PMComanchePekNPEm Resource

From: Donald.Woodlan@luminant.com
Sent: Thursday, March 04, 2010 8:51 AM
To: Willingham, Michael; Palmrose, Donald
Cc: John.Conly@luminant.com; rbird1@luminant.com; Monarque, Stephen
Subject: FW: Re-Opening Squaw Creek Reservoir
Attachments: TXNB-10015 ER UTR R3 (SCR).pdf

Michael,

This is the update that we discussed previously. With the delay of the environmental review schedule, I assume that these updates can be folded into the draft EIS. We can discuss later.

Donald R. Woodlan
Manager, Nuclear Regulatory Affairs
Luminant Power
254-897-6887

From: Conly, John
Sent: Wednesday, March 03, 2010 4:05 PM
To: Bell, Russ; Beshear, David; Biggins, James; Bird, Bobby; Blevins, Mike; Buschbaum, Denny; Bywater, Russ; Caldwell, Jan; Carver, Ronald; Certrec; Ciocco, Jeff; Clouser, Tim; Collins, Elmo; Conly, John; Cosentino, Carolyn; Degeyter, Brock; Douglas, Nancy; Evans, Todd; Flores, Rafael; Frantz, Steve; Goldin, Laura; Hamzehee, Hossein; Hayashi, Kazuya; Hoshi, Masaya; Ishida, Vivi; Johnson, Michael; Kallan, Paul; Kaneda, Masahiko; Keithline, Kimberley; Kellenberger, Nick; Koenig, Allan; Kramer, John; Lucas, Mitch; Madden, Fred; Matthews, Dave; Matthews, Tim; Monarque, Stephen; Monts, Ashley; Moore, Bill; Onozuka, Masanori; Palmrose, Don; Paulson, Keith; Plisco, Loren; Reible, Robert; Rund, Jon; Simmons, Jeff; Singal, Balwant; Sirirat, Nan; Takacs, Mike; Tapia, Joe; Tindell, Brian; Turner, Bruce; Vrahoretis, Susan; Ward, Bill; Weeks, Matthew; Willingham, Michael; Woodlan, Don; Yeager, Diane
Cc: Hill, Craig; Barnette, James; Fuller, David; Harris, Neil
Subject: Re-Opening Squaw Creek Reservoir

Luminant has submitted the attached letter to the NRC to document changes in the ER necessitated by the decision to re-open Squaw Creek Reservoir. If there are any questions regarding the attached Update Tracking Report, please contact me or contact Don Woodlan (254-897-6887, Donald.Woodlan@luminant.com).

Thanks,

John Conly

Luminant
COLA Project Manager
(254) 897-5256

Hearing Identifier: ComanchePeak_COL_NonPublic
Email Number: 1470

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Ref. # 10 CFR 52

March 3, 2010

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
COL APPLICATION PART 3, ENVIRONMENTAL REPORT, UPDATE TRACKING REPORT REVISION 3

Dear Sir:

Luminant Generation Company LLC (Luminant) submits herein Update Tracking Report Revision 3 for the Comanche Peak Nuclear Power Plant Units 3 and 4 Combined License (COL) Application, Part 3, Environmental Report. Squaw Creek Reservoir (SCR), which provides once-through cooling for Units 1 and 2, was closed to the public in September 2001 for reasons of site security. Luminant is developing plans to reopen SCR on a limited basis to employees, charitable events, and eventually to the public. The marked-up pages provide information regarding the environmental impact of reopening SCR.

Should you have any questions regarding this report, 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 March 3, 2010.

Sincerely,

Luminant Generation Company LLC

Donald R. Woodlan for

Rafael Flores

Attachment: COL Application Part 3, Environmental Report Revision 1, Update Tracking Report Revision 3

Electronic distribution w/attachment:

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Attachment

COL Application Part 3, Environmental Report Revision 1, Update Tracking Report Revision 3

This attachment includes marked-up Environmental Report (ER) pages

2.2-3	2.4-31	2.5-13	4.2-11	4.4-6	5.4-15	5.8-15
2.3-42	2.4-56	2.5-16	4.3-8	4.4-21	5.4-29	5.10-7
2.4-22	2.4-57	2.5-41	4.3-12	5.4-2	5.4-32	6.2-4
2.4-26	2.5-5	4.1-2	4.4-4	5.4-14	5.8-4	

Because of text additions and deletions, the page numbers on the marked-up pages may no longer coincide with the page numbers in ER Revision 1.

March 2, 2010

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

Part 3

Environmental Report Revision 1

Update Tracking Report

Revision 3

Revision History

Revision	Date	Update Description
-	11/20/2009	COLA Revision 1 Transmittal See Luminant Letter no. TXNB-09074 Date 11/20/2009
0	12/7/2009	Updated Chapters: Ch. 9
1	1/13/2010	Updated Chapters: Ch. 7
2	1/19/2010	Updated Chapters: Ch. 7
3	3/2/2010	Updated Chapters: Ch. 2, 4, 5, 6

Chapter 2

Chapter 2 Tracking Report Revision List

Change ID No.	Section	ER Rev. 1 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-01105	2.2.1.2	2.2-3	Access change to SCR.	Revised text to reflect that SCR is located within site boundary and opened for recreational uses.	3
CTS-01105	2.3.2.2.2	2.3-42	Access change to SCR.	Revised text to reflect to the change from "closed to the public and is not used for recreation or navigation" to "open to the public for full recreational use but access will be controlled."	3
CTS-01105	2.4.1.1.5.5	2.4-22	Access change to SCR	Revised text to reflect to the change from "Although SCR is closed to the public for recreational fishing" to "SCR will be open to the public for full recreational use, including boating; however, access will be controlled."	3
CTS-01105	2.4.2.2	2.4-26	Access change to SCR.	Revised text to state that SCR will be reopened to the public for full recreational uses but will have controlled access.	3
CTS-01105	2.4.2.5.2	2.4-31	Access change to SCR	Deleted text stating that SCR has been closed to the public.	3
CTS-01105	2.4.2.5.3	2.4-31	Access change to SCR	Deleted text stating that recreational fishing does not occur in SCR.	3
CTS-01105	Table 2.4-11	2.4-56 2.4-57	Access change to SCR	Revised table to include Squaw Creek Park and Squaw Creek Reservoir.	3
CTS-01105	2.5.1.3	2.5-5	Access change to SCR	Revised text to reflect to the change from "is closed to the public" to "is open to members of the public via controlled access for recreational uses, such as boating fishing." Additional text added to reflect the 100 boats expected at a maximum but not including special events.	3

CTS-01105	2.5.2.2.6	2.5-13	Access change to SCR	Revised text to reflect the change from "not accessible by the public" to "open the public for full recreational uses with controlled access". Additional text added to reflect the 100 boats expected at a maximum but not including special events.	3
CTS-01105	2.5.2.5	2.5-16	Access change to SCR	Revised text to include Squaw Creek Reservoir information.	3
CTS-01105	2.5.5	2.5-40	Access change to SCR	Deleted text stating SCR is, "now closed to the public" and revised the location from 2 to 15.	3

Three private airports and one public airport are located within the CPNPP site vicinity. Five more private airports and one private heliport are also located within 10.5 mi of CPNPP (Airnav 2007). All previously mentioned airports and the heliport are listed below. The distance to each is calculated from the CPNPP center point.

Airport	Distance and Direction	Description
Parker Airport	3.5 mi north	Private
Running M Ranch Airport	5 mi southwest	Private
Wyatt 3-Rivers Airport	5.5 mi southeast	Private
Circle P Ranch Airport	6.7 mi southwest	Private
Circle Eight Ranch Airport	7.6 mi southwest	Private
Pecan Plantation Airport	7.7 mi east-northeast	Private
Nassau Bay Airport	9.3 mi north-northeast	Private
Wright Ranch Airport	9.6 mi south-southwest	Private
Granbury Municipal	9.9 mi north	Public
Shelton Private Heliport	10.5 mi west-northwest	Private

The closest airport is Parker Airport, located 3.5 mi north of the site. Parker is home to one, single-engine airplane and has a 200-ft turf runway and a 610-ft turf runway. The closest public airport is Granbury Municipal Airport, located approximately 9.9 mi north. Granbury Municipal Airport has one 3603-ft asphalt runway (USDOT 2007). The airport is home to 54 single-engine aircraft, three multi-engine aircraft, and two helicopters (Airnav 2007). Granbury Municipal Airport averages 33 aircraft operations a day (USDOT 2007). There are plans to begin construction on a new 5300-ft runway in 2008.

