Final Safety Analysis Report

Calvert Cliffs
Nuclear Power Plant
Unit 3

Constellation Generation Group
UniStar Nuclear Operating Services

COPYRIGHT © 2007
UniStar Nuclear Development, LLC.
All Rights Reserved

This document has been prepared by or on behalf of UniStar Nuclear Development, LLC., in connection with the Calvert Cliffs Nuclear Power Plant Combined License (COL) Application. No use of or right to copy any of this information, other than by the U.S. Nuclear Regulatory Commission (NRC) and its contractors in support of the COL Application review, is authorized.

For information address: UniStar Nuclear Development, LLC.
750 E. Pratt Street
Baltimore, MD 21202

TABLE OF CONTENTS

		Page
2.0	SITE CHARACTERISTICS	2.0-1
2.1	GEOGRAPHY AND DEMOGRAPHY	2.1-1
2.2	NEARBY INDUSTRIAL, TRANSPORTATION AND MILITARY FACILITIES	2.2-1
2.3	METEOROLOGY	2.3.1-1
2.3.1	REGIONAL CLIMATOLOGY	2.3.1-1
2.3.2	REFERENCES	2.3.2-1
2.4	HYDROLOGIC ENGINEERING	2.4.1-1
2.4.1	HYDROLOGIC DESCRIPTION	2.4.1-1
2.4.2	FLOODS	2.4.2-1
2.4.3	PROBABLE MAXIMUM FLOOD (PMF) ON STREAMS AND RIVERS	2.4.3-1
2.4.4	POTENTIAL DAM FAILURES	2.4.4-1
2.4.5	PROBABLE MAXIMUM SURGE AND SEICHE FLOODING	2.4.5-1
2.4.6	PROBABLE MAXIMUM TSUNAMI FLOODING	2.4.6-1
2.4.7	ICE EFFECTS	2.4.7-1
2.4.8	COOLING WATER CANALS AND RESERVOIRS	2.4.8-1
2.4.9	CHANNEL DIVERSIONS	2.4.9-1
2.4.10	FLOODING PROTECTION REQUIREMENTS	2.4.10-1
2.4.11	LOW WATER CONSIDERATIONS	2.4.11-1
2.4.12	GROUNDWATER	2.4.12-1
2.4.13	PATHWAYS OF LIQUID EFFLUENTS IN GROUND AND SURFACE WATERS	2.4.13-1
2.4.14	TECHNICAL SPECIFICATION AND EMERGENCY OPERATION REQUIREMENTS	2.4.14-1
2.5	GEOLOGY, SEISMOLOGY AND GEOTECHNICAL ENGINEERING	2.5.1-1
2.5.1	BASIC GEOLOGIC AND SEISMIC INFORMATION	2.5.1-1
2.5.2	VIBRATORY GROUND MOTION	2.5.2-1
2.5.3	SURFACE FAULTING	2.5.3-1
2.5.4	STABILITY OF SUBSURFACE MATERIALS AND FOUNDATIONS	2.5.4-1
2.5.5	STABILITY OF SLOPES	2.5.5-1

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

LIST OF TABLES

Table 2.0-1	U.S. EPR Site Design Envelope Comparison
Table 2.0-2	Comparison of Inventory of Radionuclides Which Could Potentially Seep into the Groundwater
Table 2.1.1-1	CCNPP Unit 3 Specific Location
Table 2.1.3-1	Population Within 10 mi (16 km) Radius (2000-2060)
Table 2.1.3-2	Population Within 50 mi (80 km) Radius (2000-2060)
Table 2.1.3-3	Transient Population Facilities – Major Employers Within the 10 mi (16 km) Zone
Table 2.1.3-4	Transient Population Facilities – Major Recreational Areas and Attractions Within the 10 mi (16 km) Zone
Table 2.1.3-5	Transient Population Facilities – Marinas Within the 10 mi (16 km) Zone
Table 2.1.3-6	Transient Population Distribution for the 10- mi (16 km) Radius (2000)
Table 2.1.3-7	Commuting Parameters to and from the Calvert County and St. Mary's County Area (2000)
Table 2.1.3-8	Population Within the LPZ (2000-2060)
Table 2.1.3-9	Special Facilities – Schools Within the 10 mi (16 km) Zone
Table 2.1.3-10	Special Facilities – Nursing Homes Within the 10 mi (16 km) Zone
Table 2.2-1	Description of Facilities, Products and Materials
Table 2.2-2	CCNPP Units 1 and 2, Onsite Chemical Storage
Table 2.2-3	Hazardous Chemical Waterway Freight, Port of Baltimore
Table 2.2-4	Aircraft Operations – Significance Factors
Table 2.2-5	Onsite Chemicals Disposition
Table 2.2-6	Hazardous Material, Roadway Transportation, Disposition
Table 2.2-7	Hazardous Material, Navigable Waterway Transportation, Disposition
Table 2.2-8	Explosion Event Analysis
Table 2.2-9	Flammable Vapor Cloud Events (Delayed Ignition) and Vapor Cloud Explosion Analysis
Table 2.2-10	Toxic Vapor Cloud Analysis
Table 2.3.1-1	National Ambient Air Quality Standards
Table 2.3.1-2	Total and Average Numbers of Tropical Storms and Hurricanes
Table 2.3.1-3	Monthly Mean Number of Days with Thunderstorms
Table 2.3.1-4	High Winds by Storm Type for Calvert County
Table 2.3.1-5	Hail Events in Calvert County
Table 2.3.1-6	Ice Storm Events in Calvert County
Table 2.3.1-7	Snow Storm Events in Calvert County

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.3.1-8 Probable Maximum Winter Precipitation (PMWP) Values

Table 2.3.1-9 Design Basis Tornado Characteristics for CCNPP Unit 3

Table 2.3.1-10 Annual Heating and Humidification Design Conditions for Patuxent River Naval Air Station, Maryland (1982-2001)

Table 2.3.1-11 Annual Cooling, Dehumidification, and Enthalpy Design Conditions for Patuxent River Naval Air Station, Maryland (1982-2001)

Table 2.3.1-12 Extreme Annual Design Conditions for Patuxent River Naval Air Station, Maryland (1982-2001)

Table 2.3.1-13 Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperature Values for Patuxent River Naval Air Station, Maryland (1982-2001)

