
South Carolina Electric & Gas Company Virgil C. Summer Nuclear Station Units 2 and 3 Combined Licenses

Mandatory Hearing
October 12-13, 2011

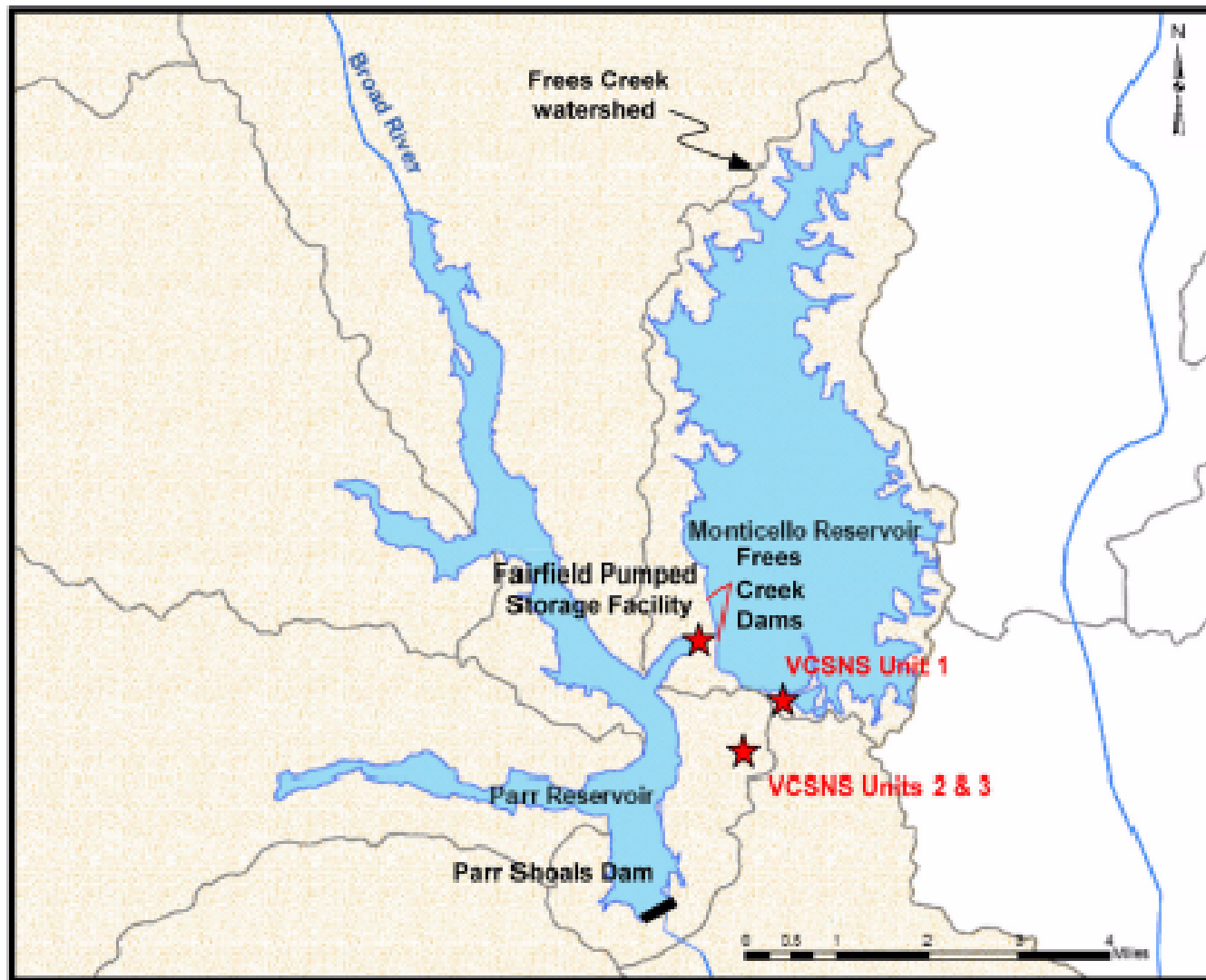
Safety – Panel 2

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Stephen Summer (SCANA Services)
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Topics