The nearest state park to the site is Dinosaur Valley State Park, located 3.3 mi southwest (USGS 2007). SCR, located within the site boundary, is open for recreational uses, such as boating and fishing, to members of the public via controlled access. Numerous parks and venues provide camping and recreational opportunities within the vicinity of CPNPP. The Glen Lake Camp and Retreat Center is located 5.3 mi southeast and hosts various retreats, summer camps, and events (Glen Lake 2007). Oakdale Park located 5.2 mi southeast and Tres Rios Park located 5.7 mi southeast host outdoor events throughout the year and provide camping facilities (Oakdale Park 2007), (Tres Rios River Ranch 2007). The Texas Amphitheatre, located 3.7 mi east, hosts outdoor events (Glen Rose 2006). Additional parks and venues in the surrounding areas of CPNPP include: (1) Squaw Creek Golf Course 5 mi to the southeast, (2) Pecan Plantation Country Club 7.5 mi to the northeast, and (3) Nutcracker Golf Club 8.2 mi to the northeast (Golf Link 2007). Lake Granbury, located approximately 7 mi northeast, has seven public use areas, marinas, and a riverboat that provide recreational facilities to the public (Brazos River Authority 2006), (Granbury Riverboat 2007), (Glen Rose Network 2007). CTS-01105

uses. Table 2.3-35 provides annual water use estimates by use category for Hood and Somervell counties.

2.3.2.2.2 Recreational and Navigational Use

Non-consumptive use is water that is diverted and then returned to the river basin with minimal change in volume and temperature, or is used but never leaves the river system. The majority of non-consumptive water use in the CPNPP site vicinity is associated with recreational use and the return flow from power generation (Brazos G 2006). Water-related recreational activities include boating, camping, fishing, and swimming. Recreational use in the vicinity is supported by numerous state parks and by public facilities for boating and camping at various lakes and reservoirs. Navigation is another form of non-consumptive use. Other than small watercraft used primarily for recreation, Lake Granbury and the Brazos River in the vicinity of Lake Granbury are not used for navigational purposes. Lake Granbury has five public access areas for picnicking and fishing, four of which have primitive camping sites. A boating capacity study was performed on Lake Granbury in 2005 (BRA 2006a). The survey identified 6000 private boat slips and boat ramp access at 12 launch ramps. The survey indicated that the majority of Lake Granbury boaters appear to spend most of their time on the lake waterskiing (26.7 percent), cruising (21.8 percent), fishing (21.6 percent), on personal watercraft (10.1 percent), or swimming (9.9 percent).

SCR, owned by Luminant, is used as a cooling water reservoir for CPNPP Units 1 and 2. The reservoir ~~is closed to the public and is not used for recreation or navigation~~will be open to the public for full recreational use but access will be controlled. CTS-01105

2.3.2.2.3 Lake Granbury Surface Water Withdrawal

Surface water withdrawal data for Lake Granbury was obtained from the BRA. The BRA data indicate that approximately 59,816 ac-ft of water was withdrawn from Lake Granbury in 2006. It should be noted that the location of use for the majority of this water was Somervell County as diversion water from Hood County (Lake Granbury). Approximately 83 percent of this use was for industrial use including steam electric use, 11 percent for municipal use, 6 percent for irrigation use, and less than one percent for mining use. The BRA records did not provide water return volumes. Table 2.3-36 provides monthly surface water use estimates by use category for Lake Granbury.

2.3.2.2.4 Plant Surface Water Use

A constant pool elevation of 775 ft msl is maintained at SCR by diverting water from Lake Granbury, the makeup water source to SCR for CPNPP Units 1 and 2 operation. Surface water use records submitted to the TCEQ for Units 1 and 2 facilities indicate 46,746.5 ac-ft of water was diverted from Lake Granbury in 2006 (TCEQ 2006).Consumptive water use (forced evaporation) in 2006 for Units 1 and 2 was reported at 19,905.2 ac-ft, and return flow through the SCR dam spillway to Squaw Creek was reported at 21,161.1 ac-ft (TCEQ 2006). The 2006 values indicate that more water was diverted from Lake Granbury than was lost through forced evaporation and spillage flow through the SCR dam spillway. The apparent gain or in some instances loss of water volume in SCR is variable from year to year because environmental inflows and natural evaporation are not considered in the forced evaporation value which is

2.4.1.1.5.4 Travel Corridors

Travel corridors provide numerous essential functions needed for the survival of wildlife species. Corridors can be viewed at three scales: (1) local, (2) regional, and (3) migratory corridors. Local corridors are travel lanes linking daily resources needs such as food, water, and bedding sites. Local corridors exist within CPNPP for numerous species. High-perimeter fencing most likely diminishes travel off-site of mammalian species. Birds, reptiles, and amphibians, on the other hand, are not impeded by fencing and can move about more freely within the surrounding landscape. Localized fragmentation of the area surrounding CPNPP due to residential development is expected to act as a barrier to more habitat-specialized species. Overall, construction and operation of the new facility at CPNPP is not expected to significantly impact local movement patterns of wildlife.

Regional travel corridors, enabling travel of animals between core areas, helps to ensure genetic diversity of wildlife species by allowing new individuals into the populations, or be used for seasonal in habitat requirements. No known regional corridors exist for large mammals at CPNPP.

Migratory corridors are used as seasonal migration routes for large-ranging mammals and migratory birds. Migratory stop-over by bird species, especially waterfowl, occurs on the CPNPP site. Construction and operation of the new facility presents no significant impediment to use of the area by these species.

2.4.1.1.5.5 Recreational Areas

Table 2.4-11 lists ecologically oriented recreational areas within a 50-mi radius of the CPNPP site. These areas include outdoor recreation areas, campgrounds, public fishing and boating sites, heritage preserves, and wildlife viewing areas.

Within the 50-mi radius, the only state-owned recreational area is Dinosaur Valley State Park. Three city and county parks also occur: (1) Glen Rose Bird Sanctuary, (2) Glen Rose Heritage Park, and (3) Somervell County Park.

~~Although SCR is closed to the public for recreational fishing,~~SCR will be open to the public for full recreational use, including boating; however, access will be controlled. ~~e~~Employees and certain invited groups are allowed to fish from the banks. Special events are also held on the shore allowing for some daytime recreational access to the reservoir. Boating is not permitted. CTS-01105

2.4.1.1.5.6 Environmentally Sensitive Areas

Excluding areas listed in Table 2.4-11, there are no environmentally sensitive areas within a 50-mi radius of CPNPP.

2.4.1.2 Off-Site Facilities

Off-site facilities associated with the proposed expansion of CPNPP consist of one or more new or expanded electrical transmission line rights-of-way (ROW) and expansion of the existing water

Golden algae is a type of algae identified in Lake Granbury that at certain times of the year reproduce rapidly causing extensive fish kills. Usually, fish kills are reported in winter and may be associated with high coliform and E. coli counts in the reservoir (TWRI 2007). In Granbury alone, millions of fish have been killed annually by golden algae blooms since year 2000 (TPWD 2007o).

2.4.2.1.2 Intermittent Streams

Intermittent streams are characterized by fluctuating hydrology. These waterways consist of intermittent pools of water at different periods annually. Intermittent streams are seasonally connected to constant hydrologic sources such as elevated groundwater tables or springs and seeps, and contain flowing water during storm events.

In addition to Squaw Creek, the USGS mapped five other intermittent streams within the CPNPP site boundary as partially depicted on the Hill City and Nemo quadrangle maps (USGS 1979, 1980). Panter Branch and Loller Branch are located on the northwest shore of SCR, Panther Branch on the southwest shore, and two unnamed streams flow into the reservoir from the north.

In addition, two intermittent streams are located in the area of the proposed blowdown treatment facility. They are unnamed tributaries to Squaw Creek that flow into the creek downstream of the dam (Figure 2.4-1). As waters of the United States, they are subject to the regulatory jurisdiction of USACE as discussed in Subsection 2.4.2.8.