Table 2.3.1-14 Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperature Values for Patuxent River Naval Air Station, Maryland (1982-2001)

Table 2.3.1-15 Monthly Mean Daily Temperature Range for Patuxent River Naval Air Station, Maryland (1982-2001)

Table 2.3.2-1 CCNPP 33 ft (10m) Annual JFD

Table 2.3.2-2 CCNPP 197 ft (60m) Annual JFD

Table 2.3.2-3 CCNPP 33 ft (10m) January JFD (2000-2005)

Table 2.3.2-4 CCNPP 33 ft (10m) February JFD (2000-2005)

Table 2.3.2-5 CCNPP 33 ft (10m) March JFD (2000-2005)

Table 2.3.2-6 CCNPP 33 ft (10m) April JFD (2000-2005)

Table 2.3.2-7 CCNPP 33 ft (10m) May JFD (2000-2005)

Table 2.3.2-8 CCNPP 33 ft (10m) June JFD (2000-2005)

Table 2.3.2-9 CCNPP 33 ft (10m) July JFD (2000-2005)

Table 2.3.2-10 CCNPP 33 ft (10m) August JFD (2000-2005)

Table 2.3.2-11 CCNPP 33 ft (10m) September JFD (2000-2005)

Table 2.3.2-12 CCNPP 33 ft (10m) October JFD (2000-2005)

Table 2.3.2-13 CCNPP 33 ft (10m) November JFD (2000-2005)

Table 2.3.2-14 CCNPP 33 ft (10m) December JFD (2000-2005)

Table 2.3.2-15 CCNPP 197 ft (60m) January JFD (2000-2005)

Table 2.3.2-16 CCNPP 197 ft (60 m) February JFD (2000-2005)

Table 2.3.2-17 CCNPP 197 ft (60 m) March JFD (2000-2005)

Table 2.3.2-18 CCNP 197 ft (60 m) April JFD (2000-2005)

Table 2.3.2-19 CCNPP 197 ft (60 m) May JFD (2000-2005)

Table 2.3.2-20 CCNPP 197 ft (60 m) June JFD (2000-2005)

Table 2.3.2-21 CCNPP 197 ft (60 m) July JFD (2000-2005)

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.3.2-22 CCNPP 197 ft (60 m) August JFD (2000-2005)
Table 2.3.2-23 CCNPP 197 ft (60 m) September JFD (2000-2005)
Table 2.3.2-24 CCNPP 197 ft (60 m) October JFD (2000-2005)
Table 2.3.3-25 CCNPP 197 ft (60 m) November JFD (2000-2005)
Table 2.3.2-26 CCNPP 197 ft (60 m) December JFD (2000-2005)
Table 2.3.2-27 CCNPP 33 ft Wind Direction Persistence Summary for Year 2000
Table 2.3.2-28 CCNPP 33 ft Wind Direction Persistence Summary for Year 2001
Table 2.3.2-29 CCNPP 33 ft Wind Direction Persistence Summary for Year 2002
Table 2.3.2-30 CCNPP 33 ft Wind Direction Persistence Summary for Year 2003
Table 2.3.2-31 CCNPP 33 ft Wind Direction Persistence Summary for Year 2004
Table 2.3.2-32 CCNPP 33 ft Wind Direction Persistence Summary for Year 2005
Table 2.3.2-33 CCNPP 33 ft Wind Direction Persistence Summary for Years 2000-2005
Table 2.3.2-34 CCNPP 197 ft Wind Direction Persistence Summary for Year 2000
Table 2.3.2-35 CCNPP 197 ft Wind Direction Persistence Summary for Year 2001
Table 2.3.2-36 CCNPP 197 ft Wind Direction Persistence Summary for Year 2002
Table 2.3.2-37 CCNPP 197 ft Wind Direction Persistence Summary for Year 2003
Table 2.3.2-38 CCNPP 197 ft Wind Direction Persistence Summary for Year 2004
Table 2.3.2-39 CCNPP 197 ft Wind Direction Persistence Summary for Year 2005
Table 2.3.2-40 CCNPP 197 ft Wind Direction Persistence Summary for Years 2000-2005
Table 2.3.2-41 CCNPP Monthly Mean Temperatures (2000-2005)
Table 2.3.2-42 CCNPP Monthly Mean Extreme Maximum Temperatures (2000-2005)
Table 2.3.2-43 CCNPP Monthly Mean Extreme Minimum Temperatures (2000-2005)
Table 2.3.2-44 CCNPP Monthly Mean Daily Maximum Temperatures (2000-2005)
Table 2.3.2-45 CCNPP Monthly Mean Daily Minimum Temperatures (2000-2005)
Table 2.3.2-46 CCNPP Maximum Hourly Temperatures (2000-2005)
Table 2.3.2-47 CCNPP Minimum Hourly Temperatures (2000-2005)
Table 2.3.2-48 CCNPP Number of Hourly Temperature Values Greater Than or Less Than Indicated Value (2000-2005)
Table 2.3.2-49 Monthly Mean Temperatures (1971-2000) at Sites Around CCNPP
Table 2.3.2-50 Monthly Mean Maximum Temperatures (1971-2000) at Sites Around CCNPP
Table 2.3.2-51 Monthly Mean Minimum Temperatures (1971-2000) at Sites Around CCNPP
Table 2.3.2-52 Monthly Mean Wet Bulb Temperatures (1983-2000) at Sites Around CCNPP
Table 2.3.2-53 Monthly Mean Dew Point Temperatures (1983-2000) at Sites Around CCNPP

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.3.2-54 Number of Days with Maximum Hourly Temperature Value Greater Than or Equal to 90°F at Sites Around CCNPP

Table 2.3.2-55 Number of Days with Maximum Hourly Temperature Value Less Than or Equal to 32°F at Sites Around CCNPP

Table 2.3.2-56 Number of Days with Minimum Hourly Temperature Value Less Than or Equal to 32°F at Sites Around CCNPP

Table 2.3.2-57 Number of Days with Minimum Hourly Temperature Value Less Than or Equal to 0°F at Sites Around CCNPP

Table 2.3.2-58 Monthly Mean Relative Humidity at Sites Around CCNPP

Table 2.3.2-59 Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperature Values for Patuxent River Naval Air Station, Maryland (1982-2001)

