC.	Removed reference to (TxDOT 2007) as a result of revisions in Subsection 4.4.	3
GEN-05 GEN-06 SOC-16 CR-03	4.9	--	Increase information as discussed with the NRC.	Added subsection 4.9 to address the separation of construction from preconstruction on environmental impacts.	3
GEN-05 GEN-06 SOC-16 CR-03	Table 4.9-1	--	Increase information as discussed with the NRC.	Added Table 4.9-1 to address the separation of construction from preconstruction on environmental impacts.	3

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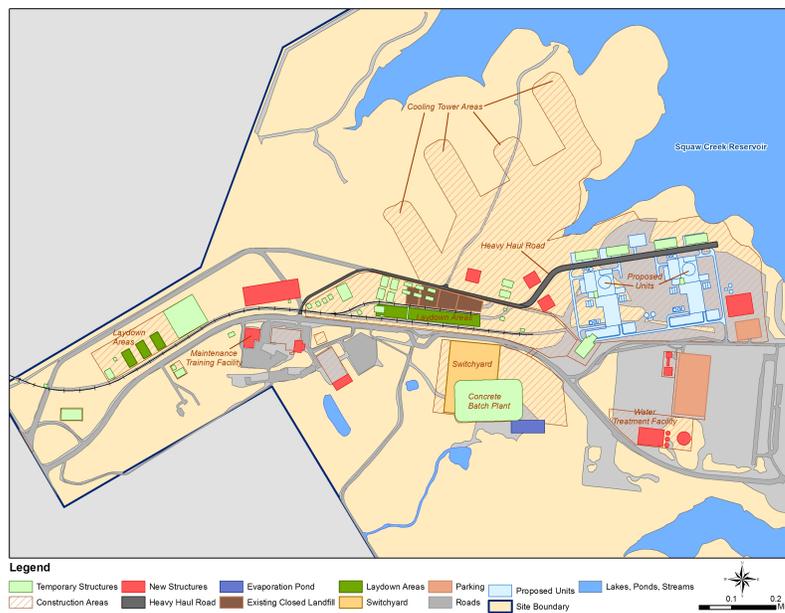


Figure 4.1-1 Detailed Site Plot plan with Construction Laydown Areas

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- Excavating evaporation and water retention ponds.
- Pouring concrete foundations.
- Constructing buildings and other structures on the additional foundations.
- Leveling by grading or filling for additional parking lots and internal roadways.
- Paving roadways and parking lots.
- Grading and landscaping to permanently control erosion and runoff.

This section describes the potential impacts of the construction activities listed above on the ecological resources of the CPNPP site and vicinity within Somervell and Hood counties. No other major state or federal projects are planned in the vicinity of the CPNPP site (Section 2.8). Disturbance in the area would be directly related to construction activities for the proposed project. Scheduled activities are not expected to acquire a Limited Work Authorization (LWA). Construction of CPNPP Units 3 and 4 is scheduled for completion as shown in Table 1.1-1.

Except for the addition of permanent structures that affect a small percentage of the natural habitat available on the site, potential impacts associated with construction are expected to be temporary and minor. An estimated 275 ac in the core area of the site are expected to be affected by the construction of ~~additional facilities including~~ the new reactor units, switchyard, and cooling towers (Figure 4.3-1). In addition, construction of the proposed ~~blowdown treatment facility~~ BDTF occurs within an area of approximately ~~384~~400 ac (Figure 1.1-4). Accordingly, ~~659~~675 ac represent the maximum area of soil to be disturbed at any time during pre-construction activities, which include site work preparing the construction areas. Virtually all habitat effects would take place during pre-construction activities.

TE-07
CTS-00651
CTS-00459

When construction is complete, approximately 150 ac of the affected on-site acreage in the core area of the site ~~approximately 179 ac and the entire 400 ac~~ in the area of the ~~blowdown treatment facility~~ BDTF (or a total of ~~329~~550 ac) would contain permanent structures or other facilities, including paved parking lots. About ~~330~~125 ac of ~~temporarily~~ altered areas not containing permanent structures ~~and landscaping~~ would be landscaped or re-vegetated or otherwise restored to approximate a natural condition such as grassland and routinely maintained following construction, and converted to a routinely maintained area. Although 125 acres of the core area will be converted to maintained areas, the original habitat would be considered permanently altered.

TE-12

TE-12

A detailed and comprehensive description of the terrestrial environment at the CPNPP site is provided in Subsection 2.4.1. Terrestrial ecological effects from constructing additional reactor units and support facilities at CPNPP would be negligible to SMALL impacts. None are MODERATE or LARGE. These effects are subject to mitigation by generally accepted measures employed during construction or already in place at the site. Application of such measures is warranted at CPNPP Units 3 and 4. Mitigation beyond the application of these measures is not warranted.

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4.3.1.1 Terrestrial Vegetation

Anticipated effects of construction at CPNPP for the proposed project would include temporary and long-term alteration and loss of vegetative cover, loss of wildlife habitat, increased erosion, and increased interaction between humans and wildlife. Approximately ~~404~~100 ac of Ashe juniper forest, about three percent of the Ashe juniper habitat presently on the site; ~~47~~18 ac of mixed hardwood forests, about ~~three~~four percent; and ~~28~~60 ac of grassland, about ~~four~~nine percent; 0.3 ac wetland, about 0.5% of on-site wetlands are located within the proposed core construction area. The remaining ~~129~~ac are in areas previously disturbed by original construction associated with CPNPP Units 1 and 2.

TE-12

TE-7

Pre-construction of the BDTF is anticipated to permanently affect a total of 400 acres. Approximately 313 acres of Ashe juniper habitat (10 percent of the Ashe juniper habitat on-site), 34 acres grassland (5 percent of on-site grassland habitat), and 45 acres mixed hardwood (9 percent of mixed hardwood on-site) have been identified within the 400 ac BDTF. Seven acres of developed area is also expected to be disturbed by constructing the BDTF. In addition to habitat alterations associated with construction of the BDTF, approximately 5882 linear feet of ephemeral stream exists within the 400 ac BDTF and would also be affected by pre-construction activities.

TE-7

TE-12

Construction and support areas shown on **Figure 4.3-1** contain no old growth timber, unique or sensitive plants, or unique or sensitive plant communities. Because the vegetation communities within the CPNPP boundary are common throughout Somervell and Hood counties, the affected area at CPNPP would be a very small percentage of the total acreage of these cover types in the general area. Construction on the site would not noticeably reduce the local diversity of plants, plant communities, or the wildlife species that inhabit them.

Clearing activities are performed in compliance with federal and state regulations, and permit requirements during pre-construction. In the Ashe juniper and mixed hardwood forests, contractors would clear the construction area of woody vegetation, and where necessary, fill and grade the site to create a level surface. If it exists in sufficient quantity to attract a buyer, merchantable timber within these areas may be harvested for commercial sale. Remaining trees and other vegetation would then be felled. Stumps, shrubs, and saplings would be grubbed, and groundcover and leaf litter would be cleared to prepare the land surface for grading.

TE-7

Felled trees, stumps, and other woody material would be disposed of by burning, chipping, or spreading the wood chips. Areas for waste disposal have yet to be finalized. These areas may be on- or off-site. Opportunities to recycle woody material for use elsewhere on the site may also be considered. Recycling opportunities could include cutting logs into firewood, using wood chips to mulch landscaped areas, using logs to line pathways, and piling logs and brush in open areas to enhance terrestrial wildlife habitat.

Little additional fill or grading is needed in non-forested grasslands and previously disturbed areas during pre-construction. Heavy equipment would be used to scalp vegetation at ground level, leaving the plant rootstock largely intact. Most non-woody vegetation within construction zones is destroyed by the equipment operating there and by stockpiling or disposing of excess soil. There are no opportunities for recycling non-woody vegetation, nor is additional area needed either on- or off-site to dispose of the residual material.

TE-7

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After the ground is free of vegetative cover, erosion, sedimentation, and fugitive dust are expected. These factors are controlled by implementing good construction practices and BMPs. BMPs seek primarily erosion control to keep soil in place then employ sediment control to capture any sediment moved by stormwater before it leaves the site or enters SCR. The measures to be employed at the CPNPP site would be incorporated in a site-specific SWP3 using appropriate state or local specifications prior to initiating construction. Among the general measures to be considered for inclusion in the SWP3 are:

- Minimize the area to be disturbed by protecting vegetated buffers using silt fences or other sediment controls.
- Phase construction activity to minimize the duration of soil exposure and stabilizing exposed soil as quickly as possible after construction. Temporary cover BMPs include temporary seeding, mulches, matrices, and blankets and mats while permanent cover BMPs include permanent seeding and planting, placing sod, channel stabilization, and vegetative buffer strips.
- Control stormwater flowing through the site by diversion ditches or berms to direct runoff away from unprotected slopes and direct sediment-laden runoff to sediment-trapping structures such as holding ponds. The use of retention ponds for sediment control is discussed more fully in [Subsection 4.2.1.1.7](#).
- Establish perimeter controls such as vegetative buffer strips supplemented with silt fences and fiber rolls around the perimeter of SCR to help prevent soil erosion and stop sediment from entering the reservoir.
- Establish stabilized construction entrances to and exits from the site to limit the amount of sediment tracked onto public roads.
- Control fugitive dust by watering access roads and the construction site as needed.
- Schedule periodic and regular inspection and maintenance of all BMPs put into place.

Following construction, contractors would seed all temporary work spaces, such as laydown areas or temporary parking lots, with herbaceous plants or grass, as was done upon completing CPNPP Units 1 and 2. In some cases, native shrubs and trees would be replanted according to a re-vegetation and or landscaping plan for the facility. Although some areas may be re-vegetated, it should be noted that original habitats will not be restored resulting in a permanent alteration.

TE-12

Removal of forests sometimes results in increased forest fragmentation that can affect the movement of wildlife through habitat. Review of [Figure 4.3-1](#) indicates the primary construction area is located within Ashe juniper and mixed hardwood forests that are already partially isolated from adjacent forested areas as a result of previous construction and transmission line maintenance activities. No federal or state projects with the potential to further fragment wildlife habitat have been identified. Construction activities that affect small forest stands are not expected to result in additional forest fragmentation or removal of potential travel corridors available to terrestrial wildlife.

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Effects of construction on terrestrial plant communities are managed by using standard construction techniques that minimize long-term impacts, such as minimizing topsoil loss prior to re-vegetating or reseeding, and allowing the area to develop back into a stable ecological community. Even if an area is not reseeded, some regeneration from the original root systems and seed bed is expected. Invasive species are equally likely to colonize barren soils. Over time and in the absence of further disturbance, primary colonizing species are replaced by later successional species. Eventually, disturbed areas not actively re-vegetated and maintained also | TE-12 develop stable communities similar to what existed prior to construction.

On-site areas to be disturbed during pre-construction are but only a small portion of the common habitats available at the CPNPP site and elsewhere in the area. BMPs Best Management Practices would be used to minimize adverse construction impacts in areas that cannot be avoided. For these reasons, the overall impact of construction on terrestrial vegetation is very SMALL. | TE-7

The impacts of land clearing, grading, and leveling to construct the additional transmission lines are generally similar to those experienced on-site with two major exceptions. First, clearing and grading occur only at the sites of the additional transmission towers where the activity is limited to that needed to provide a level foundation space for the individual towers. Second, the ability to relocate proposed tower sites laterally along the ROW means that towers can usually be sited to avoid environmentally sensitive areas such as those that might contain small populations of special interest plants, water bodies and waterways, and wetlands.

The impacts of land clearing, grading, trenching, and leveling to construct the water pipeline between the site and Lake Granbury are also generally the same as those experienced on-site. Following construction, the approximately 64 ac of widened pipeline ROW is likely to be seeded with annual grasses or other species that do not require periodic fertilizing or applying other amendments. Following initial seeding, the disturbed area would be allowed to re-vegetate naturally with native herbaceous and small shrub species, largely approximating the cover types established on the existing ROW (Subsection 2.4.1.2.2). These largely grassland types contain no wetlands or habitat for threatened or endangered species. Preventing the future growth and development of large shrubs and trees also establishes a permanent corridor that is maintained for safety and to facilitate visual inspection of the ROW.

Transmission line and water pipeline construction is also covered by an SWP3 and spill prevention plan, and the BMPs that are incorporated into those plans. Measures used to maintain the transmission line ROW after construction is completed are discussed in Subsection 5.6.1.

4.3.1.2 Wildlife Resources

Direct wildlife mortality that could occur during the construction period is expected to only affect organisms that cannot readily flee the construction area. Clearing, grading, excavating, and burying habitats within the construction zone is expected to lead to mortality of small mammals, reptiles, amphibians, invertebrates, and nesting birds with eggs or young. For the reasons discussed below, direct mortality of wildlife in the limited areas of construction is not expected to be great enough to cause detectable population effects.