2.4.2.2 Fisheries Resources

Lake Granbury and SCR both previously supported thriving recreational fisheries. In recent years, sport fishing on Lake Granbury has declined due to severe fish kills caused by golden algae. SCR is a small private reservoir owned by CPNPP that was closed to recreational fishing by the public in September 2001 for reasons of site security. SCR will be reopened to the public for full recreational uses but will have controlled access. CTS-01105

TPWD historically stocked SCR to promote recreational fishing. The reservoir was first stocked with hybrid striped bass, smallmouth bass and walleye in 1979. The most recent stocking event was hybrid striped bass in 1996. Between 1979 and 1996, additions of approximately 400,000 hybrid striped bass, 200,000 smallmouth bass, 4,800,000 walleye, 16,000 threadfin shad, 17,500 channel catfish and 300,000 Florida largemouth bass have been made to the reservoir (TPWD 2007p). Threadfin shad and other small fish serve as the forage base in the reservoir.

Studies of fish communities were performed in 1981 and 1987, prior to operation of the existing reactors. In 1981, 21 species of fish were sampled in SCR (Table 2.4-13) (Hellier 1981). At that time, the reservoir fish community indicated signs of being fairly young and still stabilizing. The dominant game fishes were hybrid striped bass and largemouth bass. Although smallmouth bass were stocked in the reservoir, they were not doing well. Further stocking of the species was not recommended (Hellier 1981).

A 1987 study of SCR revealed 26 species of fish (Table 2.4-13). Species composition changed slightly from 1981 with bluegill sunfish, green sunfish, black bullhead, redear sunfish, largemouth

Brazos Water Snake (State Listed as Threatened). Brazos water snake habitat occurs in the Brazos River near CPNPP. The snake is endemic to the Brazos River and was first discovered in 1938 in Palo Pinto County, Texas. It is primarily aquatic, found in shallow water (>1m deep) with rocky substrates or along rocky shorelines of the river (NatureServe 2007).

Though listed as occurring in the middle section of the Brazos River (NatureServe 2007), no specimens were found in a section of the Brazos River north of Lake Granbury. The Brazos water snake was found around Lake Granbury and at the junction of the Brazos and Paluxy Rivers in Somervell County. River impoundments and the resultant silting of the Brazos River have contributed to the population decline of the species (NatureServe 2007).

Sharpnose Shiner (Federally Listed as a Candidate Species). Sharpnose shiners were listed as a candidate for federal protection in 1982. They are endemic to the Brazos River and associated tributaries in Texas. Habitat for the shiner is characterized by shallow water in broad, open sandy channels with moderate to high current (USFWS 2002). Extensive river modification has reduced habitat area and the shiner has been extirpated from approximately 64 percent of its historical range. Sharpnose shiners are thought to be extirpated downstream of Possum Kingdom Reservoir, which is on the Brazos River north of CPNPP. They are not expected near Lake Granbury or SCR (USFWS 2002).

2.4.2.5.2 Species of Commercial or Recreational Value

Historically both SCR and Lake Granbury supported thriving bass fisheries. ~~SCR has been closed to the public and f~~Fish populations in Lake Granbury have been devastated by golden algae blooms in recent years. Measures to mitigate the losses on Lake Granbury include stocking the lake with striped and largemouth bass. Although fish numbers are increasing, as of 2005 densities had not reached those recorded prior to golden algae infestation (TPWD 2005). CTS-01105

2.4.2.5.3 Essential Species

Important aquatic species also include those that are essential to the maintenance and survival of species that are rare, or commercially or recreationally valuable. As discussed above, rare aquatic species at CPNPP are limited to three species. None have been collected in Lake Granbury or SCR. Habitat requirements are such that the pistolgrip mussel and sharpnose shiner are unlikely inhabitants of the area. Suitable habitat does exist for the Brazos water snake. Positive identification in the vicinity of CPNPP has not been made. None of these species are known to have a clearly established and essential trophic relationship to any other specific species in the area. None of these species are of commercial or recreational importance.

~~Although recreational fishing does not occur in SCR and the fishery in Lake Granbury is struggling, r~~Recreational species are present in both reservoirs. Most sport fish are carnivorous and consume whatever will fit in their mouth. Common prey base includes bluegill and threadfin shad but any small fish can be considered prey in SCR and Lake Granbury. CTS-01105

2.4.2.5.4 Critical Species

Species that are critical to the structure and function of the local ecosystem are also included as important species. Most of the species identified at CPNPP are common in other lentic habitat in

TABLE 2.4-11 (Sheet 1 of 2)
ECOLOGICALLY ORIENTED PUBLIC RECREATION AREAS WITHIN A 50-MI RADIUS OF CPNPP

Type of Property	Name of Property	Approximate Distance and Direction from the Site	
Recreation Area			
	Squaw Creek Reservoir Park	0 mi (east side of Squaw Creek Reservoir)	CTS-01105
	Dinosaur Valley State Park	3.5 mi SSW	
	Somervell County Park	4.4 mi S	
	Big Rocks City Park	4.7 mi S	
	Tres Rios Ranch River Resort	4.8 mi S	
	Cleburne State Park	13 mi E	
	Meridian State Park	28 mi S	
	Lake Whitney State Park	35 mi SE	
	Lake Mineral Wells State Park	38 mi NNW	
	Aquila Wildlife Management Area	38 mi SE	
Campground			
	Dinosaur Valley State Park	See above	
	B Street RV Park	4.5 mi S	
	Oakdale Park	See above	
	Glen Lake Methodist Camp	4.7 mi SSE	
	Leslie's RV Park Campground	4.8 mi SSW	
	Tres Rios Ranch River Resort[7]	See above	CTS-01105
	Cleburne State Park	See above	
	Meridian State Park	See above	
	Lake Whitney State Park	See above	
	Lake Mineral Wells State Park	See above	
Fishing			
	Squaw Creek Reservoir	0 mi	CTS-01105
	Dinosaur Valley State Park	See above	
	Big Rocks City Park	See above	
	Lake Granbury	7 mi NE	
	Cleburne State Park	13 mi E	
	Meridian State Park	28 mi S	

TABLE 2.4-11 (Sheet 2 of 2)
ECOLOGICALLY ORIENTED PUBLIC RECREATION AREAS WITHIN A 50-MI RADIUS OF CPNPP

Type of Property	Name of Property	Approximate Distance and Direction from the Site
	Lake Whitney State Park	35 mi SE
	Lake Mineral Wells State Park	38 mi NNW
	Aquila Wildlife Management Area	38 mi SE
Heritage Preserve		
	Glen Rose Heritage Park	4.8 mi S
	Somervell County Courthouse	5.0 mi S
	Barnard's Mill	5.0 mi S
	Acton State Historical Park	13 mi NE
Boating Areas		
	Lake Granbury	See above
	Squaw Creek Reservoir	0 mi
	Cleburne State Park	13 mi E
	Meridian State Park	28 mi S
	Lake Whitney State Park	35 mi SE
	Lake Mineral Wells State Park	38 mi NNW
	Aquila Wildlife Management Area	38 mi SE
Wildlife Viewing		
	Dinosaur Valley State Park	See above
	Glen Rose Bird Sanctuary	4.8 mi S
	Fossil Rim Wildlife Center	8 mi SSW
	Quail Ridge Ranch/Chalk Mountain Conservation Area	9 mi SW
	Vivian J. Malone Preserve	25 mi E

CTS-01105

(GRCVB 2007)
(NAPA 2007)
(NRHP 2007)
(TPWD 2007h)
(TPWD 2007i)
(TPWD 2007j)
(TPWD 2007k)
(TPWD 2007l)

census data for permanent population. Assessing or projecting the maximum capacity of outdoor recreational areas is not possible because the majority of these facilities, as outdoor spaces, do not have a maximum capacity.

Transient population data were gathered through personal communications with businesses, companies, and local chambers of commerce within the region. This method for collecting transient data provides a more accurate accounting of people visiting the area and a more precise location of transient visitors than using county estimates weighted over a sector area. Contributors to transient population are shown in Table 2.5-8. The locations of contributors listed in Table 2.5-8 are shown in Figure 2.5-4. The peak transient population is derived from summing maximum one-day transient counts (if known) with daily totals derived from the annual total to obtain the peak transient count for any given day.

