April 24 2009

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

Part 2, FSAR

Update Tracking Report

Revision 1

Revision History

Revision	Date	Update Description
0	3/31/2009	Original Issue Updated Chapters: Ch.1, 2, 3, 5, 6, 8, 9, 11, 12, 13, 14, 17 and 19 Incorporated responses to following RAIs: No.1
1	4/24/2009	Updated Chapters: Ch. 2, 6

Chapter 1

Chapter 1 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00586	1.2	1.2-3 1.2-4	Consistent with Subsection 9.4.5.2.6	Add “UHS” before “ESW pump”.	0
CTS-00586	1.2	1.2-4	Erratum	Change the number of pumps.	0
CTS-00534	1.8	1.8-13	Consistent with DCD Rev.1	Correct COL 3.2(4) and 3.2(5) to reflect wording changes in DCD Rev1.	0
CTS-00535	1.8	1.8-16	Consistent with DCD Rev.1	Correct COL3.5(2) to reflect wording changes in DCD Rev1.	0
CTS-00536	1.8	1.8-23	Editorial correction	Change “AD/V2” to “AD/V^2”.	0
CTS-00537	1.8	1.8-28	Consistent with DCD Rev.1	Correct COL3.8(19) to reflect wording changes in DCD Rev1.	0
CTS-00527	1.8	1.8-30	Consistent with DCD Rev.1	Correct COL3.9(2) to reflect wording changes in DCD Rev1.	0
CTS-00538	1.8	1.8-33	Consistent with DCD Rev.1	Correct COL3.10(9) to reflect wording changes in DCD Rev1.	0
CTS-00550	1.8	1.8-41	Editorial correction	Delete “these” from COL 6.2(1).	0
CTS-00539	1.8	1.8-43	Editorial correction	Add “and” in COL 6.4(5).	0
CTS-00540	1.8	1.8-55	Editorial correction	Change “an” to “a ” in COL10.3(1).	0
CTS-00541	1.8	1.8-56	Editorial correction	Change “deta” to “data” in COL11.2(3).	0
CTS-00542	1.8	1.8-61	Consistent with DCD Rev.1	Correct COL12.1(1) to reflect wording changes in DCD Rev1.	0
DCD_12.01-2	1.8	1.8-61	Delete Outdated RG	Delete reference to RG8.20, 8.26, and 8.32 from COL12.1(3).	0
CTS-00543	1.8	1.8-64	Consistent with DCD Rev.1	Correct COL13.1(5), 13.2(2) and 13.2(3) to reflect wording changes in DCD Rev1.	0
CTS-00610	13.5.2	1.8-66	Update	Add Subsection “13.5.2.1” in Table 1.8-201.	0
CTS-00544	1.8	1.8-67	Consistent with DCD Rev.1	Correct COL13.6(1)and 13.7(1) to reflect wording changes in DCD Rev1.	0
CTS-00545	1.8	1.8-70	Consistent with DCD Rev.1	Delete COL16.1_3(1).	0
CTS-00546	1.8	1.8-71	Editorial correction	Delete “and” from COL16.1_3.3.2(1).	0
CTS-00526	1.8	1.8-74	Consistent with DCD Rev.1	Correct COL17.5(1) to reflect wording changes in DCD Rev1.	0
CTS-00530	1.9	1.9-7	Correct Corresponding Section	Delete reference to 5.2.1.2 from RG1.84.	0
CTS-00529	1.9	1.9-16	Correct COLA/FSAR Status	Add “with exceptions” to “Conformance” in RG 4.15.	0

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
DCD_12.01-2	1.9	1.9-18 1.9-19	Delete Outdated RG	Delete reference to RG8.20, 8.26, and 8.32 from Table1.9-203.	0

Chapter 2

Chapter 2 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00636	Table 2.0-1R	2.0-3 2.0-13	Editorial correction	Change “X/Q” to “χ/Q”. (χ is a Greek letter.)	0
CTS-00637	Table 2.2-203 Table 2.2-206	2.2-28 2.2-33	Editorial correction	Change “CPNPP Units 1 & 2” to “CPNPP Units 1 and 2”.	0
CTS-00587	Table 2.3-206	2.3-71	Erratum	Change “5” to “3”.	0
CTS-00636	Table 2.3-342	2.3-252 2.3-253	Editorial correction	Change “X/Q” to “χ/Q”. (χ is a Greek letter.)	0
CTS-00590	2.4.1.1	2.4-2	Editorial correction	Change “grade” to “floor elevation”.	0
CTS-00591	2.4.1.1	2.4-3	Editorial correction	Change “Category I seismic requirement” to “seismic category I requirement”.	0
CTS-00661	2.4.1.2.1	2.4-5	Editorial correction	Add "(Figure 2.4.1-207)" after Morris-Sheppard Dam.	0
CTS-00662	2.4.1.2.1	2.4-6	Editorial correction	Add reference numbers according to CTS-00666.	0
CTS-00592	2.4.1.2.3.2	2.4-7	Editorial correction	Change “intake pumping station” to “makeup water intake structure” and “cooling tower makeup pumps” to “makeup water pumps, makeup water jockey pump”.	0
CTS-00663	2.4.1.2.3.3	2.4-8	Editorial correction	Add reference numbers as appropriate according to CTS-00666.	0
CTS-00664	2.4.1.2.3.3	2.4-8	Editorial correction	Delete "contributing".	0
CTS-00665	2.4.1.2.3.3	2.4-8	Update	Change "16,113 sq mi" to "25,679 sq mi".	0
CTS-00593	2.4.11.5	2.4-38	Editorial correction	Remove “to the cooling water system flow”.	0
CTS-00655	2.4.12.2.4	2.4-46	Editorial correction	Change “X” to “XX”.	0
CTS-00513 RCOL2_ 2.4.13-1 through RCOL2_ 2.4.13-7	2.4.12.2.4 2.4.12.2.5 2.4.12.3.1 2.4.12.5 2.4.13	2.4-46 through 2.4-64	To reflect information provided during acceptance review	Re-write section reflecting RAI #1.	0

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00656	2.4.12.3.1	2.4-51	Editorial correction	Delete “(or are) expected to be”.	0
Change ID No.	Section	Page	Reason for change	Change Summary	Rev. of T/R
CTS-00657	2.4.12.3.1	2.4-52	Editorial correction	Change X to lower-case in mathematical expressions.	0
CTS-00658	2.4.12.5	2.4-53	Editorial correction	Add “aquifer”.	0
CTS-00659	2.4.13	2.4-56	Editorial correction	Change “Kd” to K_d”.	0
CTS-00666	2.4.16	2.4-63	Editorial correction	Add new references.	0
CTS-00589	Table 2.4.1-203	2.4-68 through 2.4-70	Erratum	Add reference citations.	0
CTS-00654	Table 2.4.1-203	2.4-68 through 2.4-70	Editorial correction	Change header titles and lower case from MSL to msl.	0
CTS-00655	Table 2.4.1-203	2.4-68 through 2.4-70	Erratum	Change values to match reference.	0
CTS-00588	Table 2.4.1-206	2.4-72	Erratum	Change “8186” to” 6354” and “0.383” to “0.362”. Add reference citations.	0
CTS-00594	2.5.1	2.5-53	Clarification	Add “potable” and “beneath the site”.	0
CTS-00599	2.5.2	2.5-61 2.5-62	Editorial correction	Delete the semi-colon in the bullet item list.	0
CTS-00595	2.5.2	2.5-61	Editorial correction	Remove IBR statement.	0
CTS-00515	2.5.2.5.1	2.5-110 through 2.5-113	To reflect information provided during acceptance review	Add three pages to clarify discussion.	0
CTS-00516	2.5.2.6.1.1 2.5.2.6.1.2	2.5-113 2.5-117	To reflect information provided during acceptance review	Revise Subsection reflecting commitment to NRC.	0
CTS-00667	2.5.4.3.3	2.5-166	Editorial correction	Change "The average elevation of the top of engineering Layer C is about 780 ft to 782 ft below the Unit 3 power block, and about 782 ft to 784 ft below the Unit 4 power block (Figure 2.5.4-214)." to "The average elevation of the top of engineering Layer C is	0

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
				approximately 782 ft below the Unit 3 and Unit 4 power block (Figure 2.5.4-214)".	
CTS-00597	2.5.4	2.5-121	Editorial correction	Remove IBR statement.	0
CTS-00514	2.5.4.5.4	2.5-177 2.5-179	To reflect information provided during acceptance review	Revise Subsection reflecting commitment to NRC.	0
CTS-00517	2.5.4.8	2.5-187	To reflect information provided during acceptance review	Revise Subsection reflecting commitment to NRC.	0
CTS-00598	2.5.5	2.5-195	Editorial correction	Remove IBR statement.	0
CTS-00515	2.5.2.5	2.5-224	Editorial correction	Revise Subsection reflecting commitment to NRC.	0
CTS-00515	2.5.7	2.5-227 2.5-228	To reflect information provided during acceptance review	Add references 2.5-432 through 2.5-436	0
CTS-00515	2.5.7	2.5-228	To reflect information provided during acceptance review	Add reference 2.5-432.	0
CTS-00668	Table 2.5.1-201	2.5-229 2.5-230	Editorial correction	Delete "from the Studies of Madole (1988), Crone and Luza (1990), and Swan et al. (1993)" from the title of the table.	0
CTS-00669	Table 2.5.1-201	2.5-230	Editorial correction	Add reference citations.	0
CTS-00672	Table 2.5.1-202	2.5-231	Editorial correction	Delete notes.	0
CTS-00673	Table 2.5.1-203	2.5-232	Editorial correction	Add reference citations.	0
CTS-00673	Table 2.5.1-203	2.5-232	Editorial correction	Delete and rewrite notes.	0
CTS-00670	Table 2.5.1-205	2.5-252	Editorial correction	Add reference citations.	0
CTS-00671	Table 2.5.1-206	2.5-254	Editorial correction	Add reference citations.	0
CTS-00674	Table 2.5.2-227	2.5-312	Editorial correction	Delete references in notes.	0
CTS-00515	List of Tables List of Figures	2-xxxii 2-xlviii	Commitment to NRC	Add Tables 2.5.2-230 through 2.5.2-235. Add Figures 2.5.2-240 through 2.5.2-246.	0