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As stated in [Section 2.1](#), a railroad spur enters the site on its western boundary and extends to the area south of the new reactor locations as illustrated in [Figure 1.1-2](#). The railroad spur does not need to be upgraded to support equipment delivery. The length of the track on-site is expected to be reduced to allow for the new reactors. Because the rail line spur outside the site boundary makes use of a pre-existing ROW that is already zoned for industrial use and has already been disturbed, construction impacts are expected to be SMALL and no mitigation is necessary.

Plant construction at CPNPP results in an increase in traffic on local roads. [Subsection 4.1.1](#) describes the transport of construction materials and workforce to the site by public roads. [Figure 2.5-5](#) illustrates the road and highway systems of both Hood and Somervell counties. Both construction workers and truck deliveries access the site via FM 56 ([Subsection 2.5.2.2](#)). FM 56 passes to the west of the site, connecting FM 51 to U.S. Highway 67 (US 67). FM 56 is a two-lane highway and has turn lanes near the plant entrance.

As discussed in [Subsection 2.5.2.2.3](#), averaged annual daily traffic (AADT) counts in ~~2004~~2007 on FM 56 indicate that ~~3230~~8500 vehicles use FM 56 to the north of the plant entrance while ~~3020~~3500 vehicles use FM 56 to the south of the entrance. The AADT counts indicate that approximately ~~41,780~~13,400 vehicles travel on US 67 just east of the intersection with FM 56, and ~~41,730~~6500 vehicles travel on US 67 to the west of the intersection. The AADT counts indicate that ~~9560~~34,000 vehicles travel on US 377 just east of the intersection with FM 56, while ~~9750~~13,100 travel on US 377 to the west of the intersection (~~TxDOT 2004~~)(TxDOT 2007).

SOC-01
SOC-08

According to the Highway Capacity Manual, the capacity of a two-lane highway is 1700 vehicles per hour for each direction of travel. The capacity is nearly independent of the directional distribution of the traffic on the facility, except that for extended lengths of two-lane highway, the capacity does not exceed 3200 vehicles per hour for both directions of travel combined ([TRB 2000](#)).

Construction is expected to take place during a single shift, with the possibility of night testing or the addition of another shift, as warranted. A conservative estimate of ~~400~~60 daily truck deliveries is assumed for this analysis, with all deliveries occurring during daytime hours. The total number of ~~construction workers during peak construction is 4300~~on-site at peak is 5201 (4953 construction workers plus 248 operations workers).

SOC-01
SOC-08
SOC-03

A traffic study for the CPNPP site was conducted in 1987 during the construction of CPNPP Units 1 and 2 when approximately 8694 persons were employed on-site. The study found an auto-utilization factor of 2.34 persons/vehicle for vehicles entering the site, including factors such as absenteeism and late arrivals. The study also found a higher incidence of carpooling among construction workers ([DeShazo, Starek & Tang 1987](#)). Thus a conservative estimate is that carpooling occurs among the construction workforce resulting in an average of two people per vehicle, or ~~2150~~2601 (~~4300~~5201 workers at peak divided by two) vehicles entering or leaving the site at peak times. This is much less than the 3710 vehicles found in the 1987 traffic study ([DeShazo, Starek & Tang 1987](#)). Also, after the completion of the 1987 traffic study, improvements in traffic signals, widened lanes, turn lanes, and additional signage were made in the immediate area to handle the large volume of traffic.

SOC-03

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Almost two-thirds of the construction workers are expected to settle in Hood and Somervell counties. As discussed in Subsection 4.4.2.1, based on the settlement patterns of the operations workers for CPNPP Units 1 and 2, and approximately 12 percent of the workers are expected to settle in Johnson County, 9 percent in Tarrant County, 6 percent in Erath County, and 5 percent in Bosque County. Applying the assumption of two workers per vehicle, the total number of vehicles originating in Johnson County is 312, in Tarrant County is 234, in Erath County is 156, and in Bosque County is 130. Due to the distribution of workers, ~~Construction~~ construction workers and deliveries have a minimal impact on the interstate and larger state highways in the region as the additional influx of drivers is still within the design of the roadway. Impact on area transportation resources generally decreases with increased distance from the site as varied routes are taken by individual vehicles. As discussed in Subsection 2.5.2.2.3, the state and federal highways that would be used by workers to travel to the plant from Johnson, Tarrant, Erath, and Bosque counties are well-maintained and currently support large volumes of traffic. The increase in traffic due to the construction workforce is expected to be only a slight increase to overall traffic levels to the highways outside the vicinity.

SOC-01
SOC-08

SOC-01
SOC-08

Although the peak construction workforce is expected to be ~~4300~~4953, only ~~2450~~2601 vehicles are expected to be used to transport the workers to and from the CPNPP site due to carpooling. This is less than the demand that was placed on the local two-lane state and county highways and farm to market roads during the construction of Units 1 and 2. With the additional improvements that have been made to the roads since that time, the impact of the construction workers and delivery trucks on local roads, primarily FM 56, is expected to be SMALL within the vicinity of the site.

SOC-03

4.4.1.4 Impacts to Aesthetics

The locations of parks and reservoirs in the vicinity and region are described in **Subsections 2.2.1.2** and **2.2.3**. Visual access to the construction of the units is expected to be mainly plant employees and those residents across the reservoir, because further visual effects are obstructed due to the hilly nature of the area. **Section 3.1** describes construction materials which ultimately lessen the visual impact of the CPNPP on the vicinity.

Federal regulations require that any temporary or permanent structure, including all accompaniments, that exceeds an overall height of 200 ft above ground level be appropriately marked with lighting. The tallest structures on-site during the construction period are expected to be the crane used for construction of the facilities. As these structures primarily consist of iron framework, they carry a lower visual weight than the reactor domes, which are the most visible structures on-site as the CPNPP nears completion.

The tallest buildings on-site during construction are the reactor domes of CPNPP Units 1 and 2. As the viewshed analysis in **Subsection 2.2.1** states, CPNPP Units 1 and 2 have reactor domes that are 266 ft high. With CPNPP Unit 1 and Unit 2 in operation since 1990 and 1993, respectively, any affect on local viewsheds has already occurred. According to viewshed analysis, the reactor domes are visible from Dinosaur Valley State Park and Oakdale Park. Because the visual effects are inversely proportional to distance, the effects of CPNPP Units 1 and 2 on most other parks in the region are minimal.

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4.4.1.5.3 Traffic Noise due to Construction

Plant construction at CPNPP results in an increase in traffic on local roads. **Subsection 4.1.1** describes the transport of construction materials and workforce to the site by public roads. **Figure 2.5-5** illustrates the road and highway systems of both Hood and Somervell counties. Both construction workers and truck deliveries access the site via FM 56 (**Subsection 2.5.2.2**). FM 56 passes to the west of the site, connecting FM 51 to US 67. FM 56 is a two-lane highway and has turn lanes near the plant entrance. The local road system and traffic counts are described in **Subsection 4.4.1.3**.

Construction is expected to take place during a single shift, with the possibility of night testing or the addition of another shift, as warranted. Much of the traffic during the construction period would be at the beginning and end of the work shift. Peak-hour traffic noise would increase along the access road. Traffic noise during the peak hours could be noticeable at the nearby residences. Heavy truck traffic would be the most bothersome and could approach levels of 70 – 90 dBA at 50 ft from the road. A conservative estimate of ~~10060~~ daily truck deliveries is assumed for this analysis, with all deliveries occurring during daytime hours.

SOC-01
SOC-08

Subsection 4.4.1.3 describes the results of a traffic study for the CPNPP site during the construction of CPNPP Units 1 and 2 in 1987 when approximately 8694 persons were employed on-site. Based on this study, a conservative estimate is that there are ~~2150~~2601 vehicles entering or leaving the site at peak times, based on ~~4300 construction employees~~5201 total on-site workers. This is much less than the 3710 vehicles found in the 1987 traffic study (**DeShazo, Starek & Tang 1987**). Since the 1987 traffic study, improvements in traffic signals, widened lanes, turn lanes, and additional signage were made in the immediate area to handle the large volume of traffic.

SOC-03
MET-07

Although the peak construction workforce is expected to be ~~4953~~4300, the noise impacts from construction workers and deliveries utilizing smaller two-lane state and county highways and farm to market roads, primarily FM 56, are expected to be SMALL to MODERATE due to their intermittent and temporary nature. Potential mitigation measures include encouraging carpooling, reducing speed limits and staggering shifts to avoid traditional traffic congestion time periods.

SOC-03

4.4.1.5.4 Noise due to Railroad Spur Construction

As detailed in **Section 2.2**, a railroad spur enters the site on its western boundary and extends to the area just south of the new reactor locations. The railroad spur does not need to be upgraded to support equipment delivery and the pre-existing ROW is zoned for industrial use, therefore construction impacts are expected to be SMALL.

4.4.1.6 Impacts to Air Quality

Regional air quality, including EPA air quality standards, is discussed in **Subsection 2.7.1.2.7**. Areas having air quality that is worse than the National Ambient Air Quality Standards (NAAQS) are designated by the EPA as non-attainment areas. The CPNPP is not located in a non-attainment area. The nearest non-attainment area to CPNPP is Johnson County, which is a non-attainment area under the 8-hour ozone standard (**EPA 2007**).

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multipliers in Table 1.5, for every dollar spent for construction expenditures, an additional 0.58 dollars is added to the economic region (BEA 2005). This result in approximately \$139 million a year with \$299 million at peak.

The increase in jobs in the economic region and the influx of money due to the construction expenditures are both beneficial in stimulating the economic region. It is likely new businesses open in the economic region to satisfy the demands of the in-migrating construction workers. Benefits include the creation of jobs, employee purchasing, and increase tax revenues. Thus the impact from plant construction is considered a MODERATE beneficial impact in the economic region.

~~When comparing the influx of construction workers with the relatively small population of the vicinity, the increase in expenditures and benefits is significant. When comparing the influx of construction workers with the larger population of the region, the increase in expenditures and benefits is proportionally smaller. Expenditures and benefits include the creation of jobs, employee purchasing, and increased tax revenues. Thus the impacts from plant construction employees are considered a MODERATE to LARGE beneficial impact in the vicinity and a SMALL beneficial impact in the region.~~

SOC-06

4.4.2.2.1 Regional Taxes and Political Structure

Regional taxes and the political structure within the CPNPP region are discussed in Subsection 2.5.2.3. Several types of taxes are generated by construction activities and purchases, and by site workforce expenditures. These taxes would include income taxes on corporate profits, wages, and salaries; sales and use taxes on corporate and employee purchases; real property taxes related to CPNPP; and personal property taxes associated with employees. However, if employees buy or rent existing properties, there is no increase in property tax revenues.

As discussed in Subsection 2.5.2.3.1, the sales and use tax rate in populated areas in the economic region is 8.25 percent including local and state taxes. If the annual construction expenditures are spent within the economic region, the total sales and use tax revenue is approximately \$19.8 million per year with a peak of \$42.6 million. Of these totals \$15 million per year (\$32.3 million at peak) goes to the state with the remaining revenue going to cities, counties, and other local districts.

NP-15

While there is no personal income tax in the state of Texas, the wages paid to the construction workers generate tax revenue through sales and use taxes. Based on the craft wages discussed in Subsection 2.5.2.3.1, over the course of the construction approximately \$545 million in wages are paid to the construction workforce. It is expected that a large amount of those wages are spent in the economic region, generating tax revenue.