Table 2.3.2-60 Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperature Values for Salisbury Wicomico County Airport, Maryland (1982-2001)

Table 2.3.2-61 Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperature Values for Baltimore, Maryland (1982-2001)

Table 2.3.2-62 CCNPP Monthly and Annual Precipitation (2000-2005)

Table 2.3.2-63 CCNPP Monthly and Annual Percent Frequency of Precipitation Occurrence (2000-2005)

Table 2.3.2-64 CCNPP Hourly Rainfall Rate Distribution (2000-2005)

Table 2.3.2-65 CCNPP Measured Extreme Precipitation Hourly Values (2000-2005)

Table 2.3.2-66 Mean Monthly and Annual Precipitation (1971-2000) at Sites Around CCNPP

Table 2.3.2-67 Mean Monthly and Annual Snowfall (1961-1990) at Sites Around CCNPP

Table 2.3.2-68 Monthly Mean Number of Days with Precipitation (1961-1990) at Sites Around CCNPP

Table 2.3.2-69 Monthly Mean Number of Days with Heavy Fog (1971-2000) at Sites Around CCNPP

Table 2.3.2-70 CCNPP 33 ft (10 m) Annual Stability Persistence Summary for Year 2000

Table 2.3.2-71 CCNPP 33 ft (10 m) Annual Stability Persistence Summary for Year 2001

Table 2.3.2-72 CCNPP 33 ft (10 m) Annual Stability Persistence Summary for Year 2002

Table 2.3.2-73 CCNPP 33 ft (10 m) Annual Stability Persistence Summary for Year 2003

Table 2.3.2-74 CCNPP 33 ft (10 m) Annual Stability Persistence Summary for Year 2004

Table 2.3.2-75 CCNPP 33 ft (10 m) Annual Stability Persistence Summary for Year 2005

Table 2.3.2-76 CCNPP 33 ft (10 m) Annual Stability Persistence Summary for Years 2000-2005

Table 2.3.2-77 CCNPP 197 ft (10 m) Annual Stability Persistence Summary for Year 2000

Table 2.3.2-78 CCNPP 197 ft (10 m) Annual Stability Persistence Summary for Year 2001

Table 2.3.2-79 CCNPP 197 ft (10 m) Annual Stability Persistence Summary for Year 2002

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.3.2-80 CCNPP 197 ft (10 m) Annual Stability Persistence Summary for Year 2003
Table 2.3.2-81 CCNPP 197 ft (10 m) Annual Stability Persistence Summary for Year 2004
Table 2.3.2-82 CCNPP 197 ft (10 m) Annual Stability Persistence Summary for Year 2005
Table 2.3.2-83 CCNPP 197 ft (10 m) Annual Stability Persistence Summary for Years 2000-2005
Table 2.3.2-84 Monthly and Annual Average Mixing Height Values
Table 2.3.2-85 Temperature Inversion Frequency and Persistence, Year 2000
Table 2.3.2-86 Temperature Inversion Frequency and Persistence, Year 2001
Table 2.3.2-87 Temperature Inversion Frequency and Persistence, Year 2002
Table 2.3.2-88 Temperature Inversion Frequency and Persistence, Year 2003
Table 2.3.2-89 Temperature Inversion Frequency and Persistence, Year 2004
Table 2.3.2-90 Temperature Inversion Frequency and Persistence, Year 2005
Table 2.3.2-91 National Ambient Air Quality Standards
Table 2.3.3-1 Tower Instrument Specifications and Accuracies for Meteorological Monitoring Program (Preoperational and Operational)
Table 2.3.3-2 Distances from Meteorology Tower to Nearby Obstructions to Air Flow
Table 2.3.4-1 Site-Specific EAB/LPZ Accident χ/Q Values for Ground Level Release
Table 2.3.4-2 Control Room/TSC χ/Q Values for Vent Stack Release
Table 2.3.4-3 Control Room/TSC χ/Q Values for Main Steam Relief Valve Release
Table 2.3.4-4 Control Room/TSC χ/Q Values for Safeguards Building Roof Release (via Safeguards Building Canopies)
Table 2.3.4-5 Control Room/TSC χ/Q Values for Equipment Hatch Release
Table 2.3.4-6 Control Room/TSC χ/Q Values for Safeguards Building Depressurization Shaft Release
Table 2.3.4-7 50th Percentile χ/Q Values
Table 2.3.4-8 Control Room Unfiltered Inleakage Atmospheric Dispersion Factors
Table 2.3.5-1 {Normal Effluent Annual Average, Undecayed, Undepleted χ/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}
Table 2.3.5-2 {Normal Effluent Annual Average, Undecayed, Undepleted χ/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Special and Additional Receptors}
Table 2.3.5-3 {Normal Effluent Annual Average, Depleted χ/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}
Table 2.3.5-4 {Normal Effluent Annual Average, Depleted χ/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Special and Additional Receptors}

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.3.5-5 {Normal Effluent Annual Average, Gamma χ/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}

Table 2.3.5-6 {Normal Effluent Annual Average, Gamma χ/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Special and Additional Receptors}

Table 2.3.5-7 {Normal Effluent Annual Average, D/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}

Table 2.3.5-8 {Normal Effluent Annual Average, D/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Special and Additional Receptors}

Table 2.3.5-9 {Specific Locations of Receptors of Interest}

Table 2.4.1-1 {Monthly Streamflow for the Patuxent River at Bowie, MD, USGS Station No. 01594440, Patuxent River Near Bowie, MD (1977 through 2005)}

Table 2.4.1-2 {Mean Daily Streamflow for the Patuxent River at Bowie, MD, USGS Station No. 01594440, Patuxent River Near Bowie, MD (1977 through 2005)}

Table 2.4.1-3 {Maximum Daily Streamflow for the Patuxent River at Bowie, MD, USGS Station No. 01594440, Patuxent River Near Bowie, MD (1977 through 2005)}

Table 2.4.1-4 {Minimum Daily Streamflow for the Patuxent River at Bowie, MD, USGS Station No. 01594440, Patuxent River Near Bowie, MD (1977 through 2005)}