Transient population data per sector were summed to develop transient population projections. The sum was multiplied by the sector growth ratio derived from the county growth ratios described above for each year. Because the method for collecting transient data provides point locations, some sectors have a zero value. This result is because there are no countable transient contributors in the zero value sectors. Table 2.5-4 illustrates the projected transient population for each sector and projections for 2007, 2016, 2026, 2036, 2046, and 2056 for the non-zero sectors. The estimated start-up date for CPNPP Unit 3 is 2016 while the estimated start-up date for CPNPP Unit 4 is 2017. The projections were carried out to 40 years past the start-up date. The sectors that have zero values are not illustrated in the table.

There are numerous facilities in the vicinity that host outdoor activities. These include the Texas Amphitheater, Oakdale Park, Tres Rios River Ranch, and Glen Lake Camp and Retreat Center. The Texas Amphitheater hosts a musical drama called "The Promise" every fall that draws over 45,000 visitors in September and October, resulting in an annual total of 60,000 visitors (Glen Rose Expo 2006), (Somervell County 2006). Oakdale Park hosts events such as the Texas State Mountain and Hammer Dulcimer Festival every May, the Fall Woodcarving Show and Sale in October, and monthly Blue Jam Sessions during the winter, resulting in nearly 200,000 visitors each year (Oakdale Park 2007), (Somervell County 2006). Tres Rios River Ranch draws 50,000 visitors a year, with the most notable event being the Tommy Alverson Family Gathering in the first week of October (Somervell County 2006), (Tres Rios River Ranch 2007). The Glen Lake Camp and Retreat Center is located to the southeast and hosts various retreats, summer camps, and events (Glen Lake 2007).

Four golf courses are located within 16 km (10 mi) of the CPNPP site: Squaw Valley Golf Course, Pecan Plantation Country Club, Nutcracker Golf Club, and Harbor Lakes Golf Course. Nutcracker Golf Club is closed to the public, so visitor numbers are not available, but approximately 103,000 rounds of golf are played at the other three courses each year.

Two lakes are located in the vicinity of the CPNPP site: SCR and Lake Granbury. SCR is owned by Luminant Generation Company LLC (Luminant) and ~~is closed to the public~~is open to members of the public via controlled access for recreational uses, such as boating and fishing. A maximum limit of 100 boats on SCR is expected at any given time, not including special events. Lake Granbury has seven public use areas that provide opportunities for swimming, picnics, and camping (Brazos River Authority 2006b). Lake Granbury is also popular with boaters, with a peak season average of 290 boaters daily. Additionally, the Granbury Riverboat offers seven weekly CTS-01105

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~~will be open to the public for full recreational uses with controlled access. There is no commercial or recreational traffic on SCR; however, recreational boating and fishing is allowed, with a maximum of 100 boats on the reservoir at any given time, not including special events. CTS-01105

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 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 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.

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

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. Squaw Creek Reservoir is a 3200-ac lake that is open to members of the public via controlled access for recreational uses, such as boating 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). CTS-01105

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.

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.

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 5.8-2 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 (9.5 percent) and Fort Worth (5.7 percent). Based on this distribution of

Nearby locations with potential sensitivity to noise were identified from the ambient noise survey as well as site reconnaissance conducted in 2007. Receptors were reviewed within a 10-mi radius of the site and include the nearest residences and meeting places: location 23 (south fence line), location 1 and location 17 (near the east fence line), Post Oak Memorial Chapel and cemetery (location 25), Freedom Church (location 40), and Happy Hill Children's Home (location 30). The nearest residence (location 1) is approximately 0.8 mi southwest of the center point. Recreation locations were also selected such as the swim beach on the north side of SCR~~, now closed to the public~~ (location ~~2~~15). No sensitive receptors, except for wildlife and migratory birds, were located within the fence line of the facility. The nearby residences are located across SCR and to the south-southwest of the fence line. Noise is attenuated with distance for the residences to the south-southwest because trees with foliage, ground cover, earthen berms, and other natural features act to dampen the noise. However, because water is between the eastern fence line and the residences across SCR, potential noise from the site would not be attenuated with distance past the fence line (location 2) as it would be by natural methods. All these residences are located at a substantial distance that is unaffected by proposed additional CPNPP noise. CTS-01105

The ambient noise survey was conducted within an 5-mi radius of the site and along extant transmission lines. The report concluded that the fence line (locations 1, 2, 3, and 15) and off-site noise levels measured were in the range of values expected for ambient noise for a low density residential and rural location. Area noise levels ranged between 35 and 70 (traffic) dBA (daytime) and between 36 and 60 dBA (nighttime). Average equivalent sound levels (Leq) measured between 36 and 55 dBA (daytime) and from 37 to 55 (nighttime). These measurements for the day-night average (Ldn) are similar to expected levels for the day-night time average in a rural area ranging from 50 to 55 Ldn.

Subsection 2.5.3 references historic properties within a 10-mi radius of the site boundaries. Historic properties are located within 1.2 mi of an extant transmission line. Historic properties should not be impacted by operational noise from the site or extant transmission line noise. Historic properties are located at a sufficient distance from noise sources that noise levels would attenuate to below background levels or ambient noise levels at the historic sites.

2.5.6 REFERENCES

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Chapter 4

Chapter 4 Tracking Report Revision List

Change ID No.	Section	ER Rev. 1 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-01105	4.1.1.1	4.1-2	Access change to SCR	Revised text to reflect controlled access to SCR and park.	3
CTS-01105	4.2.2.3	4.2-11	Access change to SCR	Deleted text stating that SCR has no other users because it is for CPNPP use.	3
CTS-01105	4.3.1.3	4.3-8	Access change to SCR	Revised text in 3rd paragraph of subsection to reflect to the change from SCR being closed to the public to reflect that it will be open for full recreational uses with controlled access.	3
CTS-01105	4.3.2.4	4.3-12	Access change to SCR	Added text to reflect the change the status of SCR and the common type of fish found.	3
CTS-01105	4.4.1.4	4.4-4	Access change to SCR	Added text to include visitors to SCR.	3
CTS-01105	4.4.1.5	4.4-6	Access change to SCR	Added text to discuss Squaw Creek Reservoir and Park activities.	3
CTS-01105	4.4.2.6	4.4-20	Access change to SCR	Added text to discuss controlled access to SCR and to state that no new visual impact are anticipated due to the proximity of CPNPP are Units 1 and 2.	3

expected to utilize local roadways and railroads. New roadways, either temporary or permanent, are planned for the CPNPP site. Established roadways provide access to various structures and are anticipated to be updated for transport of construction materials to and within the site. The use of the existing CPNPP railroad spur in support of material deliveries is expected. Additional information about railroads in the vicinity of the CPNPP site is located in Subsections 2.5.2.2.5 and 4.4.1.3. A heavy haul road from the end of the railroad spur to the construction areas is planned. Construction of this road occurs primarily on previously disturbed areas. Roads are illustrated in Figures 3.1-1 and 4.1-1. The laydown areas for staging building materials and equipment used for construction can be seen in Figure 4.1-1.

The majority of earthen debris (soil and rock) excavated during construction is to be utilized as fill material. Excess dirt and spoil materials are expected to be beneficially used on surface areas within the site boundaries. Any material that is contaminated from construction activities would be classified as hazardous or non-hazardous waste and disposed of at an approved off-site disposal facility. Construction debris; i.e., non-recyclable materials and other waste are removed from the site via roads or rail.

Construction activities on the site are not expected to include the construction of bridges, docks or any type of water transportation. Rail lines are anticipated to be modified on-site. New intake and discharge structures would be constructed on Lake Granbury.

No site construction activities are expected to be located in a floodplain, as discussed in Subsection 4.2.1.6. Site construction activities that are expected to be located in wetland habitats are discussed in Section 4.3.

There are four major pipelines that cross the site; three transport natural gas, one transports crude oil. There are plans for an additional natural gas pipeline parallel to the pipelines that traverse the northern portion of the site. The closest pipeline is located 0.42 mi west of the site center point. These pipelines are discussed in Subsection 2.2.1.2. No adverse impacts from construction are expected to affect pipelines located within the CPNPP site. There are mineral resources, including natural gas, within or adjacent to the site that are being exploited.