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00516	List of Tables List of Figures	2-xxxii 2-xlviii	Commitment to NRC	Add Tables 2.5.2-236 and 2.5.2-237. Add Figures 2.5.2-247 through 2.5.2-252.	0
CTS-00515	Tables 2.5.2-230 through 2.5.2-237	-	To reflect information provided during acceptance review	Add new Tables.	0
CTS-00516	Figures 2.5.2-240 through 2.5.2-250	-	To reflect information provided during acceptance review	Add new Figures	0
MET-04	List of Tables	2-xxiv, 2-xxv	Erratum	Add “Dallas” in front of “Fort Worth” and “Airport” after “Fort Worth” for table number 2.3-296	1
CTS-00696	2.2.2.2.8	2.2-5	Increase information as discussed with NRC during the 03-23-25-09 Hazards Analysis Audit	Changed distance for DeCordova to 9.35 miles.	1
CTS-00697	2.2.2.6	2.2-8	Increase information as discussed with NRC during the 03-23-25-09 Hazards Analysis Audit	Added clarification that rail transport of hazardous materials is outside the 5 mile radius of CPNPP 3 & 4	1
CTS-00699	2.2.2.7.1	2.2-9	Increase information as discussed with NRC during the 03-23-25-09 Hazards Analysis Audit	Added clarifying statement that the airports listed were predominant airports in the area outside 10 miles that did not exceed the 1000 D^2 criterion. Added back in the discussion for each predominant airport in the area outside the 10 miles.	1
CTS-00698	2.2.3.1.1.2	2.2-12	Increase information as discussed with NRC during the 03-23-25-09 Hazards Analysis Audit	Added clarifying discussion on how the Wolf Hollow hazardous materials were sceened for the hazards analysis since quantities were not made available.	1
CTS-00698	2.2.3.1.3.1	2.2-17	Increase information as discussed with NRC during the 03-23-25-09 Hazards	Added clarifying discussion on how the Wolf Hollow hazardous materials were sceened for the control room	1

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
			Analysis Audit	habitability analysis since quantities were not made available.	
CTS-00696	2.2.3.1.3.2.2	2.2-18	Increase information as discussed with NRC during the 03-23-25-09 Hazards Analysis Audit	Clarified discussion regarding DeCordova was analyzed for Hazards and Control Room Habitablilty analyses even though the distance is outside the 5 mile radius of Units 3 & 4.	1
CTS-00698	Table 2.2-205	2.2-32	Increase information as discussed with NRC during the 03-23-25-09 Hazards Analysis Audit	Added footnote that the quantities of chemicals were not made available for Wolf Hollow and a pointer added to indicate what sections have the sceening criteria utilized for Wolf Hollow.	1
CTS-00696	Table 2.2-214	2.2-43	Increase information as discussed with NRC during the 03-23-25-09 Hazards Analysis Audit	Added IDLH and Max concentration in Control Room and footnote (b) indicating that DeCordova was conservatively analyzed even though it is outside the 5 mile radius of U3/4. Distance to nearest Units 3 and 4 MCR Inlet for DeCordova SES has been revised from 3.6 to 3.7.	1
CTS-00696	Figure 2.2-201		Erratum	Corrected the figure since the location of DeCordova, which is outside the 5 mile radius of CPNPP Units 3 & 4, showed DeCordova inside the 5 mile radius	1
MET-03	2.3.1.2.4	2.3-14	Increase information as discussed with the NRC.	Add “16” to number of days each year; remove “monthly and regional” and add “by county” to wind events to reconcile thunderstorm information.	1
MET-04	2.3.1.2.8	2.3-20	Erratum	Add “the” in front of Dallas Fort Worth Airport	1
MET-13	2.3.2.1.2	2.3-22	Erratum	Replace “2001 through 2006” with “2001 – 2004 and 2006” to describe which data years were used.	1
MET-13	2.3..2.1.3	2.3-27	Erratum	Replace “2001- 2006” with “2001 – 2004 and 2006” to	1

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
				describe which data years were used.	
MET-04	2.3.2.1.4	2.3-27	Erratum	Add “Dallas” in front of “Fort Worth”	1
MET-13	2.3.2.2.4	2.3-32	Erratum	Add “Fort” for the years “2001 – 2006”	1
MET-3 MET-13	Table 2.3-211	2.3-83	Erratum	Replace numbers in column “Average per Yr (#/yr) and Replace “2006 and (-24 yr) with “7/31/2006”	1
MET-13	Table 2.3-285	2.3-164	Errata	Replace “2001 – 2006” with “2001 – 2004 and 2006” to describe which data years were used.	1
MET-04	Table 2.3-286	2.3-165	Erratum	Add “Dallas” in front of “Fort Worth” for the title.	1
MET-04	Table 2.3-296	2.3-177	Erratum	Add “Dallas” in front of Fort Worth and “Airport” after Worth in the title	1
MET-04	Table 2.3-299	2.3-180 2.3-181	Erratum	Add “Dallas” in front of ”Fort Worth” in the title	1

LIST OF TABLES (Continued)

LIST OF TABLES (Continued)

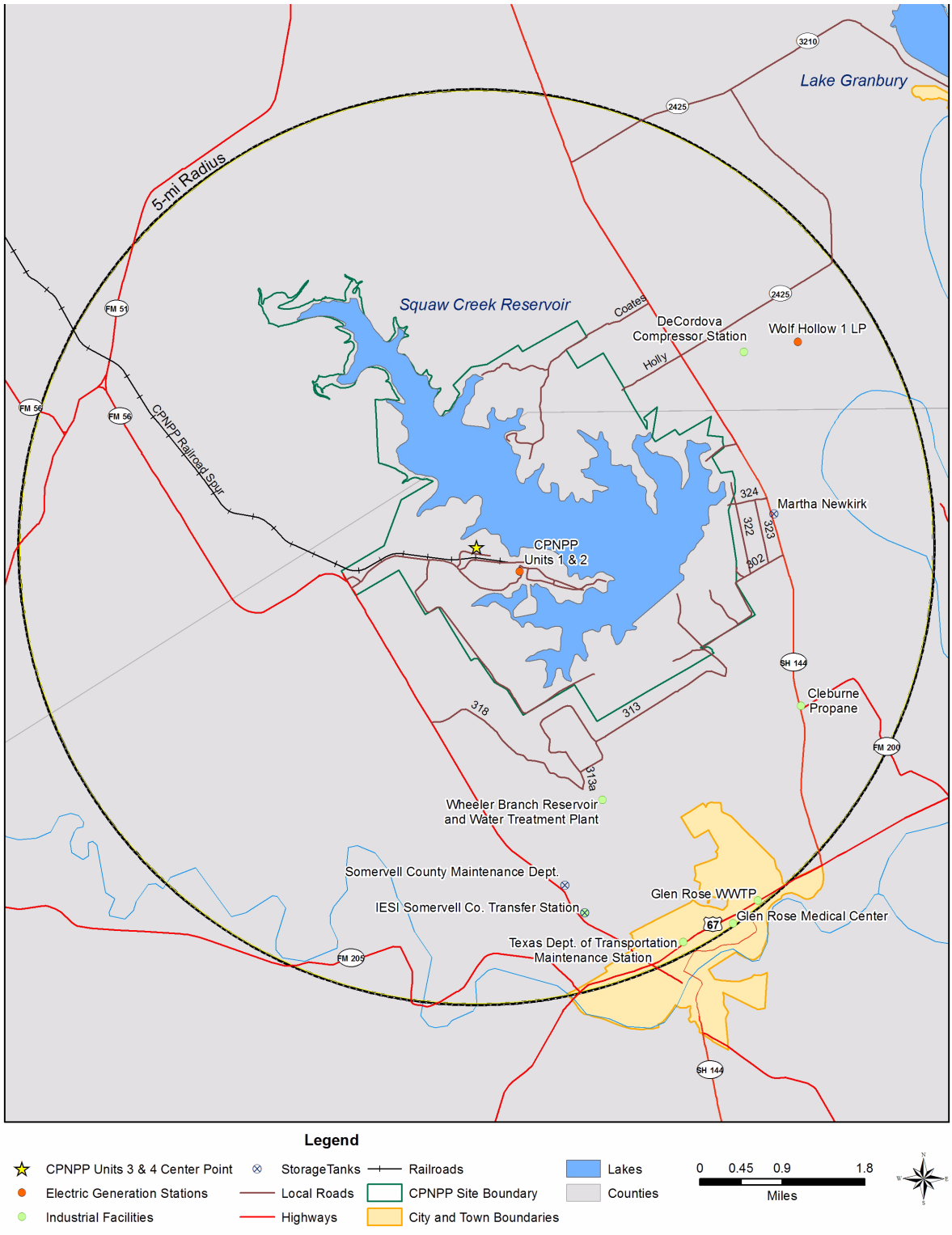

Figure 2.2-201 Transportation Routes, Storage Tank Locations, and Industrial Facilities within 5 mi of CPNPP

CTS-00696

~~**Revision: 0**~~

2.2.2.2.7 Wolf Hollow 1, LP

Wolf Hollow 1, LP is a 730-megawatt (MW) gas-fired combined-cycle power plant located 4.2 mi northeast of the CPNPP site (Reference 2.2-211). Hazardous materials stored on the Wolf Hollow 1, LP site are listed in Table 2.2-205. The OSHA permissible exposure limits for the reported toxic materials are in Tables 2.2-203 and 2.2-206.