Table 2.4.1-5 {Monthly Streamflow for St. Leonard Creek at St. Leonard, MD, USGS Station No. 01594800, St. Leonard Creek Near St. Leonard, MD (1956 through 2003)}

Table 2.4.1-6 {Mean Daily Streamflow for St. Leonard Creek at St. Leonard, MD, USGS Station No. 01594800, St. Leonard Creek Near St. Leonard, MD (1956 through 2003)}

Table 2.4.1-7 {Maximum Daily Streamflow for St. Leonard Creek at St. Leonard, MD, USGS Station No. 01594800, St. Leonard Creek Near St. Leonard, MD (1956 through 2003)}

Table 2.4.1-8 {Minimum Daily Streamflow for St. Leonard Creek at St. Leonard, MD, USGS Station No. 01594800, St. Leonard Creek Near St. Leonard, MD (1956 through 2003)}

Table 2.4.1-9 {Estimated Monthly Mean Inflow to the Chesapeake Bay Based on Three Reference Stations (1951 through 2000)}

Table 2.4.1-9 {Estimated Monthly Mean Inflow Into Chesapeake Bay Based on Three Reference Stations (1951 through Present)}

Table 2.4.1-10 {Details of Brighton and Rocky Gorge Dams}

Table 2.4.1-11 {Permitted Surface Water Withdrawals in Calvert County}

Table 2.4.1-11 {Permitted Surface Water Withdrawals in Calvert County}

Table 2.4.2-1 Sub-Basin Drainage Areas

Table 2.4.2-2 HEC-HMS Sub-Basin Site PMP Peak Discharges

Table 2.4.2-3 HEC-RAS PMP Peak Discharges

Table 2.4.2-4 PMP Maximum Water Levels

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.4.2-5 Safety-Related Facility Entrance Elevation Summary
Table 2.4.3-1 Point (1 mi^2) Probable Maximum Precipitation Depths
Table 2.4.3-2 PMP Peak Flow Rates
Table 2.4.3-3 PMF Flow Rates
Table 2.4.3-4 {Johns Creek PMF Water Surface Elevations}
Table 2.4.5-1 {Five Highest Historical Water Levels at Baltimore and Annapolis}
Table 2.4.5-2 {PMSS at the Entrance of the Chesapeake Bay}
Table 2.4.5-3 {Maximum Envelopes of Water for Hurricane Categories I to IV of 20 mph (32.2 km/h) Forward Speed and Northward Track Near the CCNPP Site}
Table 2.4.6-1 Historical Tsunamis Arriving at the Shores of the Eastern U.S. and Canada
Table 2.4.6-2 Tsunami Wave Characteristics of the Entrance of the Chesapeake Bay
Table 2.4.6-3 Summary of Numerical Analysis for the Tsunami Propagation
Table 2.4.6-4 Simulated Maximum and Minimum Tsunami Magnitude
Table 2.4.7-1 {Estimated Peak Freezing Degree-Days and Ice Thickness from 1946 to 2006}
Table 2.4.11-1 {Summary of Negative Surges of Major Hurricane Events}
Table 2.4.11-2 {Summary of Information of the Stations and Range of Data Used}
Table 2.4.11-3 {Annual Minimum Water Levels at Annapolis Station}
Table 2.4.11-4 {Annual Minimum Water Level at Solomons Island Station}
Table 2.4.12-1 CCNPP Unit 3 Observation Wells Construction Details
Table 2.4.12-2 CCNPP Unit 3 Observation Wells Water Level Elevations
Table 2.4.12-3 CCNPP Unit 3 Observation Wells Used in Hydrogeologic Evaluation
Table 2.4.12-4 CCNPP Unit 3 Observation Wells – Hydraulic Conductivities from Slug Tests
Table 2.4.12-5 CCNPP Unit 3 Aquifier Unit Geotechnical Parameters
Table 2.4.12-6 Listing of Maryland Department of the Environment (MDE) Water Appropriations Permits for Calvert County, Maryland
Table 2.4.12-7 Listing of U.S .Environmental Protection Agency (U.S. EPA) SDWIS Community, Non-Transient Non-Community, and Transient Non-Community Water Systems in Calvert County, Maryland
Table 2.4.12-8 Maryland Department of the Environment (MDE) Water Appropriation Permits for the Calvert Cliffs Nuclear Power Plant
Table 2.4.12-9 Calvert Cliffs Nuclear Power Plant – Water Use Report (in gallons), Maryland Department of Environment (MDE) Water Appropriation Permit CA69G010 (05)
Table 2.4.12-10 Calvert County Ground-Water-Level Monitoring Network – Selected Water Level Monitoring Wells
Table 2.4.13-1 Reactor Coolant Storage Tank Radionuclide Inventory
Table 2.4.13-2 {Transport Analysis Considering Advection and Radioactive Decay}

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.4.13-3 {Bulk Density Data for the Upper Chesapeake Unit (CU)}

Table 2.4.13-4 {Summary of the Radionuclide Kd Values for 20 Soils (mean of two replicates) and Averages for the Upper Chesapeake Aquifer (Units: mL/g)}

Table 2.4.13-5 {Transport Analysis Considering Advection, Radioactive Decay, and Retardation}

Table 2.4.13-6 {Transport Analysis Considering Advection, Radioactive Decay, Retardation and Dilution}

Table 2.4.13-7 {Compliance with 10 CFR Part 20, Appendix B, Table 2}

Table 2.5.1-1 Definitions of Classes Used in the Compilation of Quaternary Faults, Liquefaction Features, and Deformation in the Central and Eastern United States

Table 2.5.2-1 Earthquakes 1985-2005, Update to the EPRI (NP-4726-A 1988) Seismicity Catalog with EMB ≥ 2.8, Within a 35° to 43° N, 71° to 89° W Latitude-Longitude Window, Incorporating the 200 mi (320 km) Radius Site Region

Table 2.5.2-2 Conversion Between Body-Wave (mb) and Moment (M) Magnitudes

Table 2.5.2-3 Summary of Bechtel Group Seismic Sources

Table 2.5.2-4 Summary of Dames & Moore Seismic Sources

Table 2.5.2-5 Summary of Law Engineering Seismic Sources

Table 2.5.2-6 Summary of Rondout Seismic Sources

Table 2.5.2-7 Summary of Weston Seismic Sources

Table 2.5.2-8 Summary of Woodward-Clyde Seismic Sources

Table 2.5.2-9 Comparison of EPRI Characterizations of the Central Virginia Seismic Zone