National Wild and Scenic Rivers, recreational opportunities, and zoning laws and ordinances are detailed in Subsection 2.2.1. There are no National Wild and Scenic Rivers~~, recreational opportunities,~~ or zoning laws ordinances otherwise affecting the site. ~~Therefore~~SCR will be open to the public for full recreational uses, such as fishing and boating, with controlled access. Because lake and park access will be controlled and all public visitors will be required to follow applicable site safety rules, no adverse impacts are anticipated. CTS-01105

No identified historic properties or tribal lands on the CPNPP site would be impacted by construction activities as stated in Subsection 2.5.3.3. Appropriate tribal historic preservation officers (THPOs) have been contacted. No concerns have been raised by consulted tribal agencies as to construction of the CPNPP site. As a result, no adverse effects to tribal lands are anticipated.

The location and description of prime farmland is discussed in Subsection 2.2.1 and illustrated in Figure 2.2-1. There is a total of 1064 ac of prime farmland located on the site, the majority of

water users. Primary water needs during the construction of CPNPP Units 3 and 4 are for concrete batch plant operations, watering of roads for dust suppression, and watering of disturbed areas to establish cover vegetation.

Because most of the water needed for construction is expected to be withdrawn from Lake Granbury, SCR, or obtained from the SCWD, there should be no effects to the water quality or detrimental impacts that would affect any other user's consumption. ~~SCR has no other users because it is solely for CPNPP use.~~ CTS-01105

4.2.2.4 Water Quality Changes Due to Substrate Exposure

Only very localized and transient impacts due to substrate exposure are anticipated. Construction area runoff is expected to be directed to retention basins in accordance with the SWP3 then discharged to SCR. The TPDES General Permit is expected to address discharge requirements relative to water quality. Construction impacts to the intake and discharge areas are local and transient, and are considered to be SMALL. Large areas are not expected to be affected, and the locally affected areas are expected to recover rapidly. Measures to eliminate or reduce construction impacts are discussed in Subsection 4.2.1.10.

4.2.2.5 Effects of Alterations on Other Water Users

Currently, five municipal water systems obtain water from Lake Granbury through the SWATS. The closest municipal user to the CPNPP discharge is SWATS, located approximately 3.45 mi upstream of the CPNPP Intake Structure. There are no downstream municipal users between the CPNPP Lake Granbury discharge and the City of Waco, Texas, approximately 65 mi south-southwest. The closest industrial user is the Wolf Hollow electric power plant, with an intake located approximately 150 ft downstream from the CPNPP Lake Granbury intake. The closest upstream industrial user is the DeCordova Bend electric power plant, located approximately 1.56 mi from the CPNPP Lake Granbury intake. Construction activities for CPNPP Units 3 and 4 intake are anticipated to have negligible, if any, effect on water quality or its current uses. Short-term increases in turbidity from construction at the CPNPP Lake Granbury intake and discharge sites are not expected to impact water supplies for these municipalities or industrial sites.

No flowing streams that affect water quality in SCR are in close proximity of the CPNPP site. However, the 109-river mi stretch of the Brazos River located upstream of Lake Granbury has a 303(d) designation under the provisions of Section 303 of the Clean Water Act. The 303(d) designations (indicating impaired waters) are due to elevated naturally occurring chloride concentrations (Subsection 2.3.3.1). Additionally, Lake Granbury is listed as an impaired candidate for exceeding water quality standards for chloride.

The Cretaceous-age Glen Rose Formation underlies the site and has an approximate thickness ranging from 217 to 271 ft below ground surface bgs. Under CPNPP Units 3 and 4, the thickness is approximately 230 ft. In the CPNPP vicinity, the Glen Rose Formation has been described as a poor water bearing formation with low water availability. Recharge into the site's shallow/perched groundwater system occurs through precipitation with no regional subsurface groundwater aquifer recharge. Because the local groundwater aquifer is not expected to be utilized to support construction, there would be no impacts to groundwater aquifer supplies.

of construction, impact to terrestrial habitats and wildlife at and near the CPNPP site is considered SMALL.

4.3.1.3 Important Terrestrial Species

As discussed in Subsection 2.4.1.1.4, important species are (1) federal- or state-listed (or proposed for listing) threatened or endangered species, (2) commercially or recreationally valuable species, (3) species that are essential to the maintenance and survival of species that are rare or commercially or recreationally valuable, (4) species that are critical to the structure and function of the local terrestrial ecosystem, and (5) species that may serve as biological indicators to monitor the effects of the proposed facilities on the terrestrial environment. See Subsection 2.4.1.1.4 for documentation concerning consultation with the U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department concerning federally and state-listed species.

Subsection 2.4.1.1.4 identifies no essential, critical, or bio-indicator species that potentially occupy habitats at or near the CPNPP site. The only important terrestrial species potentially occupying the site are a small number of rare species and a larger number of recreationally valuable species that are common in northern Texas.

~~Although SCR is closed to the public for recreational fishing, employees and certain invited groups are allowed to fish from the banks. Special events are also held on the shore allowing for some daytime recreational access to the reservoir. Boating on SCR and recreational hunting on the property are not permitted. Any loss of recreationally valuable species or their continuing unavailability to local hunters and fishermen has no impact on opportunities for recreational hunting and fishing in the area.~~SCR was closed to the public in September 2001 but will be reopened for full recreational uses with controlled access. CTS-01105

The golden-cheeked warbler and the black-capped vireo are the only terrestrial species listed by USFWS that potentially utilize Ashe juniper habitat on the CPNPP site. No federally listed plant species are within Somervell and Hood counties. Proposed construction activities cannot adversely affect any federally listed plants.

Although both the warbler and vireo have been observed foraging or nesting within 3.5 mi of the CPNPP site, neither of the species or their nests have been identified on the site. Proposed construction at the CPNPP site requires removal of only 3 percent of the Ashe juniper habitat that might be used by the warbler and less likely by the vireo for feeding or nesting. The potential for impact to either of these species is considered very SMALL.

State-protected terrestrial species potentially occurring on or immediately adjacent to the CPNPP site include the bald eagle, Texas horned lizard, and timber rattlesnake. The direct taking of state-protected, non-game species without proper permitting is prohibited. The taking of habitat for these species is not prohibited.

Wintering bald eagles are reported by CPNPP site personnel to forage and perch along the shore of SCR. The eagle, while state-listed, is not an essential species as defined by NUGREG-1555. No nests have been identified in the trees along the shoreline. No large, deciduous trees such as cottonwoods that might be capable of supporting a large eagle nest are anticipated to be

4.3.2.3 Intermittent Streams

Six mapped intermittent streams flow into SCR (Figure 2.4-1). Given their distance from the CPNPP construction area, these intermittent streams would not be affected by construction activity. In addition, two intermittent streams are located in the area of the proposed blow down treatment facility. They are unnamed tributaries to Squaw Creek that flow into the creek downstream of the SCR dam (Figure 2.4-1). As water of the United States, they are subject to the regulatory jurisdiction of USACE as discussed in Subsection 2.4.2.8.

4.3.2.4 Fisheries Resources

No additions or alterations of the water intake and discharge structures on SCR are planned. Additionally, SCR will be protected from any indirect or direct effects of construction elsewhere on the site by maintaining a vegetated buffer strip between construction sites and the shoreline of the reservoir and by channeling sediment laden stormwater into retention ponds.

SCR is a small reservoir owned by CPNPP that was closed to recreational fishing by the public in September 2001 for reasons of site security. SCR will be reopened to the public with controlled access and will allow recreational fishing once again. The most common fish identified in SCR during the 2007 studies were channel catfish, largemouth bass, and freshwater drum. CTS-01105

Lake Granbury supports a struggling sport fishery, with the predominant game fishes being largemouth and striped bass. Golden algae have been causing extensive fish kills throughout the winter months each year (Subsection 2.4.2.2). The reservoir itself is over 70 mi long, which leaves ample area for fish to travel. Any loss of habitat would be negligible given the vast habitat area within the reservoir.

Construction at Lake Granbury may involve pile driving, dredging, increased traffic, and other noise-producing activities. Construction on the bank of Lake Granbury is planned, and noise is expected to travel from the construction site through soil and water media, potentially affecting the audio-sensory system of fishes. Activities that emit loud and sudden noise are expected to cause more stress to hearing in fishes than constant noise because opportunities to acclimate or flee are absent.