At this time no information is available concerning on-site storage tanks. An inquiry on the TCEQ database was performed and no on-site storage tanks were reported for this facility.

2.2.2.2.8 DeCordova SES

The DeCordova SES is a conventional gas/oil steam generating plant with four additional natural gas combustion turbines. The plant is located 9.35~~3.6~~ mi northeast of the center point of CPNPP Units 3 and 4. Hazardous materials stored on-site are listed in Table 2.2-207. The OSHA permissible exposure limits for the reported toxic materials are in Table 2.2-203. CTS-00696

DeCordova SES has 13 aboveground storage tanks. The contents of the storage tanks are described in Table 2.2-208.

2.2.2.2.9 Comanche Peak Nuclear Power Plant

The existing CPNPP Units 1 and 2 are located within the CPNPP site boundary. The hazardous chemicals located on-site are listed in Table 2.2-209 while the OSHA permissible exposure limits are listed in Tables 2.2-203, 2.2-206, and 2.2-210. There are 22 aboveground storage tanks and four underground storage tanks on-site. These tanks hold petroleum products, gases, and other chemicals. The contents of the storage tanks are described in Table 2.2-211.

2.2.2.2.10 Wheeler Branch Reservoir and Water Treatment Facility

The Wheeler Branch Reservoir was completed in 2007 and is located 3.2 mi southeast of the CPNPP Units 3 and 4 center point. The reservoir has a surface area of 180 acres (ac) and a storage capacity of 4118 acre-feet (ac-ft). Plans are in place for a water treatment plant to process the 2000 ac-ft of water available each year for municipal use. The water treatment plant consists of the plant, ancillary facilities, and treated water distribution and storage facilities. The water treatment plant is expected to be constructed in 2010. It is anticipated that cylinders of chlorine are stored on-site for use in water treatment.

2.2.2.2.11 Mining and Quarrying Activities

There are no coal or lignite mines within the vicinity of CPNPP (Reference 2.2-208). There are 37 regular producing gas wells and two injection wells within 5 mi of CPNPP. The closest producing gas well to CPNPP is located 1.2 mi northwest,

Estimated annual average daily traffic (AADT) counts in 2004 indicate the following (Reference 2.2-217):

- 3020 vehicles travel on FM 56 between mile 4.2 and 5.6 (west of the site).
- 11,780 vehicles travel on US 67 at mile 1.0, located in Glen Rose east of the intersection with FM 56, while 11,730 vehicles travel US 67 west of the intersection.
- 10,570 vehicles travel on SH 144 to the south of Granbury, while 6030 vehicles travel SH 144 north of the site.

2.2.2.6 Description of Railroads

The Fort 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 is the nearest main line to CPNPP. It covers the distance between Fort Worth and Brownwood. The nearest public transportation railway is the Amtrak Texas Eagle Route that passes through Cleburne 24 mi east of CPNPP. (Reference 2.2-216)

An average of two trains per day use the Tolar route. The railroad has a 50-ft right-of-way. No radiological material is transported on this line, but four to five cars of hazardous materials are transported each month.

However, these rail harzardous materials shipments are outside the 5 mi radius of CPNPP Units 3 and 4. As a result, these potential hazardous materials were not evaluated for CPNPP Units 3 and 4. See Subsection 2.2.3 for a discussion of potential hazardous materials accidents that were evaluated. CTS-00697

2.2.2.7 Description of Airports and Airways

This subsection provides descriptions of the nearby airports and regional airways.

2.2.2.7.1 Airports

There are no commercial airports within 5 mi of CPNPP (Reference 2.2-213). The nearest public airport is located approximately 10 mi north of CPNPP in Granbury. Granbury Municipal Airport has two runways located on a single asphalt stretch, with a length and width of 3603 ft and 60 ft, respectively. Runway 14 has a heading of 144 degrees magnetic (150 degrees true north), while Runway 32 has a heading of 324 degrees magnetic (150 degrees true north). The facility is a home base of operations for 82 single-engine aircraft, six multi-engine aircraft, and two helicopters. In 2007, Granbury Municipal Airport reported an average of 73 operations per day. Of those operations, 67 percent are local general aviation, 33 percent are transient general aviation, and none are military operations. (Reference 2.2-214)

There are several modifications and repairs planned for Granbury Municipal Airport. Improvements include widening and resurfacing the existing taxiways, and building an additional runway parallel to Loop 567. All runways are intended to be upgraded to 30,000-lb pavement strength to accommodate the growing demand for business and corporate jet traffic from the Fort Worth/Dallas area (Reference 2.2-204). There have been no fatal aircraft accidents in the 5-mi radius of CPNPP in the last 20 yr. There have been four nonfatal accidents associated with Granbury in the last 10 years. (Reference 2.2-205)

Granbury Municipal Airport is the only public airport within 10 mi ~~that exceeds 500d operations a year, where "d" is the distance in miles from the airport to the site~~of the site. The reported average operations of 73 per day is well below the conservative threshold of $500D^2$ operations per year, where the variable D represents the distance in miles from the sites. There are no airports within the region that exceed the $1000D^2$ criterion.~~four public airports within the region that exceed 1000d operations per year: Cleburne Municipal Airport, Fort Worth Spinks Airport, Fort Worth Meacham International Airport, and Arlington Municipal Airport.~~ CTS-00677

Below are some predominant airports of interest outside 10 miles that do not exeed the 1000 D^2 criterion: CTS-00699

Cleburne Municipal Airport is a public, noncommercial airport located 29 mi east of the site. As of 2007, the airport had approximately 32,850 aircraft operations per year (Reference 2.2-233). There have been no fatal airplane accidents in the Cleburne area in the last 10 years. However, four nonfatal accidents have been reported during the same time period. (Reference 2.2-230)

Fort Worth Spinks Airport is a public, noncommercial airport located 33 mi northeast of the site. As of 2006, the airport had approximately 58,400 aircraft operations per year (Reference 2.2-235). There have been no fatal accidents in the Burleson area in the last 10 years. There have been two nonfatal accidents during the same time period (Reference 2.2-231).

Fort Worth Meacham International Airport is a public airport located 44 mi northeast of the site. As of 2007, the airport reported approximately 98,915 operations per year (Reference 2.2-234). There have been two fatal accidents associated with Fort Worth in the last 10 years. An additional 30 nonfatal accidents took place in the Fort Worth area during the same time frame (Reference 2.2-229).

Arlington Municipal Airport is a public, noncommercial airport located 48 mi northeast of the site. As of 2006, the airport reported approximately 151,475 operations per year (Reference 2.2-236). There have been no fatal accidents associated with the Arlington area in the last 10 years. Three nonfatal accidents took place during the same time frame (Reference 2.2-232).

simultaneously explode. The assumption of two trucks provides an added degree of conservatism. Note that this assumption bounds the explosive energy of commonly transported materials such as gasoline and propane. This conservative approach was taken because there are no restrictions on the type or quantity of materials that can be transported on the highway. The effects of blast-generated missiles would be less than those associated with the blast overpressure levels considered in Regulatory Guide 1.91. Because the overpressure criteria of the guide are not exceeded, the effects of blast-generated missiles are not considered.

There are no navigable waterways used for commercial shipping within 5 mi of the CPNPP Units 3 and 4 site, and there are no main railroad lines within 5 mi of CPNPP Units 3 and 4, as discussed in Subsection 2.2.2.6. Figure 2.2-201 shows a spur of the main railroad line that goes past CPNPP Units 3 and 4 and ends at CPNPP Units 1 and 2. This spur is used to transport materials to and from the site and is not used for commercial transportation of chemicals and commodities. Thus, this spur of the mainline is not considered to be a hazard to CPNPP Units 3 and 4.

2.2.3.1.1.2 Nearby Industrial Facilities

Subsection 2.2.2.1 identifies the following facilities located within 5 mi of CPNPP Units 3 and 4, along with any potential hazardous material stored at those locations: the IESI Somervell County Transfer Station; Wolf Hollow 1, LP; the DeCordova SES; the Glen Rose Medical Center; the Glen Rose WWTP; the Texas Department of Transportation Maintenance Station; and Cleburne Propane. Subsection 2.2.1 identifies six registered petroleum storage tanks within 5 mi of the CPNPP Units 3 and 4 site. The contents, capacities, and locations of the tanks relative to CPNPP Units 3 and 4 are summarized in Table 2.2-201.