Table 2.5.2-10 Bollinger (1992) Seismic Source Zone Parameters

Table 2.5.2-11 Seismic Source Zone Parameters

Table 2.5.2-12 Summary of Selected USGS Seismic Sources

Table 2.5.2-13 Seismic Source Zone Parameters

Table 2.5.2-14 Summary of Charleston Seismic Sources Changed in New UCSS Model (Bechtel, 2006)

Table 2.5.2-15 Geographic Coordinates (Latitude and Longitude) of Corner Points of Updated Charleston Seismic Source (UCSS) Geometries (Bechtel, 2006)

Table 2.5.2-16 Local Charleston Area Tectonic Features

Table 2.5.2-17 Comparison of Post-EPRI NP-6395-D 1989 Magnitude Estimates for the 1886 Charleston Earthquake

Table 2.5.2-18 Comparison of Talwani and Schaeffer (2001) and UCSS Age Constraints on Charleston Are Paleoliquiefaction Events

Table 2.5.2-19 Comparison of EPRI-SOG Seismic Hazard Results and Replication Calculated in 2006, for PGA, 10 Hz, and 1 Hz Spectral Velocity

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.5.2-20 Mean Magnitudes and Distances from Deaggregations
Table 2.5.2-21 Recommended Horizontal and Vertical SSE and OBE Amplitudes and Common V/H Ratios
Table 2.5.2-22 Calvert Cliffs Site Amplification Factors for 10^{-4} and 10^{-5} Input Motions and HF and LF Rock Spectra
Table 2.5.2-23 Values of UHS (Hard Rock Conditions)
Table 2.5.4-1 Summary of Field Testing Quantities
Table 2.5.4-2 Summary Thickness of Various Soil Strata
Table 2.5.4-3 Summary Termination Elevation of Various Soil Strata
Table 2.5.4-4 Summary of Measured (Uncorrected) SPT N-Values for Various Soil Strata
Table 2.5.4-5 Summary of Hammer-Rod Energy Measurements
Table 2.5.4-6 Summary of Adjusted SPT N-Values Based on Energy Measurements
Table 2.5.4-7 Summary of Laboratory Tests and Quantities
Table 2.5.4-8 Summary Average Values of Laboratory Index Properties
Table 2.5.4-9 Summary Laboratory Strength Results
Table 2.5.4-10 Summary Consolidation Properties
Table 2.5.4-11 High Strain Elastic and Shear Moduli Estimation
Table 2.5.4-12 Summary Average Soils Engineering Properties
Table 2.5.4-13 Summary Undrained Shear Strength for Cohesive Soils
Table 2.5.4-14 Summary Soils Chemical Test Results
Table 2.5.4-15 Summary Field Electrical Resistivity Test Results
Table 2.5.4-16 Guidelines for Soil Chemistry Evaluation
Table 2.5.4-17 Summary As-Conducted Boring Information
Table 2.5.4-18 Summary Undisturbed Tube Sample
Table 2.5.4-19 Summary As-Conducted CPT Information
Table 2.5.4-20 Summary As-Conducted Observation Well Information
Table 2.5.4-21 In-Situ Hydraulic Conductivity (Slug) Test Results
Table 2.5.4-22 Summary As-Conducted Test Pit Information
Table 2.5.4-23 Summary Field Electrical Resistivity Information
Table 2.5.4-24 Geophysical Data from CCNPP Units 1 and 2 UFSAR
Table 2.5.4-25 Shockscope Data from CCNPP Units 1 and 2 UFSAR
Table 2.5.4-26 Summary Laboratory Test Results on Bulk Soil Samples
Table 2.5.4-27 Design Vs Profile for CCNPP Unit 3 Subsurface Seismic Evaluation
Table 2.5.4-28 Summary Shear Modulus and Damping Ratios for the CCNPP Unit 3 Seismic Evaluation

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.5.4-29 Material Density and PI Adopted for the CCNPP Unit 3 Seismic Evaluation
Table 2.5.5-1 {Computed Factors of Safety (FOS) for the Critical Slip Surface}
Table 2.5.5-2 {Computed Factors of Safety (FOS) for (Forced) Deeper Slip Surfaces}

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

LIST OF FIGURES

Figure 2.1.1-1 Site Area Map
Figure 2.1.1-2 50 mi (80 km) Surrounding Area
Figure 2.1.1-3 10 mi (16 km) Surrounding Area
Figure 2.1.1-4 Enlarged Site Area Map
Figure 2.1.1-5 CCNPP Unit 3 Enlargement
Figure 2.1.2-1 Division of Site Parcels
Figure 2.1.3-1 10 mi (16 km) Radius Map
Figure 2.1.3-2 10 mi (16 km) 2000 Population Distribution
Figure 2.1.3-3 10 m (16 km) 2010 Population Distribution
Figure 2.1.3-4 10 mi (16 km) 2020 Population Distribution
Figure 2.1.3-5 10 mi (16 km) 2030 Population Distribution
Figure 2.1.3-6 10 mi (16 km) 2040 Population Distribution
Figure 2.1.3-7 10 mi (16 km) 2050 Population Distribution
Figure 2.1.3-8 10 mi (16 km) 2060 Population Distribution
Figure 2.1.3-9 50 mi (80 km) Vicinity
Figure 2.1.3-10 50 mi (80 km) 2000 Population Distribution
Figure 2.1.3-11 50 mi (80 km) 2010 Population Distribution
Figure 2.1.3-12 50 mi (80 km) 2020 Population Distribution
Figure 2.1.3-13 50 mi (80 km) 2030 Population Distribution
Figure 2.1.3-14 50 mi (80 km) 2040 Population Distribution
Figure 2.1.3-15 50 mi (80 km) 2050 Population Distribution
Figure 2.1.3-16 50 mi (80 km) 2060 Population Distribution
Figure 2.1.3-17 CCNPP Units 1, 2, and 3 Low Population Zone
Figure 2.1.3-18 10 mi (16 km) 2015 Population Distribution
Figure 2.1.3-19 10 mi (16 km) 2055 Population Distribution
Figure 2.1.3-20 50 mi (80 km) 2015 Population Distribution
Figure 2.1.3-21 50 mi (80 km) 2055 Population Distribution
Figure 2.1.3-22 Population Compared to NRC Siting Criteria
Figure 2.2-1 5 mi (8 km) Site Vicinity Map
Figure 2.2-2 Airports/Airways Within 10 mi (16-km) of Site
Figure 2.3.1-1 Ozone Concentrations for Maryland Counties
Figure 2.3.1-2 Annual Average Number of Tornadoes, 1950-1995
Figure 2.3.1-3 Average Number of Strong-Violent (F2-F5) Tornadoes, 1950-1995