Luminant has agreements with Hood and Somervell counties to pay ad valorem taxes based on the current and new units. Table 2.5-17 shows CPNPP ad valorem taxes for CPNPP Units 1 and 2 for 2006. Based upon information from 2006, Luminant pays the majority of the ad valorem taxes to Glen Rose Independent School District (ISD) followed by Somervell County itself and the Somervell County Water District (TXU 2006b). Lesser amounts are paid to Grandbury ISD, Hood County, and Tolar ISD, while the remaining is paid to the Hood County Library District, the City of Glen Rose, and the town of Tolar (TXU 2006a)(TXU 2006b). Ad valorem taxes for Units 3

SOC-07

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and 4 are expected to be similarly distributed to the existing arrangements and provide a substantial increase to the counties, cities, and districts that benefit. | SOC-07

Based on Table 2.5-16, tax revenues in Hood and Somervell counties have increased from 2002 – 2007. With continued population expansion as well as the addition of ad valorem taxes from Units 3 and 4, tax revenues should continue to increase. However, ad valorem revenues for districts in Hood County are smaller than the revenues to Somervell County districts while at the same time ~~an equal number~~ approximately 40 percent of construction workers are expected to reside there based on current operations workforce settlement patterns. ~~Thus ad valorem revenues for Hood County are not sufficient to mitigate the impact to public services in the county.~~ | SOC-07

During the construction period, ad valorem taxes, sales and use taxes, and property taxes increase in the economic region. The increase in collected taxes is viewed as a benefit to the state and local jurisdictions in the economic region. It is anticipated that the impacts of construction on the economy of the region would be beneficial and SMALL. Conversely, the impact for Somervell County and to a lesser extent Hood County is anticipated to be LARGE and beneficial. Therefore, no mitigation is warranted. | SOC-07

4.4.2.3 Infrastructure and Community Services

Local public services affected by plant construction include education, transportation, public safety, social services, public utilities, tourism, and recreation (Subsection 2.5.2). In general, impacts to each of these services from plant construction are expected to be minimal. It is likely that the percentage of construction workers, accompanied by their families, moving into the region would concentrate in several established communities with well-developed public services, such as Granbury, Glen Rose, Cleburne, and Stephenville. This diversification of settlement would minimize the likelihood of any one community's services being overburdened. Some of the construction personnel would commute from existing homes in the region, and therefore, present no additional burden upon local public services.

The demand on potable water utilities and waste treatment increases during construction at the CPNPP site. ~~Considering the estimated number of construction workers with families moving into the vicinity, the population increases by 5268 people, or one-quarter of the 70 percent of the total anticipated workers estimated to in-migrate to the region multiplied by the estimated family size of four plus the number of individuals moving to the region without families.~~ As discussed in Subsection 4.4.2.1, the in-migrating construction and operations workers and their families increase the population in the economic region by 6563 people. | SOC-10

For consumptive water use, there are ~~five~~four water treatment systems associated with the cities and areas within ~~the vicinity~~ Hood County. The Granbury Treatment Plant has a maximum capacity of 500,000 gpd and is currently using 250,000 gpd. A second treatment plant, the Brazos River Authority Lake Granbury Surface Water Treatment plant with a capacity of ~~1,720,000~~ 10,500,000 gpd ~~is currently not being used, services the City of Granbury, the Action Municipal District (AMUD), and portions of Johnson County. The current usage is 6,062,000 gpd.~~ | SOC-10

The Acton Municipal District, which services portions of Hood County around Lake Granbury, has a treatment plant with a maximum capacity of 4,130,000 gpd and is currently using 1,900,000 gpd (TCEQ 2007a). The city of Tolar receives its water from wells and has a maximum capacity

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of 280,000 gpd. The city is currently utilizing 75,000 gpd. ~~Lastly, the water treatment system in Somervell County has a maximum capacity of 1,426,000 gpd and currently operates at 488,000 gpd (TCEQ 2007b). The total system capacity for these facilities is 6,336,000 gpd while the current usage is 2,713,000 gpd or approximately 43 percent. It is anticipated that the average per capita amount of water consumed per day is 90 gpd, which accounts for an overall increase in consumption of 474,120 gpd from the additional population; this amount equates to an approximate 17 percent increase over current consumption during peak construction (EPA 2003). Therefore, the increase in consumption due to the construction workforce and their families does not exceed the current plant capacity.~~ The total system capacity for these facilities is 15,410,000 gpd and the current usage is 8,287,000 gpd. Approximately 42 percent of the in-migrating peak workforce are expected to settle in Hood County, or 2757 people. It is anticipated that the average per capita amount of water consumed per day is 90 gpd, which accounts for an overall increase in consumption of approximately 248,100 gpd (EPA 2003). This amounts to an increase of 3 percent over current consumption. However, the projected total water usage is only 55 percent of the total water treatment capacity in Hood County.

SOC-10

As discussed in Subsection 2.5.2.7.1, Somervell County is supplied by a single water treatment facility run by the Somervell County Water District. The system has a maximum capacity of 1,426,000 gpd and a current utilization of 488,000 gpd. The incoming peak workforce increases the population by 1378 people, which corresponds to an increase in water usage of approximately 124,050 gpd. While this is a 25 percent increase in usage, the projected usage is only 43 percent of the total capacity of the treatment facility.

The population of the city of Cleburne increase by 788 people due to the in-migrating workers during peak construction. The city's water treatment plant has a maximum capacity of 15 million gpd and a current daily usage of 7.3 million gpd. The in-migrating population increases usage by 70,885 gpd or 1 percent. This projected usage is 49 percent of the total capacity.

The city of Fort Worth has four water treatment plants with a combined capacity of 485 million gpd. The incoming construction and operations workers increase the usage by 53,164 gpd, or 0.03 percent of the current usage. This projected usage is 34 percent of the total capacity.

The population of Stephenville increase by 394 people due to the in-migration of workers and their families. The city's currently daily usage of 2.3 million gpd is increase by 35,443 gpd, or 1.5 percent. This projected usage is 43 percent of the total capacity of the treatment facility.

Walnut Springs has a current daily usage of 6000 gpd serving 315 connections. However, maximum capacity numbers for the water treatment plant are not available. Assuming the same usage for additional connections, the approximate maximum capacity of the water treatment plant is 38,100 gpd. The incoming peak workforce increases the population by 328, which corresponds to an increase in water usage of 29,535 gpd. This represents a 492-percent increase in usage and brings the projected usage to 93 percent of the total capacity.

The increase in population due to peak construction leaves the water treatment plants of Somervell County, Cleburne, Fort Worth, and Stephenville below 50 percent of total capacity. Hood County increases to just over half at 55 percent. The city most impacted is Walnut Springs, which is estimated to increase to 93 percent of capacity. Walnut Springs relies solely on groundwater, so it is likely that additional public or private wells would be used to meet demand.

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There are ~~three~~two wastewater treatment plants associated with the cities in ~~the vicinity~~Hood County. The Tolar Wastewater Treatment Plant has a capacity of 100,000 gpd and is currently operating at 70 percent capacity. Plans for expansion of the plant are expected to be made within the next few years. The Granbury Wastewater Treatment Plant has a maximum capacity of 2,000,000 gpd and is operating at 48 percent capacity. If the total projected water use for Hood County is processed through the plants, the usage increases to 1,278,098 gpd or 61 percent of the total capacity. The Somervell County Wastewater Treatment Plant that serves Glen Rose and the rest of Somervell County has a maximum capacity of 600,000 gpd and is operating at 53 percent capacity. ~~The total capacity for these plants is 2,700,000 gpd while the current usage is 1,348,000 gpd or 50 percent. As a conservative estimate, it is assumed that the entire 474,120 gpd produced by the increase in population is processed through the wastewater treatment plants, representing a 35-percent increase in plant utilization but only an 18-percent increase of capacity.~~During peak construction, the wastewater usage increases to 442,049 gpd or 74 percent of maximum capacity. In Cleburne, the wastewater usage increases to 6,670,885 gpd or 89 percent of maximum capacity. The wastewater treatment plant in Fort Worth is barely affected, with utilization increasing by 53,164 gpd to 65 percent of maximum capacity. Wastewater usage in Stephenville increases by 35,443 gpd, with total wastewater usage of 92,535 gpd or 77 percent of the maximum capacity. Cleburne is the only case where the projected utilization of the wastewater treatment plants exceed 77 percent and plans are in place to expand the plants in Cleburne and Somervell County. Therefore, the wastewater treatment plants are able to accommodate the expected increase in population.

SOC-10
SOC-10
SOC-10

Potable water for construction is expected to be obtained from the newly-created Wheeler Branch Reservoir, which also supplies water for construction needs including concrete curing. The reservoir has a capacity of 1.3 billion gal with an annual yield of approximately 651,700,000 gal (SCWD 2007). The SCR supplies water for general cleanup, fire protection and dust control. An estimated 6560 gpd of potable water are expected to be used during peak construction, with an additional 184,000 gpd of general service water. Wastewater treatment is provided on-site. The physical impacts of on-site construction activity on water and wastewater treatment services are expected to be SMALL, with no mitigation required.

As discussed in **Subsection 2.5.2.7.2**, there are ~~638~~ police officers ~~and 250 firefighters~~ in Hood County, and 19 police officers and 40 firefighters in Somervell County. The national average ratio of full-time police officers per 1000 residents was 2.5 in 2003. The estimated population of Hood County in 2006 is 49,238 (Census 2006). The average number of officers per 1000 residents for a population that size is 1.8 (BJS 2003). Hood County had a ratio of 1.4 in 2006. Somervell County had an estimated population of 7773 in 2006 (Census 2006). The average number of officers per 1000 residents for a population that size is 2.2 (BJS 2003). Somervell County had a ratio of 2.4 in 2006. In 2014, the year of peak construction, due to population growth and the incoming workforce, the ratio in Hood County decreases to 1.3 and the ratio in Somervell County decreases to 2.0. This puts both counties below the national average for communities of their respective sizes. However, Hood County is already below the average based on the 2006 population.

SOC-11

In 2008, the national average number of firefighters per 1000 in population served was 1.6 (Senter 2009). As discussed in Subsection 2.5.2.7.2, there are 250 firefighters in Hood County and 40 firefighters in Somervell County. The ratio of firefighters per population served in both Hood and Somervell counties in 2006 was 5.1 and 5.2, respectively. By 2014, the influx of

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supports six physicians. Somervell County also has one hospital, Glen Rose Medical Center. Located in Glen Rose, the medical center has 16 beds with 80 staff members, including staff associated with the attached nursing home. Glen Rose Medical Center also has expansion plans beginning in 2008, with eight emergency room beds to be added. The CPNPP employs its own on-site emergency first-aid and medical services. The combined daily load at Lake Granbury Medical Center and Glen Rose Medical Center is 23 beds. With expansions complete, the medical centers have a combined capacity of 142 beds, well above the current demand. The construction workforce only increases the local population in Hood and Somervell counties by 5 and 16 percent, respectively. Thus, the medical facilities are more than adequate to accommodate the demands of the incoming population and the impacts of construction activity on local medical services are expected to be SMALL, and require no mitigation.

SOC-11

Social services such as Medicaid and welfare are funded through the federal and state governments. The construction boom due to CPNPP is not anticipated to have an impact on these social services.

~~Both hospitals in the area have plans for expansion, bringing the combined number of hospital beds to 142. Given that current loads at the hospitals combine to total 23 beds, the medical facilities are able to handle the influx of the construction workers and their families. Because of the planned expansion of local medical services, the impacts of construction activity on local medical services are expected to be SMALL, and require no mitigation.~~

SOC-11

SOC-11

Traffic counts for roads within the vicinity of the CPNPP site are discussed in **Subsection 2.5.2.2.3**. Effects of construction on transportation are discussed in **Subsection 4.4.1.3**. Effects of construction on education are discussed **Subsection 4.4.2.5**.

4.4.2.4 Housing

Neither Hood County nor Somervell County has a comprehensive land-use plan. The city of Glen Rose is currently accepting proposals from consultants to develop a comprehensive plan. The city of Granbury has a comprehensive plan published in 2001, and in 2006 requested proposals to update the plan. Land-use planning and zoning laws within site and vicinity are described in **Subsection 2.2.1**. Land-use effects from construction of the CPNPP are described in **Subsection 4.1.1**.