The IESI Somervell County Transfer Station does not store any significant amount of hazardous materials. Though Wolf Hollow 1, LP does store some flammable or explosive chemicals, the quantity is too small to pose a hazard at CPNPP Units 3 and 4. Although quantities of hazardous materials were not available for Wolf Hollow, materials were screened out based upon their ability to form an explosive vapor at ambient conditions. Materials that did not screen out due to flashpoint were then assessed based upon maximum available quantities from commercial vendors, whether they were registered petroleum tanks, or expected quantities at this type of facility. The DeCordova SES does not house any chemicals that may pose a fire, explosion, or a vapor cloud risk to CPNPP Units 3 and 4. The Glen Rose Medical Center and the Glen Rose WWTP do not contain any flammable or explosive materials. There are no hazardous materials stored in significant enough quantity at the Texas Department of Transportation Maintenance Station to pose a threat to CPNPP Units 3 and 4. CTS-00698

Five registered underground storage tanks are located within 5 mi of the center point of CPNPP Units 3 and 4, three at Martha A. Newkirk and two at Somervell County Maintenance Department. Underground storage tanks do not represent a

the screening criteria, detailed analyses for control room habitability are discussed in Section 6.4.

2.2.3.1.3.1 Background

Figure 2.2-201 shows the potential stationary industrial sources and mobile sources (barge and river traffic, local highways, and local rail lines) within 5 mi of the CPNPP site. Each of these is discussed and compared to the screening criteria of Regulatory Guide 1.78 in the following sections. Distances from the hazardous chemical location to the nearest main control room (MCR) air inlet were used in the screening analysis.

Regulatory Guide 1.78 establishes the Immediately Dangerous to Life and Health (IDLH) values in National Institute for Safety and Health (NIOSH) "Pocket Guide to Chemical Hazards" as the toxicity value screening criteria for airborne hazardous chemicals. Per Regulatory Guide 1.78, the NIOSH IDLH values were utilized to screen chemicals and to evaluate concentrations of hazardous chemicals to determine their effect on control room habitability. Quantities of materials were not made available for Wolf Hollow. As a result, only chemicals with NFPA 704 Health Hazard or HMIS Health ratings for three or four materials were considered, all others were screened out. Next, several chemicals were screened out based upon shipping weights, distance from the site, quantities expected to be stored on site, and the ability of the chemical to form a vapor cloud. Of the chemicals remaining, several were screened out based upon not being stored in single volume containers greater than 100,000 lbs. For the remaining chemicals that were not screened out, the masses at Wolf Hollow were determined based upon the mass of those same chemicals located at DeCordova with an increase of 25 percent. This was based upon similar facilities and similar material quantities. Using these masses, the final screening was performed in accordance with RG 1.78, Appendix A. CTS-00698

The possible stationary and mobile sources of hazardous chemicals, as described in Subsection 2.2.2, were initially screened as potential toxicity hazards based on the properties of the chemicals housed at the facility or in the case of mobile sources that may transverse the route. Only chemicals with NFPA 704 Health Hazard or HMIS Health ratings of three or four (highly or extremely toxic, respectively) were considered as potential toxicity threats, unless otherwise specified in Regulatory Guide 1.78 or NUREG/CR-6624.

The control room habitability threats that could not initially be eliminated based on material properties or distance from the site were further investigated to determine if sufficient quantities of a chemical were housed at that location to warrant a detailed habitability analysis. Determination of the quantity of material that warranted a detailed control room habitability analysis is based on the methodology of Regulatory Guide 1.78.

2.2.3.1.3.2 Source Evaluation

The following subsections provide descriptions of the release sources.

2.2.3.1.3.2.1 Mobile Sources

Of the three mobile sources (road, railroad, and waterway), only roadways are within 5 mi of the site; neither railroads nor waterways need be considered further based on the distance criteria prescribed in Regulatory Guide 1.78.

Roadway FM 56 poses the largest potential mobile risk to the CPNPP Units 3 and 4 control rooms due to postulated hazardous chemical releases. FM 56 serves as the bounding case because it is closest to the site (1.4 mi to the nearest MCR inlet) among the three roadways within 5 mi, and any registered hazardous material is permitted to travel this roadway. Based on a postulated chlorine release, the quantity of hazardous material that may transverse FM 56 is greater than the acceptable quantity as identified in Regulatory Guide 1.78. The frequency of a hazardous chemical release on roads was also examined. Results show the total frequency for a road-based hazardous material release is higher than the 1.0E-6 screening frequency of Regulatory Guide 1.78. Therefore, a more detailed control room habitability analysis is necessary for roadway transportation. Table 2.2-214 summarizes the chemical, quantity, and distance to the nearest CPNPP Units 3 and 4 MCR inlet to be considered for the control room habitability analysis in Section 6.4.

2.2.3.1.3.2.2 Stationary Sources

The fixed facilities that could not be initially screened out based on the chemicals stored at the facility are: Wolf Hollow I, LP; Cleburne Propane; DeCordova SES; and Glen Rose WWTP.

The hazardous chemicals housed at Glen Rose WWTP and Cleburne Propane are not sufficiently large to warrant a detailed habitability analysis based on the methodology in Regulatory Guide 1.78. DeCordova SES houses 15,294 lb of sodium hydroxide and 45,981 lb of sulfuric acid~~, which are sufficient~~these quantities ~~at~~were evaluated based upon a distance of 3.7~~6~~ mi from the nearest MCR inlet~~ to warrant a more detailed control room habitability evaluation~~. This is conservative as the actual distance to DeCordova is 9.35 miles, which could have eliminated DeCordova from consideration in accordance with RG 1.75. Wolf Hollow I, LP houses sodium hydroxide and sulfuric acid in sufficient quantities to warrant a more detailed control room habitability analysis. Those quantities are 19,118 lb and 57,477 lb, respectively, at 3.9 mi from the nearest MCR inlet. CTS-00696

Sunoco Pipeline, LP operates a pipeline which carries crude oil. This pipeline was the only pipeline that was not initially screened out based on the toxicity of the substance being transported. Crude oil may contain significant amounts of hydrogen sulfide, which is a toxic chemical. A postulated pipeline release may contain sufficient quantities of hydrogen sulfide to warrant a more detailed control

Granbury. The small size of these lakes does not produce the conditions conducive to waterspouts.

2.3.1.2.4 Thunderstorms

Thunderstorms, from which damaging local weather can develop (tornadoes, hail, high winds, and flooding), occur about 16~~eight~~ days each year based on data from the counties surrounding the site (Reference 2.3-225). The maximum frequency of thunderstorms and high wind events occurs from April to June, while the months from November through February have few thunderstorms. The ~~monthly and regional~~ distributions of thunderstorms and high wind events by county are displayed in Table 2.3-211. MET-03 MET-03

2.3.1.2.5 Lightning

Data on lightning stroke density is becoming more readily available due to the National Lightning Detection Network (NLDN), which has measured cloud to ground lightning for the contiguous United States since 1989. Prior to the availability of these data, isokeraunic maps of thunderstorm days were used to predict the relative incidence of lightning in a particular region. A general rule, based on a large amount of data from around the world, estimates the earth flash mean density to be 1-2 cloud to ground flashes per 10 thunderstorm days per sq km (Reference 2.3-211). The annual mean number of thunderstorm days in the site area is conservatively estimated to be 48 based on interpolation from the isokeraunic map (Reference 2.3-212); therefore it is estimated that the annual lightning stroke density in the CPNPP site area is 25 strikes/sq mi/yr. Other studies gave a ground flash density, (GFD) (strikes/km^2/yr), based on thunderstorm days per year (TSD) as GFD = 0.04 $(TSD)^{1.25}$ = 0.04 $(48)^{1.25}$ = 5 strikes/km^2/yr or 13 strikes/mi^2/yr (Reference 2.3-213).

Recent studies based on data from the National Lightning Detection Network (NLDN) (Reference 2.3-214) indicate that the above strike densities are upper bounds for the CPNPP site. Mean annual flash density given in Huffines and Orville (Reference 2.3-214) for 1989 – 96 is 3 to 5 strikes/km^2/yr or 13 strikes/mi^2/yr in North Central Texas.

2.3.1.2.6 Hail

Almost all localities in Texas occasionally experience damage from hail. While the most commonly reported hailstones are 1/2 to 3/4 inch in diameter, hailstones 3 to 3-1/2 inch in diameter are reported in Texas several times a year. (Reference 2.3-205)

During the period January 1, 1950 through March 31, 2007 there were 707 reports of large hail (3/4 in diameter or larger) occurrences within the five county area (Somervell, Bosque, Erath, Hood, and Johnson) around the site (Reference 2.3-225). This gives a mean annual frequency of 12.3 hailstorms per year for this

Texas is not a heavy snow load region. ANSI/ASCE 7-05, "Minimum Design Loads for Buildings and Other Structures," (Reference 2.3-220) identifies that the ground snowload for the CPNPP area is 4 lbf/ft^2 based on a 50-yr recurrence. This is converted to a 100-yr recurrence weight of 4.9 lbf/ft^2 (psf) using a factor of 1.22 (1/0.82) taken from ANSI/ASCE 7-05 Table C7-3. Local snow measurements support this ANSI/ASCE 7-05 value.

