



Fugro	Comanche Peak Units 3 & 4
	RAI 2.5.4-2
- - - - - - - - - - - - - - - - - - -	Section 2.5.4.1.2 (page 124) of the FSAR indicates that the materials beneath the footprint of the facilities may contain localized zones or thin beds of poorly cemented or soft materials. These materials are discounted from having an important effect on response of performance or stability of the plant foundations on the basis of the small percentage of thickness of these materials as compared to the total thickness of the layer. Please provide information on the variability of these softer materials across the footprint of the facilities, and describe any potential impact these softer materials have on soil-structure interaction and structural response of the basemat. Please provide specific criteria on assessing their impact on uniformity assessments.
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	Comanche Peak Units 3 & 4
de 146-ce - 16 - 16 - 16 - 16 - 16 - 16 - 16 - 1	RAI 2.5.4-3
•••	Section 2.5.4.2.3.3 of the FSAR discusses the dynamic properties of rock and soil, but only discusses shear wave velocity and damping properties, and indicates that these were determined from the geophysical program Please provide additional information about how material damping was measured for both S- and P-wave velocities, and how material hysteretic damping was determined for site materials for both the shallow and deep velocity profiles.
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	Comanche Peak Units 3 & 4	
RAI 2.5.4-4		
	Calculation No. TXUT-001-FSAR-2.5-CALC-004 "Engineering Stratigraphy" indicates measured variability of the stratigraphic profile in the vicinity of the power block structures. Please provide additional information to demonstrate that this variability is within the range associated with the uniformity assumptions made in the site response and soil-structural interaction analyses conducted to estimate seismic response.	
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Comanche Peak Units 3 & 4 **RAI 2.5.4-6** FSAR Section 2.5.4.2.2.2.16 "Laboratory-Based Shear Wave Velocity" mentions that laboratory measurements of shear wave velocity on relatively undisturbed samples of shale, limestone and sandstone were performed. This section indicates that this testing was performed to determine the rock's degree of disturbance. FSAR Figure 2.5.4-238 provides Laboratory Shear Wave Velocity measurements vs. elevation. Given the large degree of variability in shear wave velocities encountered in the limestone layer, please discuss how this meets the uniformity criteria mentioned in FSAR Section 2.5.4.2.



fuce Comanche Peak Units 3 & 4 RAI 2.5.4-10 FSAR Figure 2.5.4-217 shows a general conceptual excavation cross-section. Please describe the procedure that will be followed during site excavation and construction activity to ensure that appropriate strata for proposed foundation locations, as described in the FSAR, are confirmed through objective measures and the exposed foundation laying surface is uniform. Any part of the contact surface of foundation that is shale and not Glen Rose limestone, should be removed and the remedial measures should be described in the FSAR. Please provide vertical and horizontal extent of all seismic categories I excavations, fills, and slopes, including the locations and limits of excavations, fills, and backfills on plot plans and geologic sections and profiles. www.fugro.com

Tucno	Comanche Peak Units 3 & 4		
	RAI 2.5.4-12		
RAI 2.5.4-12 By letter dated April 2, 2009, Luminant provided a revision to FSAR Subsection 2.5.4.5.4.1.2 "Fill Concrete." In its revision, Luminant proposed using the American Society for Testing and Material (ASTM) C94/C94M-07 "Standard Specification for Ready- Mixed Concrete," for use of ready mixed concrete for backfill purposes. The bulk of the ASTM C94/C94M standard is a performance, or end-result, specification. ASTM C94/C94M does not prescribe a method of achieving these requirements and results, such as how to achieve the slump, the air content, the temperature, or minimum strengths. Please indicate why the ASTM C94/C94M standard, and not the standard in American Concrete Institute 349, will be used.			
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	RAI 2.5.4-18
	Section 2.5.4.10.5 of the FSAR indicates that resistance to lateral loads can be achieved by both passive soil pressure as well as friction below the base. Please provide information on how safety against sliding was computed incorporating consistent displacement estimates for both friction under the basemat and passive pressure estimates. Please provide information on how ultimate friction coefficients were computed between basemat and fill materials potentially located under the basemat.
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FUGRO	Comanche Peak Units 3 & 4	
RAI 2.5.4-19		
	FSAR Section 2.5.4.10.4 "Lateral Earth Pressure" reference FSAR Figure 2.5.4-242-2.5.4243 which provides calculation of the lateral active and at-rest pressures for selected granular backfill. Please provide sample calculations considering effects of the seismic lateral earth pressure on the retaining structures.	
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TUGRO	Comanche Peak Units 3 & 4	
RAI 2.5.4-20		
	Calculation No. TXUT-001-FSAR-2.5-CALC-009, "Settlement and Bearing Capacity," indicates that the 50th percentile ultimate strength of the shale material is approximately 10 to 15 tsf, while the dynamic demand under the reactor building (static plus seismic loads) is over 30 tsf. The dynamic demands under the other facilities are also high, relative to this ultimate material strength. Please provide information to indicate that the shale material, as well as other such low-strength materials, will not be found under the power block facilities, and the program that will be used for confirmation.	
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Comanche Peak Units 3 & 4

RAI 2.5.5-3

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FSAR Subsections 2.5.4.1.5 and 2.5.5.1.2 indicate that localized surficial erosion and raveling have occurred in undocumented fill and/or native colluvial soils on the reservoir slopes, and conclude that this is a surficial condition that does not present a significant slope stability hazard to the CPNPP Units 3 and 4 plant sites. Please provide information including (1) to what extent the "localized surficial erosion and raveling" has happened, (2) the technical basis of the applicant's conclusion that there is no significant slope stability hazard, and (3) what, if anything, the applicant intends to do to ensure the maintenance and protection the slope for CPNPP Units 3 and 4. In addition, please explain whether this local erosion and raveling is considered as a factor in the slope stability analyses presented in Subsection 2.5.5.3.