Regional housing availability is described in **Subsection 2.5.2.6**. ~~It is not known where CPNPP construction workers are anticipated to reside. A conservative assumption is used that the majority of CPNPP construction workers live in Somervell and Hood counties. However, a few may opt to live in some of the other surrounding counties. As discussed in Subsection 4.4.2.1, it is expected that the in-migrating workers settle in the six counties of the economic region based on the worker settlement pattern of the operations workers for CPNPP Units 1 and 2. During peak construction, 3467 construction workers and 124 operations workers in-migrate, for a total of 3591 workers.~~

SOC-09

Because the construction of CPNPP is not a permanent event, during the peak phase of construction, it is probable that not all construction workers move into the region and need housing. ~~In 2000, Somervell and Hood counties had a total of 344 housing units for sale and 472 housing units available for rent. As discussed in Subsection 2.5.2.6, using the most recent~~

SOC-09

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U.S. Census and American Community Survey data, there are a total of 11,759 housing units for sale and 38,122 housing unites for rent in the economic region. Property listings in Granbury and Glen Rose for September 2007 indicate 659 and 50 available housing units, respectively, including single family houses, townhomes, multi-family houses, mobile homes and rentals (NAR 2007). SOC-09

For this analysis, a conservative assumption is made suggesting ~~3040~~3467 construction workers and 124 operation workers need housing during the peak construction phase, thus one housing unit per ~~construction~~ worker is required for a total of ~~3040~~3591 units. SOC-09

The population in Hood County in 1970 was 6368, while the population in Somervell County was 2793. The 2006 estimated populations of 49,238 and 7773 for the two counties represent population increases of ~~773~~673 percent and ~~278~~178 percent, respectively. With the continued expansion of the Dallas-Fort Worth metropolitan area and the presence of lakefront property, population growth in Hood County is anticipated to remain rapid. A large number of housing developments are currently under development in Hood County, with several more in the planning stages. Population increase is not as prevalent in Somervell County with little housing development currently underway. Somervell County offers no apartments and housing prices are generally higher than in Hood County. SOC-09

The construction workers for CPNPP Units 3 and 4 are expected to make use of the temporary housing in the area, including hotels, motels, and RV parks. As discussed in Subsection 2.5.2.6, there are numerous hotel and motels in the area: Granbury has ~~439~~746 rooms, with ~~384~~88 additional rooms projected or complete; Glen Rose has ~~253~~471 rooms; Stephenville has 363 rooms; and Cleburne has 260 rooms. There are competing demands for the temporary housing in the vicinity from recreational transients as well as workers involved in the Barnett Shale mining. Additionally, outage workers for CPNPP Units 1 and 2 periodically increase the demand for housing, with 800 – 1200 workers required for a period of up to 24 days every 18 months. An outage for CPNPP Unit 1 is expected to coincide with peak construction, increasing demand on temporary housing. Hotel rooms are generally reserved on a first-come, first-serve basis, with all but one hotel offering long-term rentals. It is likely that the number of construction workers during peak construction makes it difficult for recreational transients to find ~~housing~~hotel rooms in the area, which may displace some of the transients to other housing in the region, such as cabins, bed and breakfasts, RV parks, and lodges. SOC-09

As discussed in Subsection 2.5.2.6, there are 11 RV parks located in Hood and Somervell counties. The RV parks have a combined total of 619 spots, with possible expansion at two parks for a total of 114 additional spots. Almost all of the RV parks are frequented by CPNPP Units 1 and 2 outage workers, so it is expected that construction workers also find lodging at these locations. The construction workers are expected to displace some recreational transients at these locations as well. However, numerous RV parks exist in other cities in the economic region, including Cleburne, Stephenville, Joshua, and Alvarado. These cities are located approximately 30 minutes from the CPNPP site, so it is expected that some of the construction workers would commute from these locations. SOC-09

Due to the amount of temporary and permanent housing in the region, it is anticipated that the construction workers are able to find sufficient housing. Due to population increase, it is also likely that additional hotels and motels are constructed in the region before or during the

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construction time period. Due to the competition with recreational transients, the impacts of construction on housing in the region are expected to be SMALL to MODERATE. However, temporary housing is a market-driven industry that adjusts with new facilities to compensate for demand.

4.4.2.5 Education

A detailed description of the CPNPP regional public education system is described in [Subsection 2.5.2.8](#).

At peak construction, it is estimated that 3010 workers, 25 percent with their families, in-migrate into the region, resulting in an estimated total of 5268 people. According to the 2000 census, Hood County's percent of school age children is 18 percent while Somervell County's percent is 22 percent. ~~It is assumed that 50 percent of the in-migrants settle in Hood County and 50 percent in Somervell County.~~ Based on the CPNPP Units 1 and 2 settlement patterns discussed in Subsection 5.8.2.1, it is assumed that 42 percent of the in-migrating construction workforce settles in Hood County and 21 percent in Somervell County. Using the county percentages, it is estimated that of the construction workforce approximately ~~579~~491 people in Hood County and ~~474~~303 people in Somervell County are school-aged. The total number of students for the 2007 – 2008 school year, not including private schools, is 6882 in ~~Hood County~~Granbury ISD and 1657 in ~~Somervell County~~Glen Rose ISD. Therefore, the influx of population would result in a ~~7-7.1-~~ percent change in student population in Hood County and a ~~35~~18-percent change in Somervell County. SOC-12

As discussed in Subsection 2.5.2.8.2, Glen Rose ISD has a maximum capacity of 2862 students. Enrollment for the 2007 – 2008 school year is 1657 students. Officials with Glen Rose ISD have indicated that the school system is capable of handling the influx of students generated by the anticipated construction workforce. SOC-12

Granbury ISD has a September 2007 enrollment of 6882 students. The district has a capacity of 8556 students. The district has seen an enrollment growth rate of less than 2 percent over the last 4 years. Impact to the district from the in-migrating construction workforce would depend on the grade level of the students. Granbury ISD is developing a long range plan for the district, with a final report due sometime in 2008.

The additional students due to construction affect the amount owed as Chapter 41 school districts. The Chapter 41 recapture policy is explained in [Subsection 2.5.2.8](#). Each additional student raises the weighted average, allowing the school district to retain more wealth.

Lesser numbers of the workforce settle in other counties of the economic region. According to the 2000 Census, the percentage of school age children in Johnson County is 21 percent, Tarrant County is 20 percent, Erath County is 18 percent, and Bosque County is 19 percent (Census 2000). Thus the in-migrating workforce increases enrollment in Cleburne ISD by 168 students (2.5 percent), Fort Worth ISD by 119 students (0.1 percent), Stephenville ISD and Three Way ISD by 71 students (2.0 percent), and Walnut Springs ISD by 61 students (30 percent). This increase is most apparent in Walnut Springs ISD due to the small student-body size. There is no district. However, during construction of CPNPP Units 1 and 2, the district accomodated an influx of SOC-12

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approximately 140 students. Local officials stated that the district would be able to handle the additional students and would make any necessary expansions.

SOC-12

~~Because of the current capacities of the local school systems and the influx of students, the impacts of construction on the educational systems of the region are expected to be SMALL to MODERATE. Mitigation of the MODERATE impact could include hiring additional teachers and staff for Somervell County and construction of new facilities for Hood County.~~Enrollment during peak construction is below the maximum capacities of the districts in Hood and Somervell counties. The increases to the other districts expected to be affected in the economic region are proportionally small with the exception of Walnut Springs ISD. As that district has accommodated an increase of approximately 140 students in the past, the increase of 61 students is not expected to exceed the capability of the district. Because the influx of students due to the construction workforce are split between several districts, the impacts of construction on the education systems of the region are expected to be SMALL and no mitigation is required.

4.4.2.6 Recreation

Recreational opportunities in the region include local, state, and special events. Local tourism and recreation is described further in [Subsection 2.5.2.5](#).

The nearest transient attraction, not including the CPNPP Visitor Center is Dinosaur Valley State Park, located 3.3 mi southwest of the center point. The reactor domes for CPNPP Units 1 and 2 are visible from the park; therefore, the construction of CPNPP Units 3 and 4 is anticipated to have a small visual impact. The Texas Amphitheater, on a hill overlooking SCR, is the second closest transient attraction, located 3.7 mi southeast of the center point. The amphitheater hosts outdoor events; therefore, the construction may result in a slight visual and noise impact. Other identified outdoor attractions in the vicinity are greater than 5 mi away and thus are unlikely to be impacted by construction at CPNPP.

Because of the distance of area attractions from the site, impacts from construction on recreation are SMALL and require no mitigation.

4.4.3 ENVIRONMENTAL JUSTICE IMPACTS

Executive Order 12898 directs federal executive agencies to consider environmental justice under the National Environmental Policy Act ([NEPA 1969](#)). This Executive Order ensures that minority and/or low-income populations do not bear a disproportionate share of adverse health or environmental consequences of a proposed project, such as the CPNPP.

Environmental justice impacts at alternative sites are discussed in [Subsection 9.3.5.3.1](#). [Subsection 2.5.4](#) describes the evaluation process used to identify minority and low-income populations living within the region that meet the conditions associated with the NRC guidance. [Tables 2.5-24, 2.5-25, and 2.5-26, and Figures 2.5-10, 2.5-11, 2.5-12, 2.5-13, 2.5-14, 2.5-15, 2.5-16, 2.5-17, 2.5-18, and 2.5-19](#) identify census blocks, block groups, and relative distances and spatial distributions of minorities and low-income populations around the CPNPP.

[Figure 2.5-11](#) illustrates the distribution of all minority populations that were identified in [Subsection 2.5.4](#). Locally, there are no minority populations identified adjacent to the site ([Figure](#)

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use along the Whitney ROW consists of primarily grassland with some deciduous and evergreen forest and only 20 percent being designated as developed land. Land use along the DeCordova ROW consists mainly of grassland, with only 13 percent being designated as developed land as shown in [Table 2.2-4](#).

The impacts of land use within the new transmission corridors are expected to be SMALL and are mainly centered on the new or expanded transmission line ROW closest to the Whitney line. Because the closest minority to this line is approximately one mile and because there are no low-income populations near the Whitney or DeCordova lines, there are no disproportionate impacts to minority and low-income populations.

4.4.3.4 Conclusion

Based upon the environmental justice analysis, impacts on minority and low-income populations within the vicinity and region are not disproportionate and thus are expected to be SMALL with no mitigation required.

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SOC-12

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4.9 SEPARATION OF CONSTRUCTION AND PRECONSTRUCTION IMPACTS

GEN-05
GEN-06
SOC-16
CR-03

In the context of this section, and for discussion of separation of construction and preconstruction environmental impacts, the term “construction” has two decidedly different meanings. When printed in italics hereafter, the term “*construction*” refers to the specific term that is defined in 10 CFR 50.10:

the analysis, design, manufacture, fabrication, quality assurance, placement, erection, installation, modification, inspection, or testing of a facility or activity which is subject to the regulations in this part and consulting services related to the facility or activity that are safety related.

When italics are not used, the term “construction” refers to the more commonly used general term that includes all activities necessary to build the two-unit nuclear plant, including the associated supporting structures and facilities.

In addition to the cumulative impacts attributable to preconstruction and construction of the entire CPNPP site summarized in Table 4.7-1, a breakdown of estimated *construction* and preconstruction environmental impacts is provided in Table 4.9-1 for the purpose of assessing impacts attributable specifically to the *construction* of safety-related structures, systems, or components (SSCs) as defined in 10 CFR 50.2 “Definitions”. The remaining CPNPP construction activities can be considered to be either preconstruction or other than *construction* under the definition in 10 CFR 50.2.

Table 4.9-1 provides estimates of the percentages of impacts attributable to *construction* and to preconstruction, as well as a summary of the basis for the estimates. The estimated *construction*-related impacts presented in Table 4.9-1 were based on two factors: the area associated with the *construction* of safety-related SSCs and the labor hours associated with the *construction* of safety-related SSCs. Information related to these two factors is provided as follows.

Construction Area

The CPNPP site consists of approximately 7950 ac excluding off-site facilities (pipeline corridors, transmission line corridors, rail corridors and intake structure). The total estimated area that will be developed for CPNPP Units 3 and 4 is estimated to be approximately 675 ac excluding off-site facilities. Of these developed areas, approximately 193 ac are expected to be developed for safety-related SSCs. The area that is expected to be developed for the *construction* of safety-related SSCs therefore represents approximately 29 percent of the total area to be developed (excluding off-site facilities).

Labor Hours

Based on preliminary *construction* estimates for all phases of development of CPNPP Units 3 and 4 the estimated labor hours associated with the *construction* of safety-related SSCs is approximately 98 percent of the total labor hours associated with the development of the entire CPNPP Units 3 and 4 site.