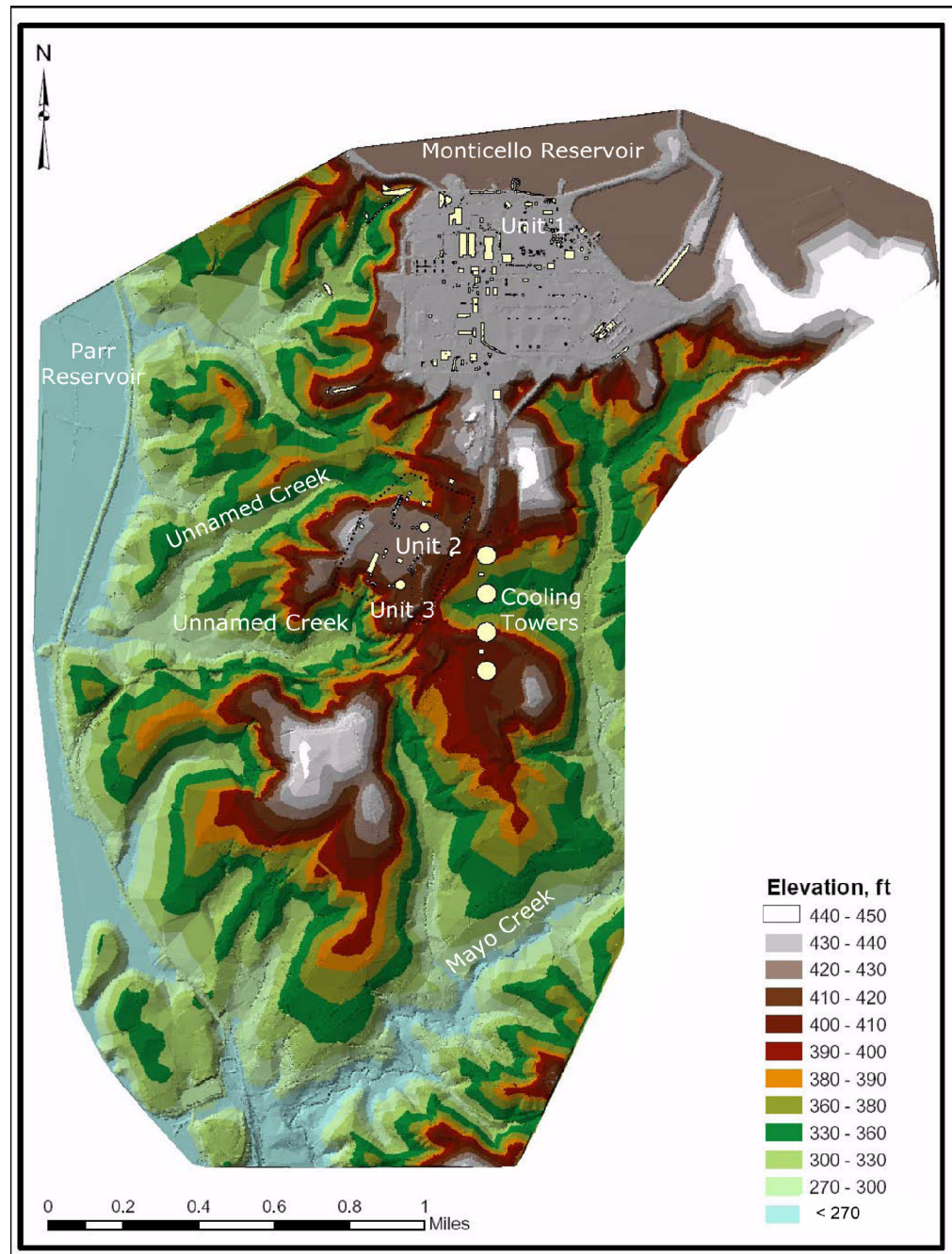
- Hydrology
- Site Foundation Characteristics
- Ground Motion Response Spectra (GMRS), Certified Seismic Design Response Spectra (CSDRS) and Hard Rock High Frequency (HRHF) Response Spectra
- Seismic Margin Analysis
- Other External Events

