

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

equipment condition, type of operation, and duration of operation. Because of design improvements and technological advances, new machines operate more quietly for many situations. Newer equipment is noticeably quieter than older models due primarily to better 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 4.4-3~~ Table 4.4-4. This information is being utilized to illustrate a worst case scenario. ~~Table 4.4-3~~ 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.

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Attenuated noise levels calculated in ~~Table 4.4-3~~ 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 further with 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.

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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). No sensitive receptors were located within the fence line of the facility, except for wildlife and migratory birds.

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 be affected by additional noise. Other receptors such as additional recreation areas, churches, hospitals, or schools are located at distances at which noise levels during construction activities would be comparable to background levels.

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(TCEQ 2007a) Texas Commission on Environmental Quality. "Water System Data Sheet: Hood County Public Water Systems." Available URL: <http://www3.tceq.state.tx.us/iwud/dist/index.cfm>. (Accessed March 22, 2007).

(TCEQ 2007b) Texas Commission on Environmental Quality. "Water System Data Sheet Report: City of Glen Rose." Available URL: <http://www3.tceq.state.tx.us/iwud/dist/index.cfm>. (Accessed March 22, 2007).

(TCEQ 2008) Texas Commission on Environmental Quality. "Air Quality Standard Permit for Concrete Batch Plants." Available URL: <http://www.tceq.state.tx.us/permitting/air/newsourcereview/mechanical/cbp.html>. Accessed April 7, 2009.

MET-07

(DeShazo, Starek & Tang 1987) DeShazo, Starek & Tang, Inc. "Transportation and Traffic Engineering Study for the Comanche Peak Steam Electric Station." Prepared for Texas Utilities Generating Company. October 22, 1987.

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

(USDOT 2006) United States Department of Transportation, Federal Highway Administration, Effective Noise Control During Night Time Construction, March 7, 2006

(USDOT 2009) United States Department of Transportation, Federal Highway Administration, Construction Equipment Noise Levels and Ranges, 2009.

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(PG&E 2004) Construction Equipment Noise Ranges, City of Salinas, June 2002 and Typical Construction Equipment Noise Generation Levels, PG&E Diablo Canyon Steam Generation Project, January 2004.

(CPWR 2002) The Center to Protect Workers Rights, Construction Noise: Hazard Alert, June 10, 2002.

(TWC 2008a) Texas Workforce Commission. Labor Market and Career Information. "SOCRATES Occupational Profiles: North Central WDA." Available URL: <http://socrates.cdr.state.tx.us/index.asp>. Accessed August 1, 2008.

(TWC 2008b) Texas Workforce Commission. Labor Market and Career Information. "SOCRATES Occupational Profiles: Tarrant WDA." Available URL: <http://socrates.cdr.state.tx.us/index.asp>. Accessed August 1, 2008.

(Pijawka and Chalmers 1983) Pijawka, D., and Chalmers, J. 1983. "Impacts of Nuclear Generating Plants on Local Areas." Economic Geography, Vol. 59, No. 1, pp. 66-80.

(EPA 2003) United States Environmental Protection Agency. "Water on Tap: What you Need to Know." Office of Water. October 2003.

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TABLE 4.4-4 (Sheet 1 of 2)
ATTENUATED NOISE LEVELS (DBA) EXPECTED FROM CONSTRUCTION EQUIPMENT

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<u>Type of Noise Generating Equipment</u>	<u>Distance From Source (ft)</u>					
	<u>50^a</u>	<u>100</u>	<u>400</u>	<u>2000^b</u> <u>Closest Point to</u> <u>fence line (near</u> <u>Location 1)</u>	<u>2000^b</u> <u>Nearest</u> <u>Residence (near</u> <u>Location 1)</u>	<u>6500^b</u> <u>Nearest Church</u> <u>(Location 25)</u>
<u>Heavy Trucks</u>	<u>84</u>	<u>78</u>	<u>66</u>	<u>52</u>	<u>52</u>	<u><46</u>
<u>Dump Trucks</u>	<u>84</u>	<u>78</u>	<u>66</u>	<u>52</u>	<u>52</u>	<u><46</u>
<u>Concrete Mixer</u>	<u>85</u>	<u>79</u>	<u>67</u>	<u>53</u>	<u>53</u>	<u><47</u>
<u>Jack Hammer</u>	<u>85</u>	<u>79</u>	<u>67</u>	<u>53</u>	<u>53</u>	<u><47</u>
<u>Scraper</u>	<u>85</u>	<u>79</u>	<u>67</u>	<u>53</u>	<u>53</u>	<u><47</u>
<u>Dozer</u>	<u>85</u>	<u>79</u>	<u>67</u>	<u>53</u>	<u>53</u>	<u><47</u>
<u>Generator-25kVA</u>	<u>70</u>	<u>63</u>	<u>52</u>	<u>38</u>	<u>38</u>	<u><32</u>
<u>Crane</u>	<u>85</u>	<u>79</u>	<u>67</u>	<u>53</u>	<u>53</u>	<u><47</u>
<u>Loader</u>	<u>80</u>	<u>74</u>	<u>62</u>	<u>49</u>	<u>49</u>	<u><43</u>
<u>Grader</u>	<u>85</u>	<u>79</u>	<u>67</u>	<u>53</u>	<u>53</u>	<u><47</u>
<u>Excavator</u>	<u>85</u>	<u>79</u>	<u>67</u>	<u>53</u>	<u>53</u>	<u><47</u>
<u>Pile Driver</u>	<u>95</u>	<u>89</u>	<u>77</u>	<u>63</u>	<u>63</u>	<u><57</u>

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TABLE 4.4-4 (Sheet 2 of 2)
ATTENUATED NOISE LEVELS (DBA) EXPECTED FROM CONSTRUCTION EQUIPMENT

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<u>Type of Noise Generating Equipment</u>	<u>Distance From Source (ft)</u>					
	<u>50^a</u>	<u>100</u>	<u>400</u>	<u>2000^b</u> <u>Closest Point to fence line (near Location 1)</u>	<u>2000^b</u> <u>Nearest Residence (near Location 1)</u>	<u>6500^b</u> <u>Nearest Church (Location 25)</u>
<u>Concrete Batch Plant</u>	<u>83</u>	<u>77</u>	<u>65</u>	<u>51</u>	<u>51</u>	<u><45</u>

Noise attenuation calculation. Secondary noise level (SPL₂,dBA) = Initial noise level (SPL₁,dBA) - 20 log (d¹/d²) where d¹ is the original distance from the source and d² is the measured distance from the source.

^a -Maximum noise levels (L_{max},dBA) at 50 feet, (US DOT 2009)

^b Measurements were calculated from the approximate central location of the proposed new units major construction and the nearest receptors (Figure 2.5-20). The closest point to the fence line (location 1), back yard of residence (near location 23), and the nearest church (location 25) were measured from the approximate location of the nearest concrete batch plant and near new unit construction area. The noise levels at the nearest church should be attenuated to below background (less than existing ambient) levels at this distance.