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TABLE 4.9-1
SUMMARY OF CONSTRUCTION- AND PRECONSTRUCTION-RELATED IMPACTS

GEN-05/06
SOC-16
CR-03

<u>Section Reference</u>	<u>Potential Impacts and Significance^(a)</u>	<u>Estimated Impacts (%)</u>		<u>Basis of Estimate</u>
		<u>Preconstruction</u>	<u>Construction^(b)</u>	
<u>ER Section 4.1 Land-Use Impacts</u>				
<u>ER Subsection 4.1.1 The Site and Vicinity</u>	<u>S – Erosion S – Air and Dust Emissions S – Chemicals and Petroleum Products</u>	<u>71</u>	<u>29</u>	<u>Estimates are based on the area of land use that would be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs would occur on no more than approximately 193 acres (ac) of the project area being developed (that is, 675 ac, excluding off-site electric transmission lines) (28.6%, restated as 29%).</u>
<u>ER Subsection 4.1.2 Transmission Corridors and Off-Site Areas</u>	<u>S – Erosion S – Air and Dust Emissions S – Chemicals and Petroleum Products</u>	<u>100</u>	<u>0</u>	<u>Neither transmission corridors nor any other off-site areas associated with construction of the CPNPP are included in the definition of construction of SSCs.</u>
<u>ER Subsection 4.1.3 Historic Properties</u>	<u>S – Other (site-specific)</u>	<u>100</u>	<u>0</u>	<u>The impact on historic properties would apply only to preconstruction activities, because they would be identified prior to land clearing, grading, installation of drainage systems, erosion controls, and other environmental mitigation measures, and construction of temporary roads and laydown areas.</u>

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TABLE 4.9-1
SUMMARY OF CONSTRUCTION- AND PRECONSTRUCTION-RELATED IMPACTS

GEN-05/06
SOC-16
CR-03

<u>Section Reference</u>	<u>Potential Impacts and Significance^(a)</u>	<u>Estimated Impacts (%)</u>		<u>Basis of Estimate</u>
		<u>Preconstruction</u>	<u>Construction^(b)</u>	
<u>ER Subsection 4.2 Water-Related Impacts</u>				
<u>ER Subsection 4.2.1 Hydrologic Alterations</u>	<u>S – Erosion S – Chemicals and Petroleum Products S – Surfacewater Disturbances S – Groundwater Disturbances S – Land Disturbances S – Water Use Consumption S – Terrestrial Disturbances S – Aquatic Disturbances</u>	<u>71</u>	<u>29</u>	<u>Estimates are based on the area of land use that would be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs would occur on no more than approximately 193 acres (ac) of the project area being developed (that is, 675 ac, excluding off-site electric transmission lines) (28.6%, restated as 29%).</u>

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TABLE 4.9-1
SUMMARY OF CONSTRUCTION- AND PRECONSTRUCTION-RELATED IMPACTS

GEN-05/06
SOC-16
CR-03

<u>Section Reference</u>	<u>Potential Impacts and Significance</u> ^(a)	<u>Estimated Impacts (%)</u>		<u>Basis of Estimate</u>
		<u>Preconstruction</u>	<u>Construction</u> ^(b)	
<u>ER Subsection 4.2.2 Water-Use Impacts</u>	<u>S – Surface Water S – Air and Dust Emissions S – Water Use Consumption</u>	<u>71</u>	<u>29</u>	<u>Estimates are based on the area of land use that would be dedicated to safety-related structures, systems, or components (SSCs) and the assumption that the construction of SSCs would occur on no more than approximately 193 acres (ac) of the project area being developed (that is, 675 ac, excluding off-site electric transmission lines) (28.6%, restated as 29%).</u>
<u>ER Subsection 4.3 Ecological Impacts (i.e., impacts on the physical environment)</u>				
<u>ER Subsection 4.3.1 Terrestrial Ecosystems</u>	<u>S – Noise S – Erosion S – Traffic S – Chemicals and Petroleum Products S – Land Disturbances S – Terrestrial Disturbances</u>	<u>100</u>	<u>0</u>	<u>Ecological impacts would occur during preconstruction activities, and mobile wildlife species are expected to vacate the site until construction is complete. Impacts to native plants would occur during land clearing and preparation.</u>

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TABLE 4.9-1
SUMMARY OF CONSTRUCTION- AND PRECONSTRUCTION-RELATED IMPACTS

GEN-05/06
SOC-16
CR-03

<u>Section Reference</u>	<u>Potential Impacts and Significance^(a)</u>	<u>Estimated Impacts (%)</u>		<u>Basis of Estimate</u>
		<u>Preconstruction</u>	<u>Construction^(b)</u>	
<u>ER Subsection 4.3.2 Aquatic Ecosystems</u>	<u>S – Noise S – Erosion S – Traffic S – Chemicals and Petroleum Products S – Surfacewater Disturbances S – Aquatic Disturbances S – Other (site-specific)</u>	<u>100</u>	<u>0</u>	<u>The impact on aquatic ecosystems would apply only to preconstruction activities, because they would be identified prior to land clearing, grading, installation of drainage systems, erosion controls, and other environmental mitigation measures, and construction of temporary roads and laydown areas.</u>
<u>ER Subsection 4.4 Socioeconomic Impacts (i.e., impacts on the human environment)</u>				
<u>ER Subsection 4.4.1 Physical Impacts</u>	<u>S – Noise S – Air and Dust Emissions S – Other (site-specific)</u>	<u>2</u>	<u>98</u>	<u>Most perceptible noise impacts at off-site locations would occur during the most intense operations in the power block area and would include pile driving for SSCs. Air emissions would occur in the vicinity of the SSCs (power block area) during construction. Estimates are based on the percent of labor hours dedicated to safety-related SSCs (98 %) and the percent of land dedicated to SSCs (29 %).</u>

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TABLE 4.9-1
SUMMARY OF CONSTRUCTION- AND PRECONSTRUCTION-RELATED IMPACTS

GEN-05/06
SOC-16
CR-03

<u>Section Reference</u>	<u>Potential Impacts and Significance^(a)</u>	<u>Estimated Impacts (%)</u>		<u>Basis of Estimate</u>
		<u>Preconstruction</u>	<u>Construction^(b)</u>	
<u>ER Subsection 4.4.2 Social and Economic Impacts</u>	<u>S – Traffic</u> <u>S – Land Disturbances</u> <u>S – Socioeconomic Changes</u>	<u>2</u>	<u>98</u>	<u>Estimates are based on the percent of total project labor hours that would be dedicated to the construction of safety-related SSCs, all of which would be in the power block areas of the CPNPP (approximately 98%).</u>
<u>ER Subsection 4.4.3 Environmental Justice Impacts</u>	<u>None identified</u>	<u>2</u>	<u>98</u>	<u>Estimates are based on the percent of total project labor hours that would be dedicated to the construction of safety-related SSCs, all of which would be in the power block areas of the CPNPP (approximately 98%).</u>
<u>ER Subsection 4.5 Radiation Exposure to Construction Workers</u>				
<u>ER Subsection 4.5.1 Worker Impacts</u>	<u>S – Radiation Exposure</u>	<u>51</u>	<u>49</u>	<u>Estimates are based on 50% of the workforce remaining during completion of the SSCs for CPNPP Unit 4 (half of 98 %).</u>

Notes

(a) The assigned potential impact significance levels of SMALL (S), MODERATE (M), or LARGE (L) are based on the assumption that mitigation measures and controls would be implemented.

(b) "Construction," as defined in 10 CFR 50.2 refers to the construction of safety-related SSCs for a facility.

Chapter 5

Chapter 5 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	5-xxii	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
CTS-00624	5.1.3.1.4	5.1-5	Erratum	Change "one mi" to "two mi".	0
CTS-00624	5.1.3.1.4	5.1-5	Editorial correction	Change "site boundary" to "property boundaries".	0
CTS-00625	5.1.2	5.1-2	Erratum	Change number of 345-kV transmission lines from "five" to "four".	0
CTS-00627	5.2.3.5	5.2-16	Editorial correction	Change the discussion regarding the cells and cubicles.	0
CTS-00628	Table 5.3-3	5.3-20	Editorial correction	Change the circulating water flow/tower and drift rate per tower numbers.	0
CTS-00629	Table 5.4-16	5.4-42	Erratum	Change "rad" to "person-rad".	0
MET-13	5.3.1	5.3-11	Increase information as discussed with the NRC.	Add "Six years of site meteorological data (2001 – 2006) were also used in the analysis.	1
SOC-11	5.8.2.3.1.2	5.8-11 and 5.8-12	Increase information as discussed with the NRC.	Update with current information and revise text to discuss public safety and medical services for Hood and Somervell counties. Update reference citation from TDPS 2004 to TDPS 2006	1
SOC-11	5.8.4	5.8-17	Increase information as discussed with the NRC.	Update reference notation (TDPS 2004) information to (TDPS 2006) information.	1

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
SOC-04	5.8.1.1	5.8-1	Errata	Changed "550" to "494" Changed "1550" to "1494" Added "in 2018" Added sentence to clarify the number of workers after one year.	2
SOC-04	5.8.1.3	5.8-2	Editorial corrections	Removed "or Texas Stae Highway 144 (SH 144)" Changed "SH 144 to Texas State Highway 144"	2
SOC-04	5.8.1.3	5.8-2 5.8-7	Errata	Changed "1550" to "1494" Changed "total of 1550" to "peak total of 1494"	2
SOC-04	5.8.2.1	5.8-8 5.8-9	Increase information as discussed with the NRC.	Revised subsection to address the operation workforce assumptions.	2
SOC-04	5.8.2.1	5.8-9	Erratum	Changed "4300" to "4953"	2
SOC-06	5.8.2.2	5.8-9 5.8-10	Increase information as discussed with the NRC.	Revised subsection to discuss workforce economics.	2
SOC-07	5.8.2.2	5.8-10	Increase information as discussed with the NRC.	Removed "(Table 2.5-13)" Replaced "0.64" with "0.32"	2
SOC-07	5.8.2.2.1	5.8-11	Editorial correction	Changed "operation" to "operational"	2
SOC-07	5.8.2.2.1	5.8-11	Increase information as discussed with the NRC.	Revised paragraph to include wage information.	2
SOC-07	5.8.4	5.8-16	Increase information as discussed with the NRC.	Added two reference notations Updated (TDPS 2004) to (TDPS 2006) information.	2
SOC-01 SOC-08	5.8.1.3	5.8-2	Increase information as discussed with the NRC.	Revised subsection based on research and evaluation of existing traffic data and provided additional information.	3

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
MET-08	5.8.1.5.4	5.8-8	Increase information as discussed with the NRC.	Revised subsection to provide quantitative estimates of emissions associated with operations.	3
NP-15	5.8.2.2	5.8-11	Increase information as discussed with the NRC.	Revised subsection to provide information on wages.	3
SOC-10	5.8.2.3	5.8-11	Editorial correction	Chaged “diescribed” to “described”	3
SOC-10	5.8.2.3.1.1	5.8-11	Errata	Replaced “an operational workforce of 550” with “the inmigrating workforce in 2018” and Changed “110” with “492”	3
SOC-09	5.8.2.3.2	5.8-12 5.8-13	Increase information as discussed with the NRC.	Revised subsection to provide updated housing information.	3
SOC-09	5.8.2.3.2	5.8-13	Erratum	Corrected “census” to “Census”	3
SOC-12	5.8.2.3.3	5.8-13	Increase information as discussed with the NRC.	Revised subsection to clarify the discussion of the public education system in the vicinity of the proposed units and added Granbury School District.	3
SOC-01 SOC-08	5.8.4	5.8-16	Increase information as discussed with the NRC.	Replaced Reference (TxDOT 2004) with (TxDOT 2007) notation information as a result of revisions made in subsection 5.8.	3

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5.8.1.3 Roads

Impacts of new units' operations on transportation and traffic in the region are the greatest on the rural roads of Hood and Somervell counties. Impacts on traffic are determined by four elements: (1) the number of operations workers and their vehicles on the roads; (2) the number of shift changes for the operations workforce; (3) the projected population growth rate in the region; and (4) the capacity of the roads. The largest impacts to roads are expected to be during shift changes.

Figure 2.5-5 illustrates the road and highway systems of both Hood and Somervell counties. Operation workers access the site via Farm to Market 56 (FM 56), ~~or Texas State Highway 144 (SH 144)~~ (Subsection 2.5.2.2). FM 56 passes to the west of the site, connecting FM 51 to U.S. Highway 67 (US 67), while ~~SH 144~~ Texas State Highway 144 (SH144) passes to the east of the site and connects US 67 to US 377. Both are 2-lane highways, and FM 56 has turn lanes near the plant entrance. Improvements, such as widening, turn lanes and traffic lighting are currently being made to SH 144.

SOC-04

For plant operation, it is expected that CPNPP operates with five crews of approximately 30 workers each. The crews follow a five-week rotation, with one crew in training, one crew off, and the other three crews covering the operational shifts. The operations shifts are 12 hours long. The remaining support personnel, including security, administration, and technicians, work a variety of shifts. The CPNPP is expected to employ a ~~total of 1550~~ peak total of 1494 operations workers at the plant for all units. Therefore, the maximum number of vehicles on the roadways from operations is approximately ~~4550~~ 1494 including workers from all four units. However, the impact at any given time is much less than ~~4550~~ 1494 vehicles as these vehicles travel on the roadways in different directions and at varying times based on shift schedules, vacations days, sick leave, day of the week, and other factors. Additional impacts may be present during outage periods for Units 1 and 2 (800 – 1200 additional workers) every 18 months as well as for Units 3 and 4 (800-1200 additional workers) every two years.

