Table 2.3.1-1. Comparison of V.C. Summer Site Characteristics and AP1000 Site Parameters

	AP1000 DCD Site Parameters	VCS Site Characteristics
Air Temperature		
Maximum Safety	115 °F dry bulb/86.1 °F coincident wet bulb	112.4°F dry bulb/74.5 °F coincident wet bulb (100-year return estimate of 2-hour duration 0 percent exceedance value)
	86.1 °F wet bulb (noncoincident)	87.3 °F wet bulb (non-coincident) (100-year return estimate of 2-hour duration 0 percent exceedance)
Minimum Safety	-40 °F	-8.9 °F (100-year return estimate of 2-hour duration 0 percent exceedance)
Maximum Normal	101 °F dry bulb/80.1 °F coincident wet bulb	97 °F dry bulb/76 °F coincident wet bulb
	80.1 °F wet bulb (noncoincident)	78 °F wet bulb (noncoincident)
Minimum Normal	-10 °F dry bulb	-5 °F dry bulb
Wind Speed		
3-Second Gust	145 mph	102 mph (100-year return period 3-second gust)
Tornado	300 mph	230 mph
Precipitation		
Ground Snow/Ice Load	75 lb/ft^2	12.2 lbf/ft^2 (100-year return period ground level snowpack)

Table 2.4-1. Summary Results Showing the Impact of Sensitivity Tests on Flood Levels

Drainage	Applicant's predicted Water Surface Elevation (ft)	Manning's roughness	Contraction/ expansion Coefficient	Downstream B.C (ft)	
		0.075 (heavy brush)	0.6, 0.8 (abrupt transition)	Dam break (391.85 ft)[(a)]	Critical depth (Flow from Subbasin 4+5)[(b)]
Subbasins1	399.35	399.24	399.36	N/A	N/A
Subbasins2	399.36	399.24	399.24	N/A	N/A
Subbasins3	399.39	399.5	399.39	N/A	N/A
Subbasins4	399.8	400.91	399.88	399.80	399.80

(a) The water surface elevation near the site in Mayo Creek was calculated by assuming extreme dam break condition (Monticello reservoir).
(b) PMP flow from Subbasin 5 was added by Staff to the downstream cross-section (at Storm Water Basin 3) of HEC-RAS for Subbasin 4.

Table 2.4-2. Parameters Used by Applicant for Analysis of Accidental Release to Ground Water

Parameter	Unit 2	Unit 3	Comments
Point of Release to Surface Water	Unnamed creek to north-northwest	Unnamed creek to south-southwest	
Saturated Hydraulic Conductivity (Ks), ft/day	1.7	1.7	75th percentile of slug test data in saprolite/shallow bedrock
Effective Porosity, ne	0.39	0.39	Estimated from particle size data
Distance (L), ft	850	1727	Straight line distance between auxiliary building and point of release
Hydraulic Gradient (grad), ft/ft	-0.0307	-0.0369	Calculated from water level data collected during monitoring program, June 2006 to June 2007
Ground Water Velocity (v), ft/yr	48.9	58.8	Ks x grad / ne
Travel Time (t), yr	17.4	29.4	L x R / v (R is adsorption, which is assumed to be zero in this example)
Ground Water Flow Rate to Unnamed Creek, cfs	1.67 x 10-4	2.01 x 10-4	Square plume, 10 ft thick, effluent filled the effective porosity only
Dilution Factor in Broad River	1.34 x 10-6	1.61 x 10-6	Assumes 100-year daily mean low flow in the Broad River is 125 cfs

Table 2.5.2-1. Comparison of Maximum Magnitudes and Weights for the USGS and SCDOT Models with the Applicant's UCSS Model

M_{max} (**M**)	USGS Model Weight	SCDOT Model Weight	UCSS Model Weight
6.7	—	—	0.1
6.8	0.2	—	—
6.9	—	—	0.25
7.1	0.2	0.2	0.3
7.3	0.45	0.6	0.25
7.5	0.15	0.2	0.1

Table 2.5.2-2. Mean Magnitudes and Distances used to Construct the UHRS (Based on Information Provided in VCSNS COL FSAR Table 2.5.2-218)

Structural Frequency	Annual Frequency of Exceedance	Magnitude (M)	Distance (km)
1 and 2.5 Hz	10^{-4}	7.3	250
5 and 10 Hz	10^{-4}	6.8	160
1 and 2.5 Hz	10^{-5}	7.3	260
5 and 10 Hz	10^{-5}	6.2	31

Table 2.5.4-1. Recovery and RQD Obtained from 30 Boring Logs

Rock Layer	Range of RQD (%)		Average Recovery Values (%)	
	Unit 2	Unit 3	Unit 2	Unit 3
Layer III (PWR)	N/A	N/A	N/A	N/A
Layer IV (MWR)	0-50	0-60	0-90	20-100
Layer V (Sound Rock)	80-100	90-100	90-100	95-100

Table 2.5.4-2. Shear Wave Velocity

	Elevation – top of Layer m (ft)		Vs m/s (fps)
	Unit 2	Unit 3	
Layer I	El. 114.3 (375)	El. 111.25 (365)	274 (900)
Layer II	El. 114.3 (375)	El. 111.25 (365)	274 (900)
Layer III	El. 114.3 (375)	El.111.25 (365)	914 (3,000)
Layer IV	El. 112.7 (370)	El. 109.7 (360)	1,828 (6,000)
Layer V (Sound Rock)	El. 108 (355)	El. 108 (355)	3,048 (10,000)

Table 2.5.4-3. Summary of Main Geotechnical Design Criteria

Design Item	Acceptance Criteria	Note
Against Liquefaction	Factor of Safety (FS) >1.25	
Static Bearing Capacity	> 8.9 ksf with FS=3	For safety-related structures
Dynamic Bearing Capacity	> 35 ksf with FS 2.25	For safety-related structures
Total Settlement	< 3 inches	For nuclear island foundation mat
Differential Settlement	< ½ inch per 50 ft	Across nuclear island foundation mat
	< ½ inch[1]	Between nuclear island and turbine building
	< ½ inch[1]	Between nuclear island and Other building
Lateral Earth Pressure	< standard design with FS=1.0	
Sliding and Overturning Stability	FS=1.1	Including seismic loading
Pile or Pier Foundation	FS=3	For end bearing component
	FS=2	For pile skin friction
Slope Stability [2]	FS=1.5	Long-term static stability
	FS=1.5	Long-term seismic stability