To estimate the weight of the 100-yr snowpack at the CPNPP site, the maximum reported snow depths at the Dallas Fort Worth Airport were determined. Table 2.3-202 shows that the greatest snow depth over the 30-yr record is 8 in. The 100-yr recurrence snow depth is 11.2 in using a factor of 1.4 to convert from a 30 yr recurrence interval to 100-yr interval (Reference 2.3-220). MET-04

Freshly fallen snow has a snow density (the ratio of the volume of melted water to the original volume of snow) of 0.07 to 0.15, and glacial ice formed from compacted snow has a maximum density of 0.91 (Reference 2.3-221). In the CPNPP site area, snow melts and/or evaporates quickly, usually within 48 hours, and does so before additional snow is added; thus, the water equivalent of the snowpack can be considered equal to the water equivalent of the falling snow as reported hourly during the snowfall. A conservative estimate of the water equivalent of snowpack in the CPNPP site area would be 0.20 in of water per inch of snowpack. Then, the water equivalent of the 100-yr return snowpack would be 11.2 in snowpack x 0.2 in water equivalent/inch snowpack = 2.24 in of water.

Because one cu in of water is approximately 0.0361 pounds in weight, a one in water equivalent snowpack would exert a pressure of 5.20 pounds per sq ft (0.0361 lb/cu in x 144 sq in). For the 100-yr return snowpack, the water equivalent would exert a pressure of 11.7 pounds per sq ft (5.20 lbm/sq ft/in x 2.24 in). This very conservative estimate is approximately twice the value provided in ANSI/ASCE 7-05.

The 100-yr return period snow and ice pack for the area in which the plant is located, in terms of snow load on the ground and water equivalent, is listed below:

- Snow Load = 11.7 lb/ft^2
- Ice Load = 5.06 in * 5.20 lb/ft^2/in = 26.1 lb/ft^2

From Hydrometeorological Report No. 53, NUREG/CR-1486, the 24-hour Probable Maximum Winter Precipitation (PMWP) for a 10 sq-mi area is estimated to be ~~43~~27 in. The 72-hour PMWP for a 10 sq-mi area is estimated to be ~~53~~35 in. Assuming a linear relationship between these values gives a 48-hour PMWP of ~~48~~31 in. Because of the southern location of the site, almost all of this PMWP occurs as liquid. As stated in the US-APWR DCD Subsection 3.4.1.2, If PMWP were to occur, US-APWR safety-related systems and components would not be jeopardized. US-APWR seismic category I building roofs are designed as a drainage system capable of handling the PMWP. The US-APWR DCD also states CTS-00647 CTS-00647

The 3-second gust wind speed for a 100-yr return period is 96 mph. The importance factor is 1.15 and the exposure category is C. Wind loadings for the site are discussed in Subsection 3.3.1.

2.3.2 Local Meteorology

CP COL 2.3(1) Replace the content of DCD Subsection 2.3.2 with the following.

2.3.2.1 Normal and Extreme Values of Meteorological Parameters

The CPNPP site is located approximately equidistant between Cleburne and Stephenville, Texas, west of the Brazos River. The site elevation is approximately 822 ft mean sea level (msl). The terrain slopes gradually from 300 to 700 ft msl southeast of the site to 1200 to 1800 ft msl northwest of the site (Reference 2.3-205).

2.3.2.1.1 General

In this subsection, the normal and extreme statistics of wind, temperature, water vapor, precipitation, fog, and atmospheric stability are described. Long-term data from proximal weather stations (Figure 2.3-207) have been used to supplement the shorter-term on-site data.

2.3.2.1.2 Surface Winds

Annually, the prevailing surface winds in the region are from the south to southeast while the average wind speed is about 10 mi per hour (mph) based on-site data from 2001-2004 and~~through~~ 2006. As shown on Figures 2.3-208 through 2.3-210, the annual resultant wind vectors for the Dallas Fort Worth Airport, Mineral Wells, and CPNPP are 149°, 138°, and 153°, respectively. The annual average wind speeds for Dallas Fort Worth Airport, Mineral Wells, and CPNPP are 10.3, 9.0, and 9.8 mi per hour, respectively. In winter there is a secondary wind direction maximum from the north to northwest due to frequent outbreaks of polar air masses (Figures 2.3-274 and 2.3-306). MET-13

Percentage frequencies of surface wind direction, by wind speed, at the Dallas Fort Worth Airport for the yr 1997 – 2006 are shown on a monthly and annual basis in Tables 2.3-220 through 2.3-232. According to the annual table, surface wind directions at the Dallas Fort Worth Airport are from the southeast, south-southeast, and south 43 percent of the time. These directions predominate during the individual months also, but to a lesser extent during November through March. The annual average wind speed (shown in Table 2.3-232) is 10.3 mi per hour. The maximum average wind speed (12.7 mph) occurs in the spring, while the minimum (8.2 mph) occurs in the fall.

Percentage frequencies of surface wind direction, by wind speed, at the Mineral Wells Airport for the yr 2001 – 2006 are shown on a monthly and annual basis in Tables 2.3-233 through 2.3-245. According to the annual table, Table 2.3-245,

This figure shows that the annual mean of the monthly mean maximum temperature varied from approximately 74°F to 78°F over the last 70 yr. The annual mean of the monthly mean for Weatherford, Figure 2.3-320, shows that the annual mean has varied from about 62°F to 66°F over the last 45 yr. The annual mean before 1960 was slightly higher. The variation of the annual mean of the monthly minimum temperature at Weatherford (Figure 2.3-321) over the same time period (1897 – 2005) is less consistent showing a downward trend in temperature to a range of 49°F to 54°F in the last 45 yr.

The monthly minimum, mean, and maximum temperatures at the site are shown in Table 2.3-285. The annual daily mean at the site is 67°F, which is only slightly higher than the regional data. The monthly mean, minimum, and maximum temperatures at CPNPP over the time period of 2001-2004 and —2006 are shown on Figure 2.3-322. The monthly mean, minimum, and maximum temperatures at Mineral Wells over the time period of 1971 – 2000 are shown on Figure 2.3-323. Comparison of the site data from Figure 2.3-322 with the Mineral Wells data in Figure 2.3-323 shows good general agreement but with relatively higher winter temperatures reported at the CPNPP site. This is due to the shorter period of record at the CPNPP site. The daily mean, minimum, and maximum temperatures at Mineral Wells over the time period of 1971 – 2000 are shown on Figure 2.3-324. MET-13

Annual exceedance dry bulb and wet bulb temperature values for Dallas/Fort Worth International Airport (0.4 percent, 1 percent, and 2 percent) are given in Table 2.3-202 along with the 100-yr return dry bulb and wet bulb temperatures.

2.3.2.1.4 Water Vapor

Monthly and annual average relative humidity for four different times of day are given in Table 2.3-286 from 10 yr of record at the Dallas Fort Worth Airport weather station. Based on these data the annual average relative humidity is estimated to be about 65 percent. Monthly and annual average relative humidity for four different times of day are given in Table 2.3-287 from five yr of record at the Mineral Wells Airport. Based on these data the annual average relative humidity at Mineral Wells is estimated to be about 69 percent. The monthly and annual mean dewpoint temperatures and extreme maximum and minimum dewpoint temperatures are shown in Table 2.3-288, based on 1949 – 2006 data from the Mineral Wells Airport. The average daily dewpoint temperature from Mineral Wells Airport for the same time period is shown on Figure 2.3-325. MET-04

Based on 10 yr of data (1997 – 2006) from the Dallas Fort Worth Airport (Table 2.3-289), the worst one-day (May 26, 1997) average wet bulb temperature was 78.6°F and the corresponding average dry bulb temperature was 83.6°F. The worst five consecutive day period (June 29, 1997 – July 3,1997) is given in Table 2.3-290. The average wet bulb temperature for these five days was 77.4°F and the corresponding dry bulb temperature of 84.6°F. The worst 30 day consecutive period for Forth Worth is given in Table 2.3-291. The average wet bulb temperature for this period (July 4, 2001 through August 2, 2001) was 76.1°F and

Channeling of air flow, the other potential topographical effect, was evaluated in the CPNPP Unit 1 and 2 UFSAR by comparing the 10-meter wind directions with wind direction data from Dallas Love Field, where surroundings are relatively flat. A significant increase in wind direction frequencies for both up and down valley sectors (WNW, NW, NNW, ESE, and SE) would occur if channeling is an important influence. Approximately eight months of concurrent wind direction data were evaluated indicating that channeling of the air along Squaw Creek is not a prominent effect.

The channeling and air-drainage study results presented in the Unit 1 and 2 UFSAR are indicative of a relatively flat terrain with little, if any, topographic effect on the local airflow.

2.3.2.2.4 Cooling Tower Plume

The following discussion focuses on an evaluation of cooling tower plume effects. An assessment of the contribution of moisture to the ambient environment from cooling tower blowdown waste heat discharge is included. Finally, a qualitative evaluation of the effects of the cooling system on daily variations of several meteorological parameters is presented.