SOC-04

SOC-04

As discussed in Subsection 2.5.2.2.3, the averaged annual daily traffic (AADT) counts in ~~2004~~ 2007 on FM 56 indicate that ~~3230~~ 8500 vehicles use the road to the north of the plant entrance while ~~3020~~ 3500 vehicles use the road to the south of the entrance. The AADT counts indicate that approximately ~~11,780~~ 13,400 vehicles travel on US 67 east of the intersection with FM 56, and ~~11,730~~ 6500 vehicles travel on US 67 to the west of the intersection. The AADT counts indicate that ~~9560~~ 34,000 vehicles travel on US 377 east of the intersection with FM 56 while ~~9750~~ 13,100 travel on US 377 to the west of the intersection (TxDOT 2007). ~~The AADT counts on SH 144 indicate that 10,570 vehicles travel on the road south of Granbury while approximately 5780 vehicles use the highway going north from Glen Rose (TxDOT 2004).~~

SOC-01
SOC-08

According to the Highway Capacity Manual, the capacity of a two-lane highway is 1700 vehicles per hour for each direction of travel. The capacity is nearly independent of the directional distribution of the traffic on the facility, except that for extended lengths of two-lane highway, the capacity does not exceed 3200 vehicles per hour for both directions of travel combined (TRB 2000).

During the 1980s, with the construction of CPNPP Units 1 and 2, a study was completed on the increase of traffic in the area surrounding the plant. Approximately 8694 persons were employed

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During the ambient noise survey in 2007 and 2008, noise results along roadways ranged from 35 to 70 dBA (daytime traffic and as high as 82 dBA at times) and 36 to 70 dBA (nighttime). The impacts of plant operations are expected to have minimal effects on the interstate highways in the region. Because the increase in operation workers is below historic accounts of traffic volume as well as the improvements to the roads in the surrounding area, the impacts from operation workers on smaller two-lane state and county highways, as well as the local roads, the impacts of plant operations are expected to be SMALL.

5.8.1.6 Air Quality

MET-08

Regional air quality is discussed in [Section 2.7](#). Impacts to air quality from diesel emissions are discussed in Subsection 3.6.3.1 and shown in Tables 3.6-2, 3.6-3, 3.6-4, 3.6-5, 3.6-6, and 3.6-7. The largest sources of emissions are the two auxiliary boilers as shown in Table 3.6-6. As discussed in Subsection 5.5.1.3, the standby generators and fire pumps are not continuously operated, which reduces air emissions. Gaseous and particulate effluents due to UFC processes to support CPNPP Units 3 and 4 are shown in Table 5.7-2. As discussed in Subsection 5.7.1.4, the emissions constitute a SMALL additional atmospheric loading. Operations activities are expected to be conducted in accordance with the best management practices available during the time of operation. This would include performance of proper maintenance of operational vehicles and equipment to maximize efficiency and minimize emissions, in compliance with applicable federal, state, and local regulations. Actual operational-related emissions cannot be effectively quantified before the plant is completed. Air emissions are expected to be controlled as necessary, to meet requirements of applicable air regulations and permits in place at the time of operation.

Because air emissions from ~~nuclear power plants are minimal~~ the operation of CPNPP Units 3 and 4 are considered a small atmospheric loading and comply with the applicable regulations, the physical impacts due to air emissions on the to the surrounding population as a result of operation of Units 3 and 4 are SMALL and do not warrant mitigation.

MET-08

5.8.2 SOCIAL AND ECONOMIC IMPACTS OF STATION OPERATION

This subsection evaluates the demographic, economic, infrastructure, and community impacts to the region as a result of operating CPNPP. The evaluation assesses impacts of operations and of demands placed by the workforce on the region.

5.8.2.1 Demography

The 2007 estimated permanent population within the 50-mi region is 1,538,761. Population projections are discussed in [Subsection 2.5.1](#). As stated in [Subsection 5.8.1.1](#), the CPNPP employs approximately ~~550~~494 operations workers at Units 3 and 4 in 2018 with the number decreasing to 412 after a year. In order to supply the needed workforce, Luminant has partnered with local and state education entities to train operations workers in the region. The Nuclear Power Institute is a statewide partnership with headquarters at Texas A&M University that is working to develop courses, curriculum, and programs to prepare students for careers in the nuclear workforce. A total of ten universities and colleges are participating (NPI 2009). Also, Luminant has created the Luminant Academy at Tyler Junior College to train students in generation, mining, and construction operations for their power plants (TJC 2008). These efforts

SOC-04

SOC-04

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Several types of taxes are generated by operations activities and purchases, and by the workforce expenditures within the vicinity. The wages expected to be paid to operations workers are discussed in Subsection 2.5.2.3.1. Assuming an average annual salary of \$72,548, approximately \$29.9 million a year is paid in wages to the operations workers. Employees of the CPNPP pay federal personal income taxes on their wages and salaries. Texas residents do not pay a state personal income tax. The counties in the region experience an increase in the amount of sales and use taxes collected. Additional sales and use taxes are generated by retail expenditures of the operating workforce. As discussed in Subsection 2.5.2.3.1, the sales and use tax rate in populated areas in the economic region is 8.25 percent including local and state taxes. If the annual operations expenditures are spent within the economic region, the total sales and use tax revenue is approximately \$5.4 million per year per unit for a total of \$10.7 million. Of this total, \$8.1 million per year goes to the state with the remaining \$2.6 million in revenue going to cities, counties, and other local districts.

NP-15

SOC-07

~~Because the ad valorem taxes are paid to jurisdictions in Hood and Somervell counties, the impact of plant operation on the vicinity is anticipated to be LARGE and beneficial. The impacts of operations on tax revenue in the region is expected to be SMALL, based on the larger region population but beneficial due to the increased collections due to plant and worker expenditures.~~ Property tax revenues should remain stable or growing as the increasing population occupies the houses vacated by the construction workforce. Sales and use taxes are expected to decrease as the construction workers leave the area and as the construction expenditures are finished. Operations expenditures are approximately \$9.1 million a year less than the average construction expenditures. Countering this is the payment of the ad valorem taxes on the new units. Current revenues from CPNPP Units 1 and 2 exceed \$24 million annually based on Table 2.5-17. Revenues from CPNPP Units 3 and 4 are expected to be similar. Thus total tax revenues for the economic region continue to increase during operations. The impact of plate operations is expected to be LARGE and beneficial for the economic region.

SOC-07

5.8.2.3 Infrastructure and Public Services

Local public services potentially affected by the operation of Units 3 and 4 including (1) public safety, (2) social services, (3) education, (4) tourism, and (5) recreation are ~~described~~ described individually in **Subsection 2.5.2**. It is likely that operations workers and their families would concentrate in several communities with well-developed public services. Diversification of settlement would minimize the likelihood of any one community's services being overburdened.

SOC-10

5.8.2.3.1 Public Services

Public services types identified in this subsection include (1) water supply and wastewater facilities and (2) fire, police and medical services.

5.8.2.3.1.1 Water Supply and Wastewater Facilities

The CPNPP is not anticipating using groundwater as a safety-related or operational source of water. The CPNPP is using Lake Granbury for all operational water uses related to Units 3 and 4 cooling. Water for operation dust suppression and general use is obtained from SCR. An on-site wastewater facility provides sufficient capacity for wastewater treatment related to plant operation for all four units.

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As stated in ~~Subsection 5.8.2.1, an operational workforce of 550~~the in-migrating workforce in 2018 increases the population in the 50-mi region by approximately ~~1400~~492 people. Water systems in the vicinity are generally not operating at or near capacity (~~Subsection 2.5.2.7.1~~). Therefore, the water supply and wastewater treatment facilities servicing the CPNPP vicinity are considered sufficient to provide adequate service. Additional information regarding wastewater facilities is discussed in ~~Subsection 2.5.2.7.1~~.

SOC-10

5.8.2.3.1.2 Police and Fire Protection Services

The Somervell County Sheriff's Department has sole jurisdiction over Somervell County (TDPS 2006~~4~~). As stated in ~~Subsection 2.5.2.7.2~~, the total number of police officers in Somervell county is 19. The ~~ratio of residents to number of~~number of police officers per 1000 residents in Somervell County in 2006 is 2.4 and ~~during the construction is 2.0~~389:1. The ~~departing construction workers and incoming~~ operational workforce and families would increase the police ratio to ~~2.2~~421:1. Hood County is served by the Hood County Sheriff's Department, Granbury Police Department, and Tolar Police Department (TDPS 2006~~4~~). These departments combined employ ~~683~~ police officers, resulting in a ratio of 1.3 officers per 1000 residents during construction~~residents to police officers of 782:1~~. The operational workforce and families increase the police ratio to 1.4~~789:1~~. According to the U.S. military, the desired ratio of police officers to population is between 1 and 4 officers per 1000 citizens (~~between 1000:1 and 250:1~~), with cities needing higher levels than other areas (~~Broemmel, Clark, and Nielsen 2007~~). As discussed in Subsection 4.4.2.3, the United States currently has approximately 2.53 police officers per 1000 residents-~~(435:1)~~. With the increase in residents in Somervell and Hood counties, the ratio of police officers to residents is still within the levels recommended by the U.S. military.

SOC-11

SOC-11

~~Within Somervell County there is one fire department with 40 paid and volunteer firefighters. The ratio of residents to firefighters is 194:1. The operational workforce and families increase this ratio to 200:1. In Hood County, there are nine fire departments with 250 volunteer firefighters for a ratio of residents to firefighters of 197:1. The operational workforce and families increase this ratio to 200:1. Additional information on police and fire protection services is discussed in Subsection 2.5.2.7.2.~~

SOC-11

In Johnson County, the ratio of police officers per 1000 residents in Cleburne decreases from 1.6 during construction to 1.5 during operations. Fort Worth likewise decreases from 2.3 to 2.2 due to the rapid population growth of the city. In Stephenville, the ratio decreases from 2.2 in 2014 to 1.9 in 2018. The ratio of sheriff's officers per 1000 residents in Walnut Springs increases from 16 to 20. This leaves all the cities but Walnut Springs below the national average, but still within the levels recommended by the U.S. military. Also, it is reasonable to assume that by 2018 additional staffing is obtained for the cities in response to the population growth, which would increase the ratios.

Within Somervell County there is one fire department with 40 paid and volunteer firefighters. The ratio of firefighters per 1000 residents is 4.3 during construction and increases to 4.7 by 2018. In Hood County, there are nine fire departments with 250 volunteer firefighters for a ratio of 4.8 during construction that increases to 5.0 during operations. The ratio of firefighters per 1000 residents in Cleburne decreases from 1.5 during construction to 1.4 during operations. The ratio in Fort Worth drops from 1.4 to 1.3, while the ratio in Stephenville decreases from 2.4 in 2014 to 2.3 in 2018. The ratio in Walnut Springs increases form 8.8 to 11 as the population does not

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increase rapidly enough to replace the construction workers that left the area prior to 2018. Thus, Hood County, Somervell County, Stephenville, and Walnut Springs remain well above the national average discussed in Subsection 4.4.2.3 while Cleburne and Fort Worth remain just under it.

As discussed above, it is reasonable to assume that additional personnel are added to the fire departments in the economic region from 2006 to 2018 in response to the rapid population growth in the area. This would increase the ratios for the counties and cities, resulting in a lessened impact.

SOC-11

5.8.2.3.1.3 Medical Services

Somervell County also has one hospital, Glen Rose Medical Center. Located in Glen Rose, the medical center has 16 beds with 80 staff members, including staff members associated with the attached nursing home. Hood County is home to one hospital, Lake Granbury Medical Center, located in Granbury. The hospital contains 59 beds with 36 doctors on active duty (**Lake Granbury Medical Center 2007**). By the time construction is completed, both hospitals have finished their planned expansions, resulting in 142 available beds (**Subsection 4.4.2.3**). The number of beds is more than sufficient to meet the demands of the plant operations workers in addition to the increasing demand resulting from population growth in the region. Additional information on medical services is discussed in **Subsections 2.5.2** and **4.4.2.3**.

5.8.2.3.2 Housing

Housing information is discussed in **Subsection 2.5.2.6**. As stated in **Subsection 5.8.2.1**, the CPNPP employs approximately ~~550~~494 people for operations of Units 3 and 4 with 123 in-migrating at the start of operations in 2018. Thus, assuming that ~~all operational workers relocate to Somervell or Hood counties~~the in-migrating workers relocate to the economic region, a conservative estimate of ~~550~~123 housing units ~~is~~are needed for the new workers. Some employees may choose to build new homes, reducing the number of existing vacant housing units necessary. The amount of housing needed can be expected to vary during the operation of the plant as total operations workers decreases to 412 by 2019. ~~For example~~Also, additional workers are required during refueling outages at the site, ~~when additional help becomes necessary~~. It would be expected that the majority of outage workers would stay in extended-stay hotels, trailers, or rent rooms in homes, and would not become permanent residents in the region. Refueling outages happen every 18 months for CPNPP Units 1 and 2 and every two years for CPNPP Units 3 and 4. Each outage requires 800 – 1200 temporary workers. Outages for CPNPP Units 1 and 2 last for a period of 17 - 24 days while outages for CPNPP Units 3 and 4 cycle between one 40 day outage, one 30 day outage, and two 16 day outages. Outages for the four units do not occur simultaneously.