In addition to a pressure and vibration sensitive lateral line, fishes have a structurally complex internal hearing mechanism. Ears of fishes are fluid-filled chambers containing otolith organs and sensory cilia lateral to the brain. Similar to terrestrial vertebrates, fishes convert acoustic energy to electrical signals that are deciphered by the brain for information. Unlike most vertebrates, fishes continue to produce sensory hair cells throughout their life (Hastings and Popper 2005). This production allows for re-generation of hearing ability for fishes that endure hearing loss due to noise stress (Smith, 2008).

Fishes adjacent to construction activities on SCR and Lake Granbury are expected to experience some degree of stress to their hearing mechanism that may at least temporarily cause them to relocate or cause a temporary threshold shift, which may also affect their foraging and predator avoidance capabilities. As discussed in Subsection 2.4.2.2, TPWD stocked SCR until 1996. Of the fish selected for stocking, the fish most intolerant to higher temperature and lower water quality were not seen in samples from 2007 (Table 2.4-13). Fish found in the 2007 samples were

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 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.

Although the peak construction workforce is expected to be 4953, only 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.

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, visitors to SCR, 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. | CTS-01105

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.

Subsection 2.2.1 discusses the visual effect of the reactor domes as a function of distance and angle of vision occupied by the domes. As the distance from the domes increases, the angle of vision occupied by the domes decreases significantly. Most of the parks in the region are located

engine mufflers, refinements in fan design, and improved hydraulic systems (USDOT 2006). The CPNPP construction utilizes newer equipment and equipment that is well maintained to minimize noise levels.

Many noise studies utilize noise levels based upon limited available data samples and documentation collected more than 30 years ago. Noise levels as generated by typical equipment are shown in Table 4.4-4. This information is being utilized to illustrate a worst case scenario. Table 4.4-4 illustrates noise levels in dBA at distances of 50,100, 400, and 2000 ft and at the nearest church and residences from the noise producing machinery.

Attenuated noise levels calculated in Table 4.4-4 are considered maximum noise levels. Construction equipment does not operate at maximum levels continuously, and utilizes newer and well maintained equipment. Therefore actual noise levels would be expected to be less than those predicted at the fence line. Utilization of modern equipment such as mufflers and hydraulic systems should reduce these noise levels furtherwith the exception of pile driving. For the majority of the construction activities, noise levels would be considered to be comparable to or below the background levels (50 – 55 dBA) and even this task would be below the 60 – 65 dBA classification of acceptable noise levels by HUD at each of the receptors.

Those construction activities that generate noise above 60 – 65 dBA levels at the fence line would be temporary. Generally, most construction activities would occur during normal daylight hours between 0700 and 1700. There are occasions when construction activities must be scheduled during night time hours. Typical instances include continuous concrete pours to ensure homogeneity and strength of the structures. At these times the noise level will remain upwards of 60 – 90 dB at a distance of 100 ft from the equipment (PG&E 2004) (CPWR 2002).

Nearby locations with potential sensitivity to noise were identified from the ambient noise survey as well as site reconnaissance conducted in 2007 and 2008. Receptors were reviewed within 10-mi radius of the site (Figure 2.5-20) and include the nearest residences (location 23 near the south fence line, location 1, location 17 near the east fence line), Post Oak Memorial Chapel and cemetery (location 25), Freedom Church (location 40) and Happy Hill Children's Home (location 30). Recreation locations were also selected such as the swim beach on the north side of SCR (location ~~2~~15). ~~No sensitive receptors were located within the fence line of the facility, except for wildlife and migratory birds.~~Squaw Creek Reservoir and Park, as well as the old swim beach are located on the CPNPP property therefore public access to SCR and its facilities are controlled and limited by CPNPP. Members of the public (receptors) that are allowed access to the reservoir for recreational activities are anticipated to follow site safety requirements that exist due to the industrial nature of the facility. As an industrial site, noise levels in certain areas of the reservoir may be slightly elevated during construction activities when compared with ambient noise levels located off site. CTS-01105

The near-by residences are located across SCR (near location 17) and to the south-southwest of the fence line (location 23). Because a body of water is between the eastern fence line and the residences, potential noise from the site would not be attenuated past the fence line (location 2) with distance as it would be by natural methods (trees with foliage, ground cover, or earthen berms). These residences are located at a substantial distance from the noise source and are not affected by proposed additional CPNPP construction noise. The nearest state park to the CPNPP site is Dinosaur Valley State Park, located 3.3 mi to the southwest of the site and will not

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.

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

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 proportinally small with the exception of Walnut Springs ISD. As that district has accomodated 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 and SCR, is Dinosaur Valley State Park, located 3.3 mi southwest of the center point. While SCR is open to the public via controlled access, no new visual impacts are anticipated due to the proximity to CPNPP Unit 1 and Unit 2, which has been in operation since 1990 and 1993, respectively. The reactor domes for CPNPP Units 1 and 2 are visible from the ~~park~~Dinosaur Valley State 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 CTS-01105

Chapter 5

Chapter 5 Tracking Report Revision List

Change ID No.	Section	ER Rev. 1 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-01105	5.4.1.1	5.4-2	Access change to SCR	Revised text to reflect the change of access to SCR and to identify the types of activity that are expected to be allowed. Additional text added to reflect that 100 boats maximum will be allowed but more may be allowed at special events.	3
CTS-01105	Table 5.4-1	5.4-14 5.4-15	Access change to SCR	Revised table to reflect additional pathways due to status change of SCR and clarification for dose.	3
CTS-01105	Table 5.4-8	5.4-29	Access change to SCR	Revised table to reflect estimated max individual dose due to status change of SCR.	3
CTS-01105	Table 5.4-11	5.4-32	Access change to SCR	Revised table to reflect estimated population dose due to status change of SCR.	3
CTS-01105	5.8.1.5	5.8-4	Access change to SCR	Revised text to reflect the change of access to SCR and to identify the types of activity that are expected to be allowed. Also to include information concerning Squaw Creek Reservoir and Park and associated activities.	3
CTS-01105	5.8.2.3.4	5.8-15	Access change to SCR	Revised text to reflect the change of access to SCR.	3
CTS-01105	Table 5.10-1 (Sheet 5 of 10)	5.10-7	Access change to SCR	Revised text to reflect to the change of access to SCR.	3

- Internal exposure from ingestion of water or contaminated food chain components.
- External exposure from the surface of contaminated water or from shoreline sediment.
- External exposure from immersion in contaminated water.

Water from SCR is not utilized in any way for public consumption. Access to SCR is through Squaw Creek Park for recreational activity and is limited and controlled by Luminant.~~to company employees and their families.~~ Boating, fishing and shoreline activities are allowed. Normally, a maximum of 100 boats will be allowed on the lake at any given time. More than 100 boats may be allowed for special occasions.~~The activity is limited to specific hours and specific days of the week with the restriction of shoreline fishing only. Public groups can arrange for access to participate in shoreline fishing only with specific permission from CPNPP Public Relations Department personnel.~~ CTS-01105

The discharge from SCR is Squaw Creek, a freshwater stream that converges with the Paluxy and Brazos Rivers approximately 4.3 mi south of the reservoir (Figure 5.4-1). There are no other sources of dilution in Squaw Creek; therefore, the most limiting location for aquatic food and recreation for an individual in an unrestricted area is along Squaw Creek. From its confluence with the Paluxy River, the Brazos River flows approximately 60 stream mi south to Whitney Reservoir. Whitney Dam impounds Whitney Reservoir, a lake with a capacity of 554,203 ac-ft and a length of approximately 30 stream mi. Below Whitney Dam, the Brazos River continues to flow south for many miles; however, only approximately 16 stream mi are considered in this evaluation because at this point the river flows outside the 50 mi radius from CPNPP. Figure 5.4-2 shows the Brazos River system within 50 mi of CPNPP.

NUREG-1555 states that the population distribution for 80 km (50 mi) around the site for five years after the time of the licensing action should be considered in the assessment of effluent doses. The projected permanent and transient population for the year 2058, 3,493,553 persons, conservatively bounds this requirement. Default population fractions of 0.71 (adult), 0.11 (teen), and 0.18 (child) are assumed.