The operation of two Linear Mechanical Draft Cooling Towers (LMDCT) for each unit at the site results in the emission of small water droplets entrained in the tower air flow (i.e., drift). The droplets contain the dissolved solids found in the circulating water (e.g., salts) that may eventually deposit on the ground as well as on structures and vegetation. The drift droplet emissions are controlled by the use of drift eliminators that rely on inertial separation caused by exhaust flow direction changes. In addition to drift emissions, there is another potential impact of the cooling towers to the environment: the warm saturated air leaving the towers is cooled by the ambient air such that the water vapor condenses into a visible plume that may persist for some distance downwind depending on meteorological conditions (e.g., wind speed, relative humidity). These visible plume occurrences may pose some aesthetic and ground shadowing impacts. Under relatively high wind speeds and humid conditions, the aerodynamic wake turbulence may result in the visible plume touching down causing ground level fogging and, under freezing conditions, icing.

The meteorological data used in the plume analysis is a hybrid of various data sources, but the impact of merging these sources is assumed to be insignificant compared to the inherent uncertainties of predicting future meteorological conditions. The wind speeds and direction are taken from the site meteorology tower for the years 2001-2006: the temperature, humidity, and cloud cover data are from the national weather station at Mineral Wells located 37 mi to the northwest, and the mixing height data is from the airport at Stephenville, 20 mi to the southwest. The topography within 37 mi indicates no major terrain changes that would cause any of these locations to have a different microclimate from the other two. The general site is approximately 822 ft elevation, while Mineral Wells is at 930 ft and Stephenville is 1321 ft with no intervening hills or valleys. MET-13

CP COL 2.2(1)

Table 2.2-205
Hazardous Materials at Wolf Hollow 1, LP*

CTS-00698

Chemical Inventory
1,1 Dichloro-1-fluroethane, isopropyl alcohol
Benzene
Ethyl cyanoacrylate, hydroquinone
Carbon dioxide
Methylene chloride, methyl alcohol, propylene oxide
Phosphoric acid
Heptane, mineral spirits
Isopropyl alcohol
Light aliphatic naptha
Sodium hydroxide (Caustic soda)
Ethanol amine & HCL (Rea L 1254)
Sulfuric acid
Petroleum solvent
Industrial gear oil
Distillates, hydrotreated heavy paraffinic
Gasoline
Petroleum distillates
Diesel
Aerokroil, petroleum based oil

*Quantities of chemicals were not available from Wolf Hollow. Subsection 2.2.3.1.1.2 and 2.2.3.1.3.1 discuss the screening criteria used in establishing what hazardous materials were used in the Explosion Hazards Analysis and Control Room Habitability Analysis, respectively.

CTS-00698

CP COL 2.2(1)

Table 2.2-214
Toxic Chemicals that do not Meet the Regulatory Guide 1.78 Screening Criteria[a]

CTS-00696

Hazardous Chemical Location	Chemicals	Quantity	Distance to the Nearest Units 3 and 4 MCR Inlet	IDLH	Calculated Maximum Concentration in Control Room
Roadway FM 56	Chlorine	42,500 lb	1.4 mi	1.0E+01 ppm	5.7 ppm
DeCordova SES	Sodium hydroxide	15,294 lb	3.7~~6~~ mi[b]	10 mg/m^3	Not Analyzed[c]
	Sulfuric acid	45,981 lb		15 mg/m^3	1.9E-4 mg/m^3
Wolf Hollow 1, LP	Sodium hydroxide	19,118 lb	3.9 mi	10 mg/m^3	Not Analyzed[c]
	Sulfuric acid	57,477 lb		15 mg/m^3	2.0E-4 mg/m^3
Sunoco Pipeline, LP	Hydrogen sulfide	1716 lb	0.33 ml	1.0E+02 ppm	4.17 ppm
CPNPP Units 1 and 2, Waste Management Bldg.	Sulfuric acid	1250 gal (19,159 lb)	733 ft	15 mg/m^3	1.75E-03 mg/m^3
CPNPP Units 1 and 2, Bulk Gas Storage	Liquefied petroleum gas	4000 gal	1400 ft	2.10E+03 ppm	3.63E+01 ppm
	Carbon dioxide	6000 lb		4.0E+04 ppm	1.46E+01 ppm
CPNPP Units 3 and 4, Water Treatment Chemicals	Morpholine	10,000 gal	<300 ft	1.4E+03 ppm	3.49E-01 ppm
	Dimethylamine	5000 gal	<300 ft	5.00E+02 ppm	1.65E+01 ppm
	Hydrazine	1000 gal	<300 ft	5.0E+01 ppm	9.29E-02 ppm
	Ammonia	1000 gal	<300 ft	3.0E+02 ppm	2.70E+01 ppm
	Sulfuric acid	10,000 gal	<1200 ft	15 mg/m^3	6.19E-03 mg/m^3

a) These chemicals do not meet the Regulatory Guide 1.78 screening criteria. They are further evaluated for control room habitability in Section 6.4.

b) Evaluations were completed using 3.7 miles. Actual distance is 9.35 miles, as shown in Subsection 2.2.2.2.8. Therefore, the results of these evaluations are conservative.

CTS-00696

c) This chemical does not readily disperse; therefore, it was not analyzed.

Table 2.3-211
Thunderstorms and High Wind Events

CP COL 2.3(1)

Month	Bosque (#)	Erath (#)	Hood (#)	Johnson (#)	Somervell (#)	All Five Areas (#)	Average per Yr (#/yr)
Jan	1	2	1	1		5	0.190.21
Feb		2	2	6		10	0.390.42
Mar	7	6	5	2	2	22	0.860.92
Apr	10	15	6	19	7	57	2.222.38
May	15	24	19	26	11	95	3.703.96
Jun	14	22	21	23	13	93	3.623.88
Jul	4	2	2	8	1	17	0.660.71
Aug	3	2	8	15	5	33	1.291.38
Sep	3	5	8	5	3	24	0.941.00
Oct	6	5	6	13	2	32	1.251.33
Nov	3		1	4	1	9	0.350.38
Dec	1	2	2	6	1	12	0.470.50
Total	67	87	81	128	46	409	15.7317.04
Percent	16.4%	21.3%	19.8%	31.3%	11.2%	100%	

MET-03

NOTES:

1. Storms listed at different sites in the same county on the same day were counted as separate events.
2. Data obtained for the period January 1, 1950 through July 31, 2006. Prior to 1981, the yearly storm averages were markedly less frequent, suggesting less thorough storm data collection. Consequently, the average/yr was based on 1981 through 7/31/20062006 data (~24 yr)

MET-13

3. CPNPP site is in Somervell County. The other counties listed surround Somervell County.
4. Data recorded in the NOAA Storm Events Database, 1950 – 2005 http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms.

Table 2.3-285
CPNPP Normal Temperatures

CP COL 2.3(1)

	Daily Minimum	Daily Mean	Daily Maximum
JAN	22.3	49.6	89.0
FEB	19.2	48.9	84.6
MAR	32.9	58.3	93.0
APR	49.4	69.2	100.2
MAY	47.5	75.2	98.9
JUN	65.0	80.3	100.2
JUL	72.7	84.9	103.1
AUG	66.6	85.1	105.0
SEP	56.8	77.4	97.8
OCT	42.3	68.4	93.2
NOV	28.0	58.0	88.0
DEC	18.6	50.8	78.5
Annual	43.4	67.2	94.3

Reference: CPNPP site data 2001-2004 and 2006~~2001 – 2006~~. MET-13

Table 2.3-286
Relative Humidity Dallas Fort Worth Airport
for 4 Time Periods Per Day

MET-04

CP COL 2.3(1)

	1997 – 2006			
Time	00:00-06:00	06:00-12:00	12:00-18:00	18:00-24:00
Jan	76%	72%	56%	66%
Feb	78%	74%	58%	67%
Mar	76%	69%	54%	65%
Apr	76%	67%	52%	63%
May	80%	70%	55%	66%
Jun	80%	70%	54%	65%
Jul	72%	62%	44%	55%
Aug	69%	60%	43%	54%
Sep	72%	63%	45%	58%
Oct	77%	69%	52%	65%
Nov	78%	71%	54%	67%
Dec	75%	69%	53%	65%
Annual	76%	68%	52%	63%

NOTES:

1. Data from Local Climatological Data, National Oceanic and Atmospheric Administration, U. S. Department of Commerce, Asheville, NC, Dallas Fort Worth International Airport, Station No. 03927.

Table 2.3-296
Rainfall Frequency Distribution
Dallas Fort Worth Airport MET-04

CP COL 2.3(1)

NUMBER OF HOURS PER MONTH, AVERAGE YR

Rainfall (in/hr)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.01-0.019	9	12	12	6	5	7	2	4	4	10	11	10
0.02-.099	16	25	15	10	11	15	4	7	8	14	16	18
0.10-0.249	5	6	6	5	6	4	2	3	3	6	4	6
0.25-0.499	1	2	2	2	2	2	1	1	1	2	2	2
0.50-0.99	0	1	1	1	2	1	1	1	0	1	0	0
1.00-1.99	0	0	1	0	1	0	0	0	0	0	0	0
2.0 & over	0	0	0	0	0	0	0	0	0	0	0	0
Total	32	45	35	24	26	29	10	15	16	34	33	37

NOTES:

1. Instances of "trace" precipitation were not counted in determining hours of precipitation.

2. Data from Local Climatological Data, National Oceanic and Atmospheric Administration, U. S. Department of Commerce, Asheville, NC, Dallas Fort Worth International Airport, Station No. 03927.