SOC-09

SOC-09

~~In Somervell and Hood counties, there are more than 3200 vacant housing units as of 2000 (US Census 2000a) (US Census 2000b). In Somervell and Hood counties, there are more than 3200 vacant housing units in 2000. As discussed in Subsection 2.5.2.6, based on 2000 Census data and American Community Survey data, there are 77,805 vacant housing units in the economic region.~~ A number of these housing units are filled by the construction workforce, with a peak construction workforce of ~~4300~~4953 workers in ~~2015~~2014. From the peak construction plus outage population in ~~2016~~2014 to 2018 when the total number of operations workers has moved

SOC-09

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to the region, the population in Hood ~~and Somervell counties declines by approximately 2742-people~~ County decreases by 4.8 percent while the population in Somervell County decreases by 10.4 percent. This decline in population is expected to make available additional housing. However, as a majority of the construction workforce is expected to use temporary housing, the operation workforce may not find sufficient housing from the departure of the construction workforce alone. As discussed in **Subsection 4.4.2.4**, there are numerous housing developments being added in Hood County which, along with the existing housing, should serve to provide sufficient housing for the operations workforce that choose to settle in the vicinity.

SOC-09

Based on vacancy data from the 2000 ~~census~~ Census, sufficient housing units are available. Therefore, the impacts of plant operation on housing are expected to be SMALL and do not require mitigation.

SOC-09

Land-use planning and zoning laws within the CPNPP site and vicinity are described in **Section 2.2.1**. Land-use effects from operation of the CPNPP are described in **Subsection 5.1.1**.

5.8.2.3.3 Education

It is assumed that 50 percent of the new workforce relocates to the region with their families, increasing the population by approximately ~~1100-people~~ 492 people at the start of operations, and that ~~2021~~ percent settle in Somervell County and ~~4042~~ percent settle in Hood County. ~~In Somervell and Hood counties, the percentage of school-age children between the ages of 5 and 18 in the year 2000 was 22 percent and 18 percent, respectively. It is estimated that with the increase of the operations workforce, approximately 48 children in Somervell County and 79 children in Hood County are school-aged. The total number of public school students for the 2006–2007 school year in Somervell County was 1800, and the total number of students in Hood County was 6300. Therefore, the influx of population would result in a 2.7 percent increase of school-age children in Somervell County and a 1.3 percent increase in Hood County. However, over the same period the 1033 students from the construction workforce are leaving the districts. During this time, the students from the in-migrating construction workers have left while the students of the operations workers who in-migrated during peak construction remain. According to the percent of school age children by county as discussed in Subsection 4.4.2.5, the in-migration of operations workers adds 37 students to Hood County. However, the students from peak construction who depart create a net loss of 431 students. Somervell County receives 23 students from operations workers for a net loss of 266 students. Johnson County receives 13 students for a net loss of 148. Tarrant County receives 9 students for a net loss of 104. Erath County receives 5 students for a net loss of 63, and Bosque County receives five students for a net loss of 54. These losses in students are expected to be replaced by population growth in the economic region.~~

SOC-12

~~Glen Rose ISD in Somervell County has a maximum capacity of 2862 students with a total 2007-2008 enrollment of 1657 students. Thus a 2.7 percent increase is well within the capacity of the district. Because of sufficient capacity for additional students in Somervell County and marginal increases in Hood County,~~ As discussed in Subsection 4.4.2.5, the school districts in Hood and Somervell counties do not exceed their capacities during peak construction. The loss of students at the beginning of operations lowers the enrollment towards current levels. However, the population growth in the economic region acts to replace the students lost. Because the districts do not have to make substantial changes to accommodate the peak construction enrollment, the

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loss of that enrollment does not adversely affect the districts. Because population growth acts to augment student enrollment during operations the impact of plant operations on education is expected to be SMALL and does not require mitigation. | SOC-12

5.8.2.3.4 Recreation

Common recreational activities in the region include hunting, fishing, wildlife watching, and camping. Additional information regarding these activities is discussed in [Section 2.5.1.3](#).

A new recreational site is planned for the Wheeler Branch Reservoir located 3.2 mi southeast of the CPNPP Units 3 and 4 center point. The proposed park includes a boat launch, fishing pier, swim area, and biking or walking trails. The reservoir itself is expected to be open to the public in 2010 and is restricted to non-powered water craft ([SCWD 2008](#)). Other recreation near the site occurs near the Brazos River, with biking, canoeing, and horseback riding, and at the Dinosaur Valley State Park, with walking trails and biking. While none of these recreational activities are allowed on the CPNPP site, neither does CPNPP inhibit or otherwise affect any of these recreational opportunities.

During outages up to 1200 additional workers are required at CPNPP. The outage workers are expected to stay in temporary housing such as hotels, RV parks, and rentals. This limits the available temporary housing for recreational transients. However, many RV parks have a limited number of long-term spots, with the rest reserved for short-term transients. This acts to mitigate the affect of the outage workers on recreational transients. Also, outages for CPNPP Units 1 and 2 are not simultaneous with outages for CPNPP Units 3 and 4. Thus the maximum number of temporary workers in the area for any outage does not exceed the current levels for CPNPP Units 1 and 2. Because the current outage workers are housed without displacing the recreational transients, it is expected that the temporary workers due to CPNPP Units 3 and 4 outages also do not displace recreational transients from the vicinity.

The impacts of plant operations on recreation are expected to be SMALL. No mitigation is expected to be required.

5.8.3 ENVIRONMENTAL JUSTICE IMPACTS

Executive Order 12898 ([EO 1994](#)) directs federal executive agencies to consider environmental justice under the National Environmental Policy Act. The underlying purpose of this Executive Order is to ensure that minority and/or low-income populations do not bear a disproportionate share of adverse health or environmental effects of a proposed project, such as the CPNPP.

[Subsection 2.5.4](#) describes the evaluation process used to identify minority and low-income populations living within the region that meet the conditions associated with the NRC guidance. [Tables 2.5-24, 2.5-25, and 2.5-26](#) as well as [Figures 2.5-10, 2.5-11, 2.5-12, 2.5-13, 2.5-14, 2.5-15, 2.5-16, 2.5-17, 2.5-18, and 2.5-19](#) identify census blocks, block groups, and relative distances and spatial distributions of minorities and low-income populations around the CPNPP.

[Figure 2.5-11](#) illustrates the distribution of all minority populations that were identified in [Subsection 2.5.4](#). Locally, there are no minority populations identified adjacent to the site. The nearest minority populations are in the cities of Glen Rose and Granbury. The closest population

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(TRB 2000) Transportation Research Board. Highway Capacity Manual. The National Academies. Washington, D.C.

~~(TxDOT 2004) Texas Department of Transportation. 2004 Traffic Map, General Highway Maps: Somervell and Hood Counties, Texas.~~ (TxDOT 2007) Texas Department of Transportation. "Statewide Planning Map." Available URL: http://www.txdot.gov/apps/statewide_mapping/StatewidePlanningMap.html. Accessed April 13, 2009.

SOC-01
SOC-08

(TJC 2008) Tyler Junior College. "Luminant Academy Open House Set March 26." Available URL: http://www.tjc.edu/news/article.asp?message_id=572. Accessed February 4, 2009.

SOC-07

(US Census 2000a) U.S. Census Bureau. American FactFinder. Hood County Housing. <http://factfinder.census.gov>. Accessed on March 15, 2007.

(US Census 2000b) U.S. Census Bureau. American FactFinder. Somervell County Housing. <http://factfinder.census.gov>. Accessed March 15, 2007.

(US HUD 1996) United States Department of Housing and Urban Development, 24 CFR Part 51.103 Criteria and Standards, March 26, 1996.

(SCWD 2008) Somervell County Water District. "Phase I - Wheeler Branch Dam and Paluxy River Channel." http://scwd.us/?page_id=9. Accessed July 25, 2008.

Chapter 6

Chapter 6 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	6-xvi	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
CTS-00630	6.3.1.1	6.3-2	Editorial correction	Change "SWS" to "ESWS"	0
CTS-00631	6.5.1	6.5-2	Editorial correction	Remove "nonradioactive".	0
CTS-00631	6.5.1	6.5-2	Editorial correction	Change "service water" to "essential service water"	0
CTS-00499	6.7	6.7-3	Editorial correction	Add information for current results regarding humidity date, and remove discussions for future additions.	0
CTS-00499	6.7	6.7-3	Editorial correction	Clean up to match ER 6.4.1 wording for RH instrumentation.	0
MET-24	6.4.1	6.4-2	Increase information as discussed with the NRC.	Revised discussion regarding the temporary relative humidity instrumentation to include current results and conclusions.	3
MET-24	6.7	6.7-3	Revised subsection as discussed in letter TXBN-08024 to the NRC dated 9/19/2008 and to increase information as discussed with the NRC.	Revised discussion regarding the temporary relative humidity instrumentation to include current results and conclusions and to be consistent with Subsection 6.4.1; and reversed change made in UTR Rev 0 "editorial correction" for CTS-00499.	3

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- Delta-temperature between 33 ft and 197 ft (redundant channels).
- Sigma theta at 33 ft.
- Precipitation near ground level.

An additional 33 ft backup tower is located 75 ft east-northeast from the primary tower. This tower is an open lattice tower with a stationary instrumentation boom located on top of the tower. The aspirator motor and shield for the backup temperature sensor are also oriented north/south. The backup tower monitors or provides information to determine the following meteorological parameters:

- Wind speed at 33 ft.
- Wind direction at 33 ft.
- Ambient temperature at 33 ft.
- Sigma theta at 33 ft.

Precipitation is measured at ground level near the primary tower.

~~The CPNPP is adding a temporary relative humidity instrument to correlate on-site data with Dallas-Fort Worth airport and Mineral Wells data. It is intended that Dallas-Fort Worth airport data and/or Mineral Wells data be the relative humidity data of record for CPNPP Units 3 and 4.~~ A temporary relative humidity instrumentation was used onsite to collect data from June 12, 2008 through September 23, 2008. Likewise, data was collected from Dallas-Fort Worth (DFW) Airport and Mineral Wells (MWL) Airport National Weather Service (NWS) from this same time frame. The data sets from the DFW and MWL airports were compared to the CPNPP on-site data, during both average and peak events. MWL Airport is selected as a better representation of CPNPP site conditions. In addition, MWL Airport has geographic similarities to CPNPP (rural/suburban and 37 miles proximity), in comparison to the DFW Airport geography (urban and 61 miles proximity). The relative humidity data recorded at MWL Airport is representative of the relative humidity at the CPNPP site and serves as the data of record for supporting the cooling tower plume analysis calculations.

MET-24

All the permanent towers and instrumentation described above are located in an area surrounded by a security fence and maintained free of obstructions that could interfere with data collection and accuracy. The environmentally controlled meteorological instrumentation building that supports the electronic components associated with the instrumentation on the towers is located within the fenced area (CPSES 2007a).

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monitoring program was operational before CPNPP Unit 1 began operation in April 1990. CPNPP Unit 1 preconstruction meteorological data date from May 1972 to May 1976 ([Section 6.4](#)).

- Details and results of the meteorological monitoring program for the years 2001 – 2005 were used in analyses and calculations supporting this application ([Subsection 6.4.1.3](#)).
 - ~~Temporary R~~relative humidity instrumentation ~~is being added to the meteorological monitoring program~~was used onsite in 2008 to support calculations, such as cooling tower plume analysis, and to ~~provide assurance of representativeness~~ assure correlation with off-site data sources ([Subsection 6.4.1](#)).
 - Meteorological conditions are being monitored to determine the representative site meteorological conditions. The observation of temperature, wind, and other parameters provides input for developing statistical meteorological models.
- Monitoring programs for site preparation and construction regarding terrestrial ecology and land use are discussed in [Subsection 6.5.1](#), and aquatic ecology is discussed in [Subsection 6.5.2](#). These programs ensure the following:
 - The responsibility of Luminant for the ecological monitoring programs associated with the CPNPP Units 3 and 4 are fulfilled.
 - Pre-construction studies addressed water quality and aquatic resources in the vicinity of the site to establish an aquatic baseline for the operational phase of aquatic impacts, especially noting conditions existing as a result of CPNPP Units 1 and 2 being in operation.
 - Data on terrestrial resources have been collected and studied by Luminant. There are no federally listed threatened or endangered plant species in Hood or Somervell counties ([Subsection 6.5.1](#)).
 - Surveys were conducted in April and May 2007 to determine if endangered golden-cheeked warblers were residing in the undisturbed scrub and treed area adjacent to CPNPP Units 3 and 4 cooling towers. No golden-cheeked warblers or other listed species were found during the surveys ([Section 2.4](#)). Additional surveys are conducted in the March through May 2008 time frame to verify the absence of nesting golden-cheeked warblers. The surveys confirmed the absence of this bird.
 - Details in [Subsections 4.3.1](#) and [5.3.1.2](#) conclude that the impacts of construction and operation of CPNPP Units 3 and 4 on terrestrial resources are characterized as SMALL.