The LADTAP II computer program (NUREG/CR-4013) was developed by the U.S. Nuclear Regulatory Commission (NRC) to estimate radiation doses to individuals, population groups, and biota from radionuclide releases as liquid effluents from lightwater nuclear reactors (LWRs) during routine operation. The LADTAP II hydrologic model used to represent mixing of the CPNPP Units 3 and 4 liquid effluent in SCR is the completely mixed impoundment (reservoir) model. The LADTAP II completely mixed impoundment model assumptions are consistent with Regulatory Guide 1.113. For calculation of the shoreline dose, a width factor is input to define the shoreline geometry of Squaw Creek. A shore-width factor for rivers of 0.2 is used.

Because SCR is represented as a completely mixed tank, the circulating water system flowrate from CPNPP Units 1 and 2 to SCR does not affect the reconcentration in the impoundment or the resulting doses. The liquid effluent from Units 3 and 4 is discharged into and mixed with the Unit 1 or 2 circulating water flow.

Another important hydrological parameter associated with the completely mixed model is the flushing of the reservoir by releases from SCR to Squaw Creek. Lower effluent releases from

TABLE 5.4-1 (Sheet 1 of 2)
LIQUID EFFLUENT PATHWAY PARAMETERS

Description	Parameter	
Completely Mixed Impoundment Model		
SCR Volume[(a)]	144,700 ac-ft (6.3E+09 ft^3)	
Effluent Discharge Flow rate	247,500 gpm	
SCR minimum discharge flow rate (Case 1)	1.5 ft^3/s	
SCR expected average discharge flow rate (Case 2)	45.4 ft^3/s (32,900 ac-ft/year)	
Midpoint of plant life	30 yr	
Maximally Exposed Individual		
Shoreline and fishing use location	On SCR and 2 mi below Squaw Creek Dam	CTS-01105
Shore-width factor (Squaw Creek)	0.2	
Shore-width factor (SCR)	0.3	CTS-01105
Squaw Creek stream velocity	0.4 ft/sec	
Transit time to location of maximum individual dose	7.3 hr	
Transit time (SCR)	0.0	CTS-01105
Dilution factor for Squaw Creek	1	
Dilution factor for SCR	1	CTS-01105
Downstream distance to first potential drinking water location (City of Cleburne diversion)		
Along Squaw Creek	4.3 mi (22,704 ft)	
Along Paluxy and Brazos Rivers	44.5 mi (235,046 ft)	
Brazos River stream velocity	1.3 ft/sec	
Transit time to first potential drinking water location	66 hr	
Brazos River monthly average stream flow	1,234 ft^3/sec	
Dilution factor for drinking closest drinking water (Case 1) (complete mixing of Squaw Creek and Brazos River)	822.7	
Dilution factor for drinking closest drinking water (Case 2) (complete mixing of Squaw Creek and Brazos River)	27.2	
Population Dose		
2058 projected 50-mile population including transients	3,493,553 persons	
Location of potential drinking water location		
City of Cleburne diversion	given above	
City of Whitney diversions	9.6 mi (50,654 ft) downstream of Cleburne	
Transit time to assumed City of Whitney diversion	77 hr	
Dilution factor for drinking water, multiplied by a factor of two for dilution in Whitney Reservoir (Case 1)	1645.4 (822.7*2)	

TABLE 5.4-1 (Sheet 2 of 2)
LIQUID EFFLUENT PATHWAY PARAMETERS

Description	Parameter	
Dilution factor for drinking water, multiplied by a factor of two for dilution in Whitney Reservoir (Case 2)	54.4 (27.2*2)	
Projected population of Cleburne	53,440	
Projected population of Whitney	3,722	
Distance to assumed location of fish harvest (above Whitney Reservoir, City of Cleburne diversion)	given above	
Total annual fish harvest, Whitney Reservoir and the Brazos River	715,125 lb/yr (324,375 kg/yr)	
Transit time for aquatic food	66 hrs	
Dilution factor for aquatic foods (Case 1 / Case 2)	822.7 / 27.2	
Downstream distance of shoreline, boating and swimming use (midpoint of Whitney Reservoir)	9.6 mi (50,654 ft) downstream of Cleburne	
Shore-width factor for shoreline use (Whitney Reservoir)	0.3	
Transit time for recreational usage	77 hr	
Dilution factor for recreational usage (Case 1 / Case 2)	1645.4 / 54.2	
Shoreline, boating and swimming usage based on RG 1.109 exposure times and age group fractions and 50 percent of the 50 mile population (population dose due to public use of SCR is estimated to be 250 times the maximum SCR individual dose based on an estimated maximum usage of 250 people)	22,358,746 person-hr/yr (each activity)	CTS-01105
Location of assumed irrigation diversion (City of Cleburne)	given above	
Transit time for irrigation usage	66 hr	
Dilution factor (Case 1 / Case 2)	822.7 / 27.2	
Irrigation rate	74.6 $L/m^2/mo$	
Total Meat Production along the Brazos River	281,000 (kg/yr)	
Total Milk Production along the Brazos River	943,000 (~~L~~l/yr)	CTS-01105
Irrigated Agricultural Products along the Brazos River		
Total Leafy Vegetables	54,038 lb (25,000 kgm)	
Total All Other Vegetables	11,619,279 lb (5,270,000 kgm)	

a) Based on USGS minimum pool elevation of 772.98 ft

Note: Default values from RG 1.109 used for all input values not listed above.

TABLE 5.4-8
ESTIMATED MAXIMUM INDIVIDUAL DOSE FROM LIQUID EFFLUENTS
(MREM/YR, PER UNIT)

Dose	Appendix I Objective	CPNPP Unit 3 or 4 Assessment	
Total Body			
Shoreline Use		~~1.30E-03~~1.95E-03	CTS-01105
Water Ingestion		6.39E-03	
Fish Ingestion		8.83E-01	
Irrigated Foods		8.91E-03	
Total	**3**	**9.00E-01**(a)	
Maximum Organ			
Shoreline Use(c)		~~7.25E-03~~1.09E-02	CTS-01105
Water Ingestion		4.51E-03	
Fish Ingestion		1.26E+00	
Irrigated Foods		1.04E-02	
Total	**10**	~~**1.28E+00**~~**1.29E-00**(b)	CTS-01105

Notes: CTS-01105

(a) An adult receives the maximum individual total body dose.

(b) A teenager receives the maximum individual organ dose, which is to the liver.

(c) SCR provides the maximum individual exposure.

TABLE 5.4-11
ESTIMATED POPULATION DOSE FROM LIQUID EFFLUENTS
(PERSON-REM/YR, PER UNIT)

Dose	CPNPP Unit 3 or 4 Assessment	
Total Body	~~2.14E+00~~2.36E+00	CTS-01105
GI-LLI (Max. organ)	~~2.23E+00~~2.27E+00	
Thyroid	~~2.04E+00~~2.07E+00	

and 0700. For the purpose of this document, noise impacts are assessed using the HUD Ldn of 60 - 65 dBA as the level below which noise levels would be considered acceptable for residential and outdoor recreational uses. As discussed in NUREG-1437, noise levels below 60 - 65 dBA are considered to be of small significance.

Additional noise sources from CPNPP plant operation are expected to include heating, ventilation and air-conditioning systems, vents, transformers and electrical equipment, transmission lines, water pumps, material-handling equipment, motors, public address systems, cooling towers, trucks and vehicular traffic. A fire arms shooting range is also located on-site, away from the main portion of the facility, but can create sporadic noise while firing weapons. Many of the noise sources are expected to be confined indoors, underground or used infrequently. The main source of continuous noise is anticipated to be the mechanical draft cooling towers. Per NUREG-1817, cooling towers generate approximately 85 dBA in close proximity and approximately 55 dBA at a distance of 1000 feet during operation.