3. Period of Record – 10 yr (1997 – 2006).

Table 2.3-299 (Sheet 1 of 2)
Percent of Total Observations (by Month) of Indicated Wind Directions and Precipitation
Dallas Fort Worth Airport MET-04

CP COL 2.3(1)

Sector	January	February	March	April	May	June	July	August	September	October	November	December	Total
N	2.06	2.59	1.56	0.75	1.23	0.98	0.65	0.50	0.75	1.57	2.06	1.90	16.60
N-NE	0.76	1.12	0.80	0.56	0.53	0.45	0.20	0.37	0.56	0.61	0.81	1.09	7.87
NE	0.28	0.78	0.59	0.20	0.34	0.25	0.03	0.16	0.31	0.55	0.72	0.65	4.86
E-NE	0.67	0.81	0.78	0.39	0.30	0.41	0.05	0.28	0.25	0.45	0.64	0.78	5.80
E	1.06	1.18	1.42	0.59	0.67	0.59	0.27	0.36	0.64	0.62	0.51	0.64	8.56
E-SE	0.87	0.95	0.90	0.55	0.47	0.89	0.36	0.33	0.42	0.64	0.51	0.73	7.62
SE	0.64	1.11	0.95	0.84	0.65	1.00	0.41	0.31	0.23	0.90	0.69	0.55	8.28
S-SE	0.53	0.70	0.86	0.98	0.75	1.08	0.31	0.31	0.27	1.39	0.62	0.47	8.26
S	0.94	1.20	0.61	1.04	1.06	1.15	0.42	0.47	0.30	1.18	0.59	0.61	9.57
S-SW	0.27	0.19	0.31	0.30	0.28	0.34	0.19	0.25	0.12	0.22	0.20	0.22	2.88
SW	0.08	0.16	0.22	0.20	0.09	0.16	0.12	0.19	0.08	0.11	0.09	0.12	1.62
W-SW	0.08	0.14	0.14	0.16	0.09	0.11	0.08	0.11	0.08	0.16	0.11	0.17	1.42
W	0.09	0.14	0.25	0.30	0.16	0.19	0.05	0.23	0.22	0.22	0.19	0.30	2.32

Table 2.3-299 (Sheet 2 of 2)
Percent of Total Observations (by Month) of Indicated Wind Directions and Precipitation
Dallas Fort Worth Airport

MET-04

CP COL 2.3(1)

Sector	January	February	March	April	May	June	July	August	September	October	November	December	Total
W-NW	0.41	0.20	0.30	0.17	0.09	0.08	0.02	0.03	0.14	0.25	0.30	0.19	2.17
NW	0.42	0.41	0.64	0.37	0.27	0.19	0.09	0.08	0.20	0.55	0.67	0.53	4.41
N-NW	0.97	0.97	0.69	0.31	0.51	0.20	0.28	0.16	0.48	0.76	1.23	1.17	7.73
Total	10.12	12.64	11.01	7.72	7.50	8.06	3.54	4.13	5.05	10.18	9.95	10.12	100

NOTES:

1. Instances of "trace" precipitation were counted as precipitation.

2. Data from Local Climatological Data, National Oceanic and Atmospheric Administration, U. S. Department of Commerce, Asheville, NC, Dallas Fort Worth International Airport, Station No. 03927.

3. Period of Record – 10 yr (1997 – 2006).

Chapter 3

Chapter 3 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00638	3.3.1.2	3.3-1	Clarification	Add “CPNPP Units 3 and 4 do not have site-specific seismic category II buildings and structures”.	0
CTS-00600	3.7.1	3.7-3	Editorial correction	Change “is” to “has been”.	0
MAP-03-001	3.7.4.2 3.7.5	3.7-12 3.7-14	Deletion of COL item	Delete COL item.	0
MAP-03-002	3.7.4.5 3.7.5	3.7-12 3.7-13 3.7-14	Deletion of COL item	Delete COL item.	0
CTS-00532	Table 3.7.2-1R	3.7-17 3.7-18	Editorial correction	Revise LMN to highlight changes.	0
MAP-03-003	3.8.1.4.1.3 3.8.6	3.8-1 3.8-13 3.8-14	Deletion of COL item	Delete COL item.	0
MAP-03-004	3.8.1.5.1.2 3.8.1.5.2.2 3.8.6	3.8-1 3.8-1 3.8-14	Deletion of COL item	Delete COL item.	0
CTS-00602	3.8.1	3.8-2	Clarification	Change “Chapter 2” to “Subsection 2.5.4”.	0
MAP-03-005	3.8.1.6 3.8.6	3.8-2 3.8-14	Deletion of COL item	Delete COL item.	0
MAP-03-006	3.8.1.6 3.8.6	3.8-2 3.8-14	Deletion of COL item	Delete COL item.	0
MAP-03-007	3.8.1.6 3.8.6	3.8-2 3.8-14	Deletion of COL item	Delete COL item.	0
MAP-03-008	3.8.1.6 3.8.6	3.8-3 3.8-14	Deletion of COL item	Delete COL item.	0
MAP-03-009	3.8.1.6 3.8.6	3.8-3 3.8-14	Deletion of COL item	Delete COL item.	0
MAP-03-010	3.8.1.6 3.8.6	3.8-3 3.8-14	Deletion of COL item	Delete COL item.	0
MAP-03-011	3.8.1.6 3.8.6	3.8-3 3.8-14	Deletion of COL item	Delete COL item.	0
CTS-00607	3.8.4.1.3.2	3.8-6 3.8-7	Editorial correction	Change “the ESW pump houses” to “UHS ESW pump house”.	0

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
MAP-03-012	3.8.4.7	3.8-11	Revision of COL Item	Change “Monitoring of seismic category I structures is required to be performed” to “a site-specific program for monitoring and maintenance of seismic category I structures is performed”.	0
Change ID No.	Section	Page	Reason for change	Change Summary	Rev. of T/R
CTS-00603	Table 3.9-202	3.8-18	Consistent with DCD Rev.1	Change unit and number in the table.	0
CTS-00604	3.9.3.4.2.5	3.9-2	Editorial correction	Clarify wording.	0
CTS-00531	3.9.3.4.2.5	3.9-2	Editorial correction	Change “are” to “is”.	0
CTS-00605	Table 3.9-201	3.9-5	Editorial correction	Change COL item number.	0
MAP-03-014	3.10 3.10.7	3.10-1 3.10-3	Deletion of COL item	Delete COL item.	0
CTS-00606	3.11	3.11-1	Clarification	Replace EQ program implementation dates with milestones.	0
CTS-00639	3.11.5	3.11.3	Editorial correction	Change “Table 3D-201 by completion of [Later]” to “the Equipment EQ Technical Report (Reference 3.11.3)”.	0
MAP-03-015	3.13.1.2.3 3.13.3	3.13-1 3.13-2	Deletion of COL item	Delete COL item.	0
MAP-03-016	3.13.1.2.5 3.13.3	3.13-1 3.13-2	Deletion of COL item	Delete COL item.	0

Chapter 4

Chapter 4 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R

Chapter 5

Chapter 5 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00528	5.2.1.2	5.2-1	Editorial correction	Include words about RG 1.84.	0
CTS-00675	5.2.1.2	5.2-1	Editorial correction	Add "Units 3 and 4" after Comanche Peak Nuclear Power Plant. Delete a period in LMN	0

Chapter 6

Chapter 6 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00518 CTS-00644	6.4.4	6-i 6.4-1 6.4-3 1.8-43	To reflect resolution of acceptance review issue	Include dose evaluation in the control room due to a post-accident release from the other US-APWR unit or existing CPNPP unit.	0
	6.4.4		Editorial correction	Add Subsection “6.4.4.2” in Table 1.8-201 and Subsection 6.4.7.	0
CTS-00642	6.1	6.1-1	Update	All 6.1 COL Items have been deleted from the DCD. This FSAR section is now IBR with no departures or supplements.	0
MAP-06-001	6.1.1.2.2	6.1-2	Deletion of COL Item	Delete COL Item.	0
MAP-06-002	6.1.1.1	6.1-1 6.1-2	Deletion of COL Item	Delete COL Item.	0
MAP-06-003	6.1.1.2.1	6.1-1 6.1-2	Deletion of COL Item	Delete COL Item.	0
MAP-06-004	6.1.1.2.1	6.1-1 6.1-2	Deletion of COL Item	Delete COL Item.	0
MAP-06-005	6.1.2	6.1-2 6.1-3	Deletion of COL Item	Delete COL Item.	0
MAP-06-006	6.2.1.1.3.4 6.2.1.5.7	6.2-1 6.2-3	Deletion of COL Item	Delete COL Item.	0
MAP-06-007	6.2.2.3 Table 6.2.2-2R	6.2-1 6.2-4 6.2-6	Deletion of COL Item	Delete COL Item.	0
MAP-06-008	6.2.4.2	6.2-2 6.2-3	Deletion of COL Item	Delete COL Item.	0
MAP-06-009	6.2.5.2	6.2-2 6.2-3	Deletion of COL Item	Delete COL Item.	0
DCD_06.02.06-2	6.2.6.1	6.2-3	DCD_RAI 06.02.06-2	Change “first sentence “ to “first and second sentences”.	0
CTS-00643	6.3	6.3-1	Update	All 6.3 COL Items have been deleted from the DCD. This FSAR section is now IBR with no departures or supplements.	0
MAP-06-011	6.3.2.8	6.3-1 6.3-2	Deletion of COL Item	Delete COL Item.	0
MAP-06-012	6.3.2.2.4	6.3-1 6.3-2	Deletion of COL Item	Delete COL Item.	0