MET-24
CTS-00499

Chapter 7

Chapter 7 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	7-xvii	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
CTS-00470	7.2	7.2-7	Erratum	Change " 5.87×10^{-1} " to "1.15".	0
ACC-06	7.2-4 Tables: 7.2-5, 7.2-7, 7.2-9, 7.2-10, 7.2-11, 7.2-12, 7.2-13, 7.2-14	7.2-3, 7.2-7, 7.2-8, 7.2-13, 7.2-15, 7.2-17, 7.2-18, 7.2-19, 7.2-20, 7.2-21, 7.2-22, 7.2-23	See Luminant Letter TXNB-09013 dated 4/28/2009	Revised Subsection and Tables to reflect a 90% evacuation to a distance of 50 mi.	-

Chapter 8

Chapter 8 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	8-xvi	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
NP-03	8.1	8.1-6	Increase information as discussed with the NRC.	Revised text to address why the plants are not specifically discussed within the context of the need for power analysis.	1
NP-05	8.1	8.1-6	Increase information as discussed with the NRC.	Revised text to discuss the ERCOT assumptions driving generation capacity.	1
NP-09 NP-13	8.4.1	8.4-1	Increase information as discussed with the NRC.	Revised text to clarify that market participants determine how and when to retire or build new capacity.	1
NP-12	8.1	8.1-6	Increase information as discussed with the NRC.	Revised text to explain that market forces determine how to meet the forecast load.	1
NP-18	8.3.1	8.3-1	Increase information as discussed with the NRC.	Added a "pointer" to the definition of "mothballed capacity."	1
NP-09	8.4.1	8.4-1	Increase information as discussed with the NRC.	Revised text to clarify how ERCOT does their analysis.	1
NP-18	8.4.1	8.4-1	Increase information as discussed with the NRC.	Revised text to provide information regarding mothballed generating capacity.	1
NP-03	8.4.1	8.4-1	Increase information as discussed with the NRC.	Revised text to address why the plants are not specifically discussed within the context of the need for power analysis and at specific points in time, given that the plants would not come on line until about 10 years in the future.	1
NP-09	8.4.1	8.4-2	Increase information as discussed with the NRC.	Revised text to clarify how ERCOT does their analysis.	1

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
NP-09	8.4.1	8.1-4	Increase information as discussed with the NRC.	Expands the discussion of reserve margin.	1
NP-12	8.4.1	8.4-5	Increase information as discussed with the NRC.	Expanded the discussion of reserve margin to indicate the decision to increase the number of plants rests with the market participants.	1
NP-01	8.4.5	8.4-7	Increase information as discussed with the NRC.	Revise text to discuss the 2007 ERCOT assessment and other information that has become available after the 2007 reference. Added subsection 8.4.5 entitled "ERCOT Update"	1
NP-01	8.4.6	8.4-7	Increase information as discussed with the NRC.	Revise references for the increased information.	1
NP-14	Table 8.4-1	8.4-8	Increase information as discussed with the NRC.	Revised table to include the load forecast and reserve margin.	1

Chapter 9

Chapter 9 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	9-xx	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
CTS-00632	9.2	9.2-9	Erratum	Change "peak" to "units".	0
CTS-00687	9.3.4.1.3.2	9.3-14	Update the proprietary status of information	Remove (proprietary)	1
CTS-00688	9.3	9.3-30	Update the proprietary status of information	Remove "Attachment proprietary information" and add "Luminant Nuclear Power Plant Siting Report, February 09, 2009, with a modified" and remove the period after Project.	1
CTS-00689	Tables: 9.3-1A 9.3-3 9.3-4 9.3-5 9.3-6 9.3-7 9.3-8 9.3-9 9.3-10 9.3-11 9.3-12 9.3-13 9.3-14 9.3-15 9.3-16 9.3-17 9.3-18 9.3-19 9.3-20 9.3-21 9.3-22 9.3-23 9.3-24 9.3-25 9.3-26 9.3-27	9.3-33, 9.3-36, 9.3-37, 9.3-38, 9.3-39, 9.3-40, 9.3-41, 9.3-42, 9.3-43, 9.3-44, 9.3-45, 9.3-46, 9.3-47, 9.3-48, 9.3-49, 9.3-50, 9.3-51, 9.3-52, 9.3-53, 9.3-54, 9.3-55, 9.3-56, 9.3-58, 9.3-59, 9.3-60, 9.3-61, 9.3-62, 9.3-63,	Update the proprietary status of information	Remove "Withheld from Public Disclosure Under 10 CFR 2.390 (a) (4)" from the title.	1

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
		9.3-64, 9.3-65 9.3-66, 9.3-67, 9.3-68, 9.3-69, 9.3-70, 9.3-71, 9.3-72, 9.3-73, 9.3-74			
CTS-00690	Figure 9.3-2	-	Editorial Correction	Remove box with "Proprietary Information – Withheld Under 10 CFR 2.399 (a) (4)" and provide figure.	1
ALT-09	9.2	9.2-28	Editorial Correction	Remove the sentence "The levelized cost of electricity produced from pulverized coal fired power plants is \$0.033/kWh - \$0.041/kWh"	1
ALT-09	9.2	9.2-30	Erratum	Replace \$575 with \$544	1

Chapter 10

Chapter 10 Tracking Report Revision List

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00615	Acronyms and Abbreviations	10-xvi	Editorial correction	Change "MPT Main Power Transformer" to "MT Main Transformer".	0
CTS-00459	10.1.1.1	10.1-1	Erratum	Change "200 ac" to "400 ac".	0
CTS-00461	10.1.3.2.1	10.1-11	Editorial Correction	Remove "diesel generators", and mention the auxiliary boiler as an air emission source.	0
CTS-00459	Table 10.1-1	10.1-14	Erratum	Change "200 ac" to "400 ac".	0
CTS-00650	Table 10.1-1	10.1-14	Erratum	Change "659 ac" to "675 ac".	0
CTS-00633	Table 10.1-1	10.1-14	Erratum	Change 4152 to indicate this is the fourth item in the table and the number cited is 152	0
CTS-00460	10.1	10.1-5	Erratum	Add text to show an additional 250 gpm will be provided for de-mineralized water, and change "fifty gpm" to "three hundred gpm".	0
CTS-00505	10.1.3.2.2	10.1-12	Editorial correction	Remove "adds on impact".	0
CTS-00505	10.1.3.2.2	10.1-12	Editorial correction	Remove "not".	0
CTS-00634	10.4.1.2.1	10.4-3	Erratum	Change "4461" to "4466".	0
CTS-00459	10.4.2.2.1	10.4-8	Erratum	Change "approximately 200 ac" to "400 ac".	0

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-00506	Table 10.4-2	10.4-15	Erratum	Change alignment of "3180".	0
CTS-00459	Table 10.4-4	10.4-20	Erratum	Change "384 ac" to "400 ac".	0
NP-17	10.1.1.2	10.1-2	Errata	Changed "construction workers" to "on-site workforce" Changed "reach 4300 in 2013" to "be 5201" Changed "construction" to "on-site"	2
NP-17	10.1	10.1-5	Erratum	Changed "A thermal plume created from cooling water blowdown would be discharged to the Lake Granbury" to "Subsection 5.3.2.1 describes the thermal plume analysis and impacts from CPNPP."	2
NP-17	10.1.3.1.1	10.1-7	Errata	Changed "550" to "494" Changed "1550" to "1494"	2
NP-17	10.1.3.1.1	10.1-9	Editorial correction	Removed Radiological category discussion	2
NP-17	10.1.3.1.2	10.1-9	Errata	Changed "4300 construction" to "5201" Removed "in 2013"	2
NP-17	10.1.3.2.2	10.1-12	Errata	Changed "550" to "494" Changed "1550" to "1494"	2
NP-17	Table 10.3-1	10.3-6	Increase information as discussed with the NRC.	Changed "avoid" to "reduce"	2
NP-17	10.4.1.1.1	10.4-1	Increase information as discussed with the NRC.	Revised to clarify socioeconomics and to be consistent with other subsections.	2

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
NP-17	10.4.1.1.1	10.4-2	Errata	Changed "550" to "494" Changed "4300" to "4953" Added "and 248 operations workers" before "on-site" and "at the start of operations" to clarify the socioeconomics and to be consistent with other subsections.	2
NP-17	10.4.1.1.1	10.4-2	Errata	Replace "economy of the region" with "economic region" and added "economic" before "region"	2
NP-17	10.4.1.1.1	10.4-2	Increase information as discussed with the NRC.	Changed "SMALL" to "LARGE" as a result of revisions.	2
NP-17	10.4.1.1.2	10.4-2	Increase information as discussed with the NRC.	Revised subsection to clarify socioeconomics and to be consistent with other subsections.	2
NP-17	10.4.1.1.2	10.4-2	Erratum	Changed "2007" to "2006" Changed "1121" to "48,965" Changed "Hood County and 220 people unemployed in Somervell County." to "the economic region."	2
NP-17	10.4.1.1.2	10.4-2	Erratum	Changed "vicinity and a SMALL beneficial impact in the region." To "economic region" and Changed vicinity to "economic region"	2
NP-17	10.4.1.1.2	10.4-3	Increase information as discussed with the NRC.	Revised subsection to clarify socioeconomics and to be consistent with other subsections.	2
NP-17	10.4.1.2.3	10.4-4	Errata	Changed "989" and "1664" Changed "5289" to "5131" Changed "4300" to "4953" Changed "550" to "494" Changed "682" to "272" Changed "1232" to "766"	2
NP-17	10.4.2.2.2	10.4-9	Errata	Changed 56,592,000 gpd" to "55,690,560 gpd" Changed "consumption" to "forced evaporation"	2

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
				Removed reference to "(Subsection 2.3.2.2.4)" and replace with "Table 2.3-38"	
NP-17	10.4.2.2.5	10.4-10	Discussed with the NRC	Removed subsection 10.4.2.2.5 as the discussion is not in context.	2
NP-17	10.4.2.2.6	10.4-11	Editorial Correction	Changed subsection 10.4.2.2.6 to 10.4.2.2.5	2
NP-17	10.4.2.2.7	10.4-11	Editorial Correction	Removed subsection 10.4.2.2.7 as the discussion is not in context.	2
NP-17	10.4.2.2.8	10.4-11	Editorial Correction	Changed subsection "10.4.2.2.8" to "10.4.2.2.6"	2
NP-17	Table 10.4-1 (sheet 1 of 2)	10.4-13	Errata	Changed "Net ad" to "Ad" Changed "4300" to "4953" Changed "550" to "494" Aligned the Subheading to the left. Removed subtitle below the line. Added "in \$/\$100 valuation" to clarify the tax rates.	2
NP-17	Table 10.4-1 (sheet 2 of 2)	10.4-14	Erratum	Removed "Dependence on Foreign Energy" row item Removed "Foreign Trade Deficit" row item.	2
NP-17	Table 10.4-2	10.4-15	Editorial Correction	Replaced footnote "a)" with "Air emissions were calculated using AP 42"	2
NP-17	Table 10.4-3 (Sheet 2 of 3)	10.4-17	Editorial Correction	Removed row "Radioactive Effluents and Emissions" and "Potential Nuclear Accident" row items.	2
NP-17	Table 10.4-4 (Sheet 1 of 4)	10.4-19	Erratum	Changed "4300" to "4953" Changed "550" to "494" Changed "1671" to "1936" Changed "989" to "1801" Changed "521" to "135"	2
NP-17	Table 10.4-4 (Sheet 2 of 4)	10.4-20	Editorial Correction	Removed row for "Foreign Trade Deficit"	2

Change ID No.	Section	ER Rev. 0 Page	Reason for change	Change Summary	Rev. of ER T/R
NP-17	Table 10.4-4 (Sheet 3 of 4)	10.4-21	Editorial Correction	Removed "Potential Nuclear Accident" row item.	2