Major Surface Water Hydrologic Features



FSAR Figure 2.4-202

Site Topography



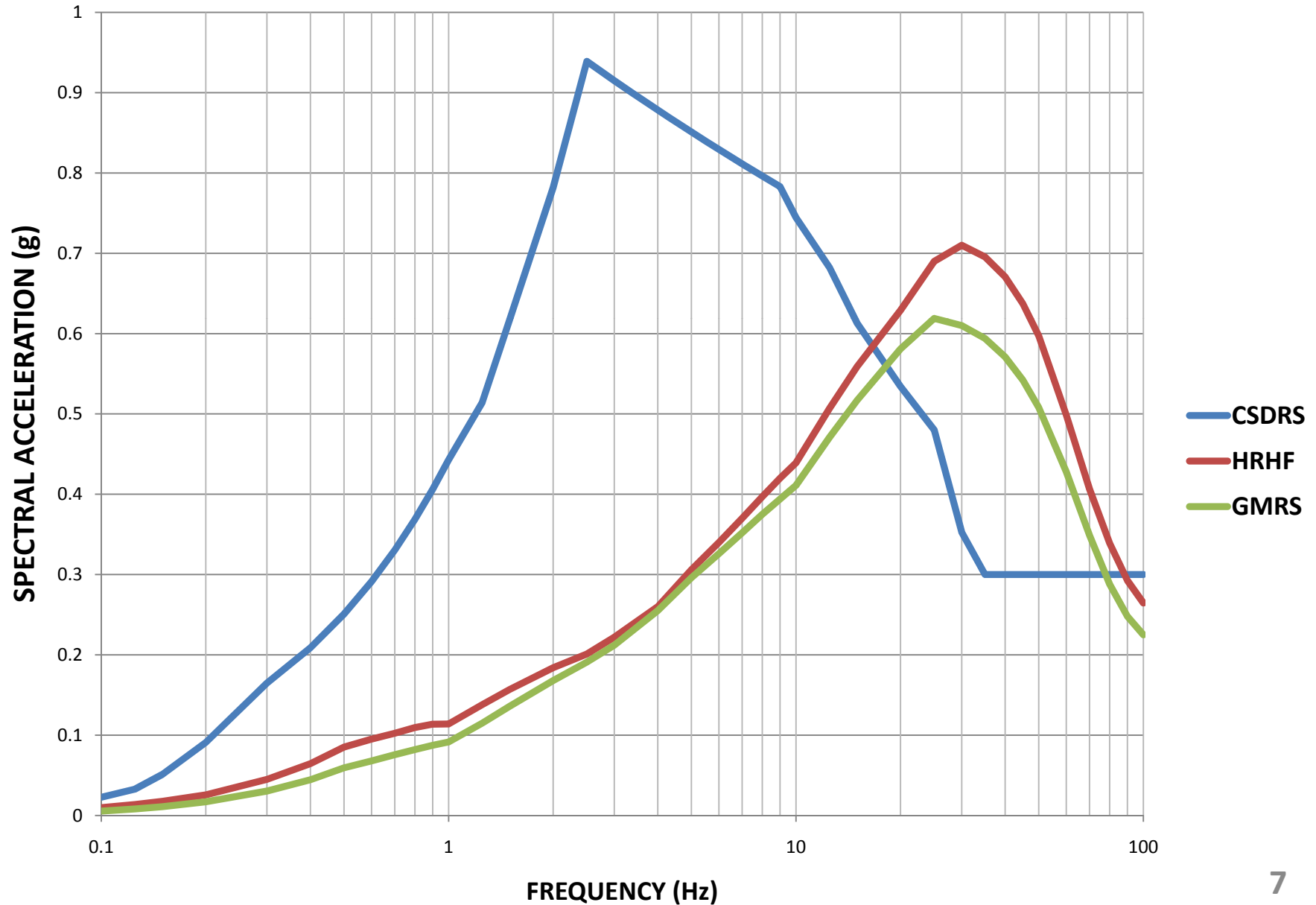
FSAR Figure 2.4-201



Site Foundation Characteristics

- V.C. Summer is a (hard) bedrock site
 - Hard rock defined in RG 1.208 as material with shear wave velocity (V_s) of about 2.8 km/sec (9200 ft/sec)
- Nuclear Island (NI) foundation
 - On hard bedrock
 - Layer of high compressive strength fill concrete
- Non-safety related power block structures (Turbine, Annex, and Radwaste Buildings) founded on imported (granular) engineered backfill
 - Minimizes potential for site-specific effects, such as seismically-induced liquefaction, settlements, slope stability or relative displacements

V. C. Summer – GMRS (Horizontal)



Seismic Margin

- Site-specific Seismic Margin Analysis
 - Final Safety Analysis Report (FSAR) Section 19.55.6.3
 - Site seismic demand based on site-specific GMRS is enveloped by a combination of CSDRS and HRHF design response spectra as defined by the Tier 1 criteria for Safe Shutdown Earthquake (SSE)
 - Seismic Margin Assessment analysis in the AP1000 Design Control Document (DCD) bounds the V.C. Summer site

Seismic Margin

- The High Confidence, Low Probability of Failure (HCLPF)
 - FSAR Section 19.55.6.3
 - NI founded on hard (sound) rock
 - Eliminates potential for site-specific effects such as seismically-induced liquefaction, settlements, slope stability, foundation failure or relative displacements which would lower the HCLPF values calculated for the certified design
 - For non-safety related structures and foundations adjacent to the NI, site-specific effects are evaluated in FSAR Section 2.5.4
 - Shown to have no effect on the NI
 - No potential to lower the HCLPF values calculated for the certified design

External Events

- Other external events are evaluated in FSAR Section 19.58, including the following:
 - High winds (*i.e.*, tornado, hurricane, extratropical cyclones)
 - External flooding
 - Transportation and nearby facility accidents (*i.e.*, aviation, marine, pipeline, railroad, truck)
 - Additional events at nearby facilities (*i.e.*, explosions, flammable vapor clouds, toxic chemicals)
 - External fires (*i.e.*, wildfire surrounding the site)
- The V.C. Summer site is bounded by the evaluation of these external events in the AP1000 DCD