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
MAP-06-013	6.3.2.4	6.3-1 6.3-2	Deletion of COL Item	Delete COL Item.	0
Change ID No.	Section	Page	Reason for change	Change Summary	Rev. of T/R
MAP-06-014	6.4.3 6.4.7	6.4-1 6.4-3	Revision of COL Item	Revise COL Item to only discuss automatic actions and manual procedures for the MCR HVAC system in the event of postulated toxic gas release.	0
MAP-06-015	6.4.2.2.1	6.4-1 6.4-3	Deletion of COL Item	Delete COL Item.	0
CTS-00652	6.4.4.2 6.4.7	6.4-2 6.4-3	Re-evaluation of COL Item	Associate COL 6.4(2) with Subsection 6.4.4.2.	0
CTS-00653	6.4.4.2	6.4-3	Erratum	Change “5.2 ppm “ to “5.7 ppm”.	0
MAP-06-016	6.5.1.7	6.5-1	Deletion of COL Item	Delete COL Item.	0
MAP-06-018	6.6.8	6.6-1	Revision of COL Item	Revise description to only identify the implementation milestone of the program.	0
CTS-00696	6.4.4.2	6.4-1	NRC Staff Reviewer Comment Incorporation from 03-23-25-09 Hazards Analysis Audit	Added pointer to Table 2.2-214 for toxic chemicals that do not meet RG 1.78 screening criteria.	1

adjacent US-APWR unit due to a radiological release from the other US-APWR unit is bounded by the dose to control room operators in the affected unit. While it is possible that the other US-APWR unit may be downwind in an unfavorable location, the dose at the downwind unit would be bounded by what has already been evaluated for a single US-APWR unit in the DCD. In addition, because the shortest distance between existing Comanche Peak Unit 1 or Unit 2 and US-APWR Unit 3 or Unit 4 is several times the separation between Unit 3 and Unit 4, the dose to either US-APWR unit control room from either existing operating unit would be bounded by a release at the same US-APWR Unit. Simultaneous post-accident radiological releases from multiple units at a single site are not considered to be credible. CTS-00518 CTS-00644

6.4.4.2 Toxic Gas Protection

CP COL 6.4(1)
CP COL 6.4(2)

Replace the second paragraph in DCD Subsection 6.4.4.2 with the following. CTS-00518 CTS-00652

The control room habitability analyses consider postulated releases of toxic chemicals from mobile and stationary sources in accordance with the requirements of RG 1.78. Chemicals, including chemicals in Comanche Peak Nuclear Power Plant (CPNPP) Units 1 and 2, are identified and screened as described in Subsection 2.2.3.1.3.

Several hazardous chemicals exceed the screening criteria provided in RG 1.78 and an analysis is required to determine control room concentrations. Toxic chemicals that do not meet RG 1.78 screening criteria are identified in Table 2.2-214, and calculated maximun control room concentrations of each chemical are also described in Table 2.2-214. Using conservative assumptions and input data for chemical source term, CPNPP Units 3 and 4 control room parameters, site characteristics, and meteorology inputs, postulated chemical releases are analyzed for maximum value concentration to the MCR using the HABIT code, version 1.1. RG 1.78 specifies the use of HABIT 1.1 software for evaluating control room habitability. HABIT software includes modules that evaluate radiological and toxic chemical transport and exposure. For this analysis of chemical release concentrations, EXTRAN, and CHEM modules are utilized in the code. EXTRAN models toxic chemical transport from the selected release point to the heating, ventilation, and air conditioning (HVAC) intake for the MCR. CHEM is then applied by HABIT to model chemical exposure to control room personnel, based on EXTRAN output and MCR design parameters. CTS-00696

The meteorological conditions assumed for these cases are conservatively set at G stability and 2.5 m/s wind speed, or slightly more extreme than 95th percentile for the CPNPP site. The 2.5 m/s wind speed is higher than would be expected for G stability but is conservative in that it introduces the chemical gas into the intakes faster than at lower speeds. The analyses are thus bounding. Lower concentrations are calculated on average using F stability and 1 m/s wind speed.

The HABIT-based analysis determines the peak concentration in the MCR and compares this level to the RG 1.78 criterion, the specific chemical listed

Chapter 7

Chapter 7 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R

Chapter 8

Chapter 8 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00451	List of Figures, Figure 8.2-201	8-iii 8.2-23	Editorial correction	Add “Relevant Portions of” to the title of the Figure 8.2-201.	0
CTS-00640	8.2.1.2	8.2-3	Editorial correction	Change “Any” to “Both of any”.	0
CTS-00686	8.2.1.2.1.1	8.2-5	Editorial correction	Delete “from”.	0
CTS-00641	8.2.1.2.1.1	8.2-6	Erratum	Change “is” to “are”.	0
CTS-00477	8.2	8.2-6	Clarification	Change description of offsite power system.	0
CTS-00479	8.4	8.4-1	Editorial correction	Change section title in bold font.	0

Chapter 9

Chapter 9 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00586	9.2.1.2.1	9.2-1 9.2-2	Consistent with Subsection 9.4.5.2.6	Change “ESWP house” to “UHS ESW pump house”.	0
CTS-00608	9.4	9.4-7	Erratum	Change heating coil capacity of EFP (M/D) Area Air Handling Unit from “1 kW” to “2 kW”.	0
DCD_09.05.01-6	9.5.1.3 9.5.9	9.5-3 9.5-18	DCD_RAI 09.05.01-6	Add Subsection 9.5.1.3.	0
DCD_09.05.01-15	Table 9.5.1-1R	9.5-46	DCD_RAI 09.05.01-15	Add LMNs in Table 9.5.1-1R and Table 9.5.1.2R.	0
DCD_09.05.01-7	Table 9.5.1-1R	9.5-55	DCD_RAI 09.05.01-7	Add “see Subsection 9.5.1.3” to Table 9.5.1.1R.	0
DCD_09.05.01-5	Table 9.5.1-1R	9.5-56	DCD_RAI 09.05.01-5	Fill in Remarks on Table 9.5.1-1R.	0
DCD_09.05.01-15	Table 9.5.1-2R	9.5-112 9.5-113	DCD_RAI 09.05.01-15	Add LMNs in Table 9.5.1-1R and Table 9.5.1.2R.	0

Chapter 10

Chapter 10 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R

Chapter 11

Chapter 11 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00482	11.2.3.1	11.2-2	Editorial correction	Delete repeated phrase.	0
CTS-00481	Table11.2-14R	11.2-14	Editorial correction	Add “hr” in transit time.	0
MAP-11-001	11.3.3.3	11.3-2, 11.3-3	Deletion of COL Item	Delete COL Item.	0

Chapter 12

Chapter 12 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
DCD_12.01-2	12.1.3	12.1-2	Delete Outdated RG	Delete RG8.20, 8.26, and 8.32.	0
DCD_12.02-15	12.2.1.1.10	12.2-1	DCD_RAI 12.02-15	Add “40 CFR 190”.	0
CTS-00463	12.5	12.5-1	Clarification	Change description about entry into the interim waste storage building.	0

Chapter 13

Chapter 13 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00484	13.1	13.1-17 13.1-18	Editorial correction	Change location of “Table 13.1-201 (Sheet 5 of 5)”.	0
CTS-00486	13.5	13.5-4 13.5-7	Editorial correction	Delete reference 13.5-201.	0
CTS-00488	13AA Table of Contents	13AA-ii	Editorial correction	Modify dot lines in Table of Contents.	0

Chapter 14

Chapter 14 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00635	14.2.2	14.2-1	Editorial correction	Change "Replace the last paragraph" to "Replace the last sentence of the second paragraph". Change "Appendix 14AA provides a description ...." to " A description .... are reconciled in Appendix 14AA".	0

Chapter 15

Chapter 15 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R

Chapter 16

Chapter 16 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R

Chapter 17

Chapter 17 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
CTS-00490	17.3	17.3-1	Editorial correction	Change description about quality assurance program.	0

Chapter 18

Chapter 18 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R

Chapter 19

Chapter 19 Tracking Report Revision List

Change ID No.	Section	FSAR Rev. 0 Page	Reason for change	Change Summary	Rev. of FSAR T/R
MAP-19-001	19.1.5.1.1	19.1-8 19.3-1	Deletion of COL Item	Delete COL Item.	0
MAP-19-002	19.2.5	19.2-1 19.3-1	Deletion of COL Item	Delete COL Item.	0
CTS-00491	ACRONYMS AND ABBREVIATIONS	19-v	Erratum	Change “Westuinghouse” to “Westinghouse”.	0