Other noise generated on-site is from natural sources such as wind through foliage, wildlife, and insects. Noise generated outside of the fence line from nearby off-site sources include, residential activities (near locations 17 and 23), traffic along the western fence line (location 39, plant entrance) and aquatic vehicles (boats) around the reservoir and near the old swim beach (location 15) across the lake to the north of the site (Figure 2.5-20). ~~Swimming is no longer allowed at the swim beach, and aquatic vehicle use is utilized infrequently during environmental assessments and maintenance procedures.~~ CTS-01105

Nearby locations with potential sensitivity to noise were identified from the ambient noise survey as well as site reconnaissance conducted in 2007 and 2008. Receptors were reviewed within a 10-mi radius of the site and include the nearest residences (location 23 near the south fence line, location 1) and location 17 (near the east fence line), Post Oak Memorial Chapel and cemetery (location 25), Freedom Church (location 40) and Happy Hill Children's Home (location 30). Recreation locations within Squaw Creek Park were also selected such as the old swim beach on the north side of SCR (location 15)~~., but is generally not accessible to the public. Access to SCR is through Squaw Creek Park for recreational activity and is limited to company employees and their families. The activity is limited to specific hours and specific days of the week, with the restriction of shoreline fishing only. Public groups can arrange for access to participate in shoreline fishing only with specific permission from CPNPP Public Relations Department personnel.~~ Squaw Creek Reservoir and Park, as well as the old swim beach are located on the CPNPP property therefore public access to SCR and its facilities are controlled and limited by CPNPP. Members of the public (receptors) that are allowed access to the reservoir for recreational activities are anticipated to follow site safety requirements that exist due to the industrial nature of the facility. As an industrial site, noise levels in certain areas of the reservoir may be slightly elevated during operational activities when compared with ambient noise levels located off site. CTS-01105

No sensitive receptors (species of importance) were located within the fence line of the facility. As stated in Subsection 5.3.3.2.4, resident wildlife species quickly adapt to constant background noise, therefore the impact to resident wildlife is anticipated to be small. The near-by residences are located east across SCR and to the south-southwest of the site. Because water is between the site and the residences to the east, potential noise from the site would not be attenuated past the fence line (location 2) with distance as it would be by natural insulators (trees with foliage,

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.

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 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.

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). SCR, located within the site boundary, will be open for recreational use with controlled access. 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.~~ CTS-01105 CTS-01105

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.

TABLE 5.10-1 (Sheet 5 of 10)
SUMMARY OF MEASURES AND CONTROLS TO LIMIT ADVERSE IMPACTS DURING OPERATIONS

ER Chapter 5	Section Description	Potential Environmental Impact Parameters & Significance Level [a]									Impact Description or Activity	Specific Mitigation Measures and Controls
		Noise	Erosion	Effluents and wastes	Surface-water impacts	Groundwater impacts	Terrestrial ecosystem impacts	Aquatic ecosystem impacts	Socioeconomic impacts	other site-specific impacts		
5.4.2	Radiation Doses to Members of the Public			S	S		S			S	1. Radiological exposure to individuals and the general public from release of radioactive materials in liquid effluents releases to SCR and gaseous releases to the atmosphere. 2. Direct radiation from the containment and other plant buildings is negligible.	1) ~~Public access to SCR to limited due to security requirements; therefore, public exposure to from liquid effluent releases to SCR is minimable~~Public access tp SCR is controlled. Radiation doses to the public from gaseous releases to the atmosphere. Calculated doses are expected to be within limits given in 10 CFR 50 and Appendix I criteria within regulatory limits of 40 CFR 190; therefore no impact. (1,2) Releases and exposure to radiation are within all regulatory limits. • No additional mitigation is required.
5.4.3	Impacts to Members of the Public										1. Potential impacts to the public originate from liquid effluent releases to SCR and gaseous releases to the atmosphere. 2. Members of the public can receive radioactive doses from breathing, swimming, food, drinking water, and contact with contaminated soil.	(1,2) Procedures are developed for treating and handling radioactive effluents. (1,2) Calculated doses are expected to be within limits given in 10 CFR 50 and Appendix I criteria within regulatory limits of 40 CFR 190. • No additional mitigation is required.
5.4.4	Impacts to Biota other than Members of the Public			S	S		S	S		S	1. Potential doses to biota originate from liquid and gaseous effluents. 2. Biota can receive radioactive doses via contact with contaminated water or soil and through ingestion. Calculated doses for seven surrogated exceeded regulatory limits 40 CFR 190.	(1, 2) Although no international consensus has been developed with respect to dose exposures to biota, there is no convincing scientific evidence that chronic doses below 100 mrdad/day is harmful to plants or animals. The biota doses are less than 2 mrad/day. (1,2) Use of exposure guidelines, such as 40 CFR 190, which apply to members of the public in unrestricted areas, is considered very conservative when evaluating calculated doses to biota. The international Council on Radiation Protection states that "...if man is adequately protected then other living things are also likely to be sufficiently protected," and uses human protection to infer environmental protection from the effects of ionizing radiation (ORNL 1995). No mitigation is required. • No additional mitigation is required.
5.4.5	Occupational Radiation Doses										1. Impacts to workers from radiation exposure.	(1) Based on the available data on the APWR design, the maximum annual occupational dose is estimated to be 0.7263 person-Sv (72.63 person-rem). Impacts to workers from occupational radiation doses are SMALL and do not warrant additional mitigation.

CTS-01105

Chapter 6

Chapter 6 Tracking Report Revision List

Change ID No.	Section	ER Rev. 1 Page	Reason for change	Change Summary	Rev. of ER T/R
CTS-01105	6.2.5	6.2-4	Access change to SCR	Revised text to reflect the change of status for SCR.	3

- Radioactive tritium (H-3) is found in SCR (CPSES 2006a).

- Several sample results of radiological nuclides present in quantities greater than the LLD requirements are directly associated with the radioactive materials released from the 1986 Chernobyl accident (Elevated gross beta radioactivity levels were measured from May 7, 1986 through June 4, 1986. The second quarter air particulate composite had measurable levels of Ruthenium-103 [Ru-103], Cesium-134 [Cs-134], and Cesium-137 [Cs-137]. Iodine-131 [I-131] was measured in weekly air cartridges from May 7, 1986 through May 28, 1986. I-131 was also measured in two milk samples collected May 27, 1986) (CPSES 1987).

- Cs-137 was reported during both the preoperational and operational phases of the program in both broadleaf and shoreline sediments (CPSES 2006a).

The SCR contains tritium that is directly attributable to radioactive effluent releases at the CPNPP site. The measured level of tritium varies due to many different factors such as rainfall, makeup water, type of fuel, boron enrichment, and time in reactor core life. Reported values indicate that the tritium level is approaching equilibrium and currently varies around the 13,050 pCi/l range (average value for the eight quarterly samples collected in 2005). SCR is not used as a drinking water source (no drinking water pathway) and therefore, the 30,000 pCi/l reportable limit applies. (CPSES 2006), (CPSES 2006a) and (CPSES 1998).

Sample results of radiological nuclides present in quantities greater than the LLD requirements have been obtained from naturally occurring nuclides such as Potassium-40 (K-40), and the results are consistent with preoperational values. Sample results of radiological nuclides present in quantities greater than the LLD requirements for Cs-137 have been found in all phases of the program, both preoperational and operational. While values for Cs-137 are occasionally reported, no reactor-produced nuclides other than Cs-137 have been detected. Based on this data, Cs-137 can not positively be identified as being from radioactive effluent releases at the CPNPP site exclusively (CPSES 2006a) and (CPSES 2005).

The SCR tritium is the only radioactive nuclide reported in the environs of CPNPP that is directly attributable to the radioactive releases from CPNPP (CPSES 2006a). It is both expected and within regulatory limits. Access to SCR is through Squaw Creek Park for recreational activity~~, and is limited to company employees and their families. The activity is limited to specific hours and specific days of the week, with the restriction of shoreline fishing only. Public groups can arrange for access to participate in shoreline fishing only with specific permission from CPNPP Public Relations Department personnel.~~ The SCR will be open to the public for full recreational uses with controlled access. The SCR is ~~further~~ restricted in use, because no drinking water source is allowed from the reservoir. CTS-01105

6.2.6 REFERENCES

(CPSES 2006) Comanche Peak Steam Electric Station Off-site Dose Calculation Manual Units 1 and 2, Revision 26, December 2006.

(CPSES 2006a) Comanche Peak Steam Electric Station, Annual Radiological Environmental Operating Report For 2005, March 30, 2006.