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.3.1-4 Date of Maximum Tornado Threat
Figure 2.3.1-5 Five-Year Lightning Flash Density Map
Figure 2.3.2-1 CCNPP 33' (10 m) Annual Wind Rose (2000-2005)
Figure 2.3.2-2 CCNPP 197' (60 m) Annual Wind Rose (2000-2005)
Figure 2.3.2-3 CCNPP 33' (10 m) January Wind Rose (2000-2005)
Figure 2.3.2-4 CCNPP 33' (10 m) February Wind Rose (2000-2005)
Figure 2.3.2-5 CCNPP 33' (10 m) March Wind Rose (2000-2005)
Figure 2.3.2-6 CCNPP 33' (10 m) April Wind Rose (2000-2005)
Figure 2.3.2-7 CCNPP 33' (10 m) May Wind Rose (2000-2005)
Figure 2.3.2-8 CCNPP 33' (10 m) June Wind Rose (2000-2005)
Figure 2.3.2-9 CCNPP 33' (10 m) July Wind Rose (2000-2005)
Figure 2.3.2-10 CCNPP 33' (10 m) August Wind Rose (2000-2005)
Figure 2.3.2-11 CCNPP 33' (10 m) September Wind Rose (2000-2005)
Figure 2.3.2-12 CCNPP 33' (10 m) October Wind Rose (2000-2005)
Figure 2.3.2-13 CCNPP 33' (10 m) November Wind Rose (2000-2005)
Figure 2.3.2-14 CCNPP 33' (10 m) December Wind Rose (2000-2005)
Figure 2.3.2-15 CCNPP 197' (60 m) January Wind Rose (2000-2005)
Figure 2.3.2-16 CCNPP 197' (60 m) February Wind Rose (2000-2005)
Figure 2.3.2-17 CCNPP 197' (60 m) March Wind Rose (2000-2005)
Figure 2.3.2-18 CCNPP 197' (60m) April Wind Rose (2000-2005)
Figure 2.3.2-19 CCNPP 197' (60 m) May Wind Rose (2000-2005)
Figure 2.3.2-20 CCNPP 197' (60 m) June Wind Rose (2000-2005)
Figure 2.3.2-21 CCNPP 197' (60 m) July Wind Rose (2000-2005)
Figure 2.3.2-22 CCNPP 197' (60 m) August Wind Rose (2000-2005)
Figure 2.3.2-23 CCNPP 197' (60 m) September Wind Rose (2000-2005)
Figure 2.3.2-24 CCNPP 197' (60 m) October Wind Rose (2000-2005)
Figure 2.3.2-25 CCNPP 197' (60 m) November Wind Rose (2000-2005)
Figure 2.3.2-26 CCNPP 197' (60 m) December Wind Rose (2000-2005)
Figure 2.3.2-27 BWI Annual Wind Rose
Figure 2.3.2-28 Norfolk Annual Wind Rose
Figure 2.3.2-29 Richmond Annual Wind Rose
Figure 2.3.2-30 CCNPP 33' (10 m) Annual Precipitation Wind Rose (2000-2005)
Figure 2.3.2-31 CCNPP 197' (60 m) Annual Precipitation Wind Rose (2000-2005)

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.3.2-32 CCNPP 33' (10 m) January Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-33 CCNPP 33' (10 m) January Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-34 CCNPP 33' (10 m) January Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-35 CCNPP 33' (10 m) January Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-36 CCNPP 33' (10 m) January Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr
Figure 2.3.2-37 CCNPP 33' (10 m) January Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-38 CCNPP 33' (10 m) February Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-39 CCNPP 33' (10 m) February Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-40 CCNPP 33' (10 m) February Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-41 CCNPP 33' (10 m) February Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-42 CCNPP 33' (10 m) February Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-43 CCNPP 33' (10 m) March Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-44 CCNPP 33' (10 m) March Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-45 CCNPP 33' (10 m) March Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-46 CCNPP 33' (10 m) March Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-47 CCNPP 33' (10 m) March Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr
Figure 2.3.2-48 CCNPP 33' (10 m) March Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-49 CCNPP 33' (10 m) April Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-50 CCNPP 33' (10 m) April Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-51 CCNPP 33' (10 m) April Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-52 CCNPP 33' (10 m) April Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-53 CCNPP 33' (10 m) April Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr
Figure 2.3.2-54 CCNPP 33' (10 m) April Precipitation Wind Rose for Rate Class 0.7-0.8 in/hr
Figure 2.3.2-55 CCNPP 33' (10 m) April Precipitation Wind Rose for All Rate Classes

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.3.2-56 CCNPP 33' (10 m) May Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-57 CCNPP 33' (10 m) May Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-58 CCNPP 33' (10 m) May Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-59 CCNPP 33' (10 m) May Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-60 CCNPP 33' (10 m) May Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr
Figure 2.3.2-61 CCNPP 33' (10 m) May Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr
Figure 2.3.2-62 CCNPP 33' (10 m) May Precipitation Wind Rose for Rate Class 1.0-2.0 in/hr
Figure 2.3.2-63 CCNPP 33' (10 m) May Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-64 CCNPP 33' (10 m) June Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-65 CCNPP 33' (10 m) June Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-66 CCNPP 33' (10 m) June Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-67 CCNPP 33' (10 m) June Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-68 CCNPP 33' (10 m) June Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr
Figure 2.3.2-69 CCNPP 33' (10 m) June Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr
Figure 2.3.2-70 CCNPP 33' (10 m) June Precipitation Wind Rose for Rate Class 1.0-2.0 in/hr
Figure 2.3.2-71 CCNPP 33' (10 m) June Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-72 CCNPP 33' (10 m) July Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-73 CCNPP 33' (10 m) July Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-74 CCNPP 33' (10 m) July Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-75 CCNPP 33' (10 m) July Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-76 CCNPP 33' (10 m) July Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr
Figure 2.3.2-77 CCNPP 33' (10 m) July Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr
Figure 2.3.2-78 CCNPP 33' (10 m) July Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr
Figure 2.3.2-79 CCNPP 33' (10 m) July Precipitation Wind Rose for Rate Class 0.8-0.9 in/hr
Figure 2.3.2-80 CCNPP 33' (10 m) July Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-81 CCNPP 33' (10 m) August Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-82 CCNPP 33' (10 m) August Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-83 CCNPP 33' (10 m) August Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-84 CCNPP 33' (10 m) August Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-85 CCNPP 33' (10 m) August Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.3.2-86 CCNPP 33' (10 m) August Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr

Figure 2.3.2-87 CCNPP 33' (10 m) August Precipitation Wind Rose for Rate Class 0.7-0.8 in/hr

Figure 2.3.2-88 CCNPP 33' (10 m) August Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-89 CCNPP 33' (10 m) September Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

Figure 2.3.2-90 CCNPP 33' (10 m) September Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr

Figure 2.3.2-91 CCNPP 33' (10 m) September Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr

Figure 2.3.2-92 CCNPP 33' (10 m) September Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr

Figure 2.3.2-93 CCNPP 33' (10 m) September Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr

Figure 2.3.2-94 CCNPP 33' (10 m) September Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr

Figure 2.3.2-95 CCNPP 33' (10 m) September Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr

Figure 2.3.2-96 CCNPP 33' (10 m) September Precipitation Wind Rose for Rate Class 0.7-0.8 in/hr

Figure 2.3.2-97 CCNPP 33' (10 m) September Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-98 CCNPP 33' (10m) October Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

Figure 2.3.2-99 CCNPP 33' (10m) October Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr

Figure 2.3.2-100 CCNPP 33' (10 m) October Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr

Figure 2.3.2-101 CCNPP 33' (10 m) October Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr

Figure 2.3.2-102 CCNPP 33' (10 m) October Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr

Figure 2.3.2-103 CCNPP 33' (10 m) October Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr

Figure 2.3.2-104 CCNPP 33' (10 m) October Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-105 CCNPP 33' (10 m) November Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

Figure 2.3.2-106 CCNPP 33' (10 m) November Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.3.2-107 CCNPP 33' (10 m) November Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr

Figure 2.3.2-108 CCNPP 33' (10 m) November Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr

Figure 2.3.2-109 CCNPP 33' (10 m) November Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr

Figure 2.3.2-110 CCNPP 33' (10 m) November Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-111 CCNPP 33' (10 m) December Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

Figure 2.3.2-112 CCNPP 33' (10 m) December Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr

Figure 2.3.2-113 CCNPP 33' (10 m) December Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr

Figure 2.3.2-114 CCNPP 33' (10 m) December Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr

Figure 2.3.2-115 CCNPP 33' (10 m) December Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-116 CCNPP 197' (60 m) January Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

Figure 2.3.2-117 CCNPP 197' (60 m) January Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr

Figure 2.3.2-118 CCNPP 197' (60 m) January Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr

Figure 2.3.2-119 CCNPP 197' (60 m) January Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr

Figure 2.3.2-120 CCNPP 197' (60 m) January Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr

Figure 2.3.2-121 CCNPP 197' (60 m) January Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-122 CCNPP 197' (60 m) February Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

Figure 2.3.2-123 CCNPP 197' (60 m) February Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr

Figure 2.3.2-124 CCNPP 197' (60 m) February Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr

Figure 2.3.2-125 CCNPP 197' (60 m) February Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr

Figure 2.3.2-126 CCNPP 197' (60 m) February Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-127 CCNPP 197' (60 m) March Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.3.2-128 CCNPP 197' (60 m) March Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-129 CCNPP 197' (60 m) March Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-130 CCNPP 197' (60 m) March Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-131 CCNPP 197' (60 m) March Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr
Figure 2.3.2-132 CCNPP 197' (60 m) March Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-133 CCNPP 197' (60 m) April Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-134 CCNPP 197' (60 m) April Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-135 CCNPP 197' (60 m) April Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-136 CCNPP 197' (60 m) April Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-137 CCNPP 197' (60 m) April Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr
Figure 2.3.2-138 CCNPP 197' (60 m) April Precipitation Wind Rose for Rate Class 0.7-0.8 in/hr
Figure 2.3.2-139 CCNPP 197' (60 m) April Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-140 CCNPP 197' (60 m) May Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-141 CCNPP 197' (60 m) May Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-142 CCNPP 197' (60 m) May Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-143 CCNPP 197' (60 m) May Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-144 CCNPP 197' (60 m) May Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr
Figure 2.3.2-145 CCNPP 197' (60 m) May Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr
Figure 2.3.2-146 CCNPP 197' (60 m) May Precipitation Wind Rose for Rate Class 1.0-2.0 in/hr
Figure 2.3.2-147 CCNPP 197' (60 m) May Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-148 CCNPP 197' (60 m) June Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-149 CCNPP 197' (60 m) June Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-150 CCNPP 197' (60 m) June Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-151 CCNPP 197' (60 m) June Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-152 CCNPP 197' (60 m) June Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr
Figure 2.3.2-153 CCNPP 197' (60 m) June Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.3.2-154 CCNPP 197' (60 m) June Precipitation Wind Rose for Rate Class 1.0-2.0 in/hr
Figure 2.3.2-155 CCNPP 197' (60 m) June Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-156 CCNPP 197' (60 m) July Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-157 CCNPP 197' (60 m) July Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-158 CCNPP 197' (60 m) July Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-159 CCNPP 197' (60 m) July Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-160 CCNPP 197' (60 m) July Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr
Figure 2.3.2-161 CCNPP 197' (60 m) July Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr
Figure 2.3.2-162 CCNPP 197' (60 m) July Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr
Figure 2.3.2-163 CCNPP 197' (60 m) July Precipitation Wind Rose for Rate Class 0.8-0.9 in/hr
Figure 2.3.2-164 CCNPP 197' (60 m) July Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-165 CCNPP 197' (60 m) August Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-166 CCNPP 197' (60 m) August Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-167 CCNPP 197' (60 m) August Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-168 CCNPP 197' (60 m) August Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-169 CCNPP 197' (60 m) August Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr
Figure 2.3.2-170 CCNPP 197' (60 m) August Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr
Figure 2.3.2-171 CCNPP 197' (60 m) August Precipitation Wind Rose for Rate Class 0.7-0.8 in/hr
Figure 2.3.2-172 CCNPP 197' (60 m) August Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-173 CCNPP 197' (60 m) September Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr
Figure 2.3.2-174 CCNPP 197' (60 m) September Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr
Figure 2.3.2-175 CCNPP 197' (60 m) September Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr
Figure 2.3.2-176 CCNPP 197' (60 m) September Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr
Figure 2.3.2-177 CCNPP 197' (60 m) September Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.3.2-178 CCNPP 197' (60 m) September Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr

Figure 2.3.2-179 CCNPP 197' (60 m) September Precipitation Wind Rose for Rate Class 0.6-0.7 in/hr

Figure 2.3.2-180 CCNPP 197' (60 m) September Precipitation Wind Rose for Rate Class 0.7-0.8 in/hr

Figure 2.3.2-181 CCNPP 197' (60 m) September Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-182 CCNPP 197' (60 m) October Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

Figure 2.3.2-183 CCNPP 197' (60 m) October Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr

Figure 2.3.2-184 CCNPP 197' (60 m) October Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr

Figure 2.3.2-185 CCNPP 197' (60 m) October Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr

Figure 2.3.2-186 CCNPP 197' (60 m) October Precipitation Wind Rose for Rate Class 0.4-0.5 in/hr

Figure 2.3.2-187 CCNPP 197' (60 m) October Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr

Figure 2.3.2-188 CCNPP 197' (60 m) October Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-189 CCNPP 197' (60 m) November Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

Figure 2.3.2-190 CCNPP 197' (60 m) November Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr

Figure 2.3.2-191 CCNPP 197' (60 m) November Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr

Figure 2.3.2-192 CCNPP 197' (60 m) November Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr

Figure 2.3.2-193 CCNPP 197' (60 m) November Precipitation Wind Rose for Rate Class 0.5-0.6 in/hr

Figure 2.3.2-194 CCNPP 197' (60 m) November Precipitation Wind Rose for All Rate Classes

Figure 2.3.2-195 CCNPP 197' (60 m) December Precipitation Wind Rose for Rate Class 0.0-0.1 in/hr

Figure 2.3.2-196 CCNPP 197' (60 m) December Precipitation Wind Rose for Rate Class 0.1-0.2 in/hr

Figure 2.3.2-197 CCNPP 197' (60 m) December Precipitation Wind Rose for Rate Class 0.2-0.3 in/hr

Figure 2.3.2-198 CCNPP 197' (60 m) December Precipitation Wind Rose for Rate Class 0.3-0.4 in/hr

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.3.2-199 CCNPP 197' (60 m) December Precipitation Wind Rose for All Rate Classes
Figure 2.3.2-200 Monthly Average Mixing Heights
Figure 2.3.2-201 Ozone Concentrations for Maryland Counties
Figure 2.3.2-202 Topography Within a 1 Mile (1.6 km) Radius of the Site
Figure 2.3.2-203 Topography Within a 5 Mile (8 km) Radius of the Site
Figure 2.3.2-204 Topography Within a 50 Mile (80 km) Radius of the Site
Figure 2.3.2-205 Maximum Terrain Heights 0-50 Miles Downwind of CCNPP Site by Compass Sector (*)
Figure 2.3.3-1 CCNPP Site Map with Meteorological Tower Location
Figure 2.3.3-2 Detailed Topography within 8 km (5 mi)
Figure 2.3.4-1 CCNPP Unit 3 Control Room Location
Figure 2.4.1-1 Site Area Topography and Drainage
Figure 2.4.1-2 Site Utilization Plot Plan
Figure 2.4.1-3 Chesapeake Bay Watershed
Figure 2.4.1-4 Mean, Maximum and Minimum Monthly Streamflows for the Patuxent River at Bowie, MD, USGS Station No. 01594440, Patuxent River Near Bowie, MD (1977-06-01 through 2005-09-30)
Figure 2.4.1-5 Sub-Watershed Delineation of the Lower Patuxent River Watershed
Figure 2.4.1-6 Mean, Maximum and Minimum Monthly Streamflows for St. Leonard Creek at St. Leonard, MD, USGS Station No. 01594800, St. Leonard Creek Near St. Leonard, MD (1956-12-01 through 2003-09-30)
Figure 2.4.2-1 CCNPP Unit 3 Sub-Basin Drainage Boundaries
Figure 2.4.2-2 HEC-HMS Hyrdologic Diagram
Figure 2.4.2-3 CCNPP Unit 3 Drainage Ditch Cross Sections
Figure 2.4.3-1 Site Location
Figure 2.4.3-2 Johns Creek Watershed
Figure 2.4.3-3 HEC-HMS Watershed Schematic
Figure 2.4.3-4 Storage and Inflow & Outflow Hydrographs at Maryland Route 2-4 Culvert
Figure 2.4.3-5 Sub-Basin 1 Hydrograph
Figure 2.4.3-6 Sub-Basin 2 Hydrograph
Figure 2.4.3-7 Sub-Basin 3 Hydrograph
Figure 2.4.3-8 Sub-Basin 4 Hydrograph
Figure 2.4.3-9 HEC-RAS Cross Section Locations
Figure 2.4.3-10 Johns Creek PMF Water Surface Profiles
Figure 2.4.4-1 Patuxent River Watershed and Dam Locations

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.4.5-1	Chesapeake Bay Map and Locations of Storm Surge Prediction Sections
Figure 2.4.5-2	Storm Surge Relationship Between Hampton Roads and Open Coast
Figure 2.4.5-3	Bottom Profile of Wind Fetch for Cross Wind Effects and Wind Wave Estimation
Figure 2.4.5-4	Extrapolation of Surge Height for the PMH
Figure 2.4.5-5	Schematic Description of UHS Makeup Water Intake Location and Exposure for Wind Wave Estimation
Figure 2.4.5-6	Location of PMH Eye to Produce Maximum Easterly Wind Speed at the CCNPP Unit 3 Site
Figure 2.4.5-7	Storm Surge Heights at Different Locations in the Chesapeake Bay During Hurricane Isabel 2003
Figure 2.4.6-1	Map of Tsunami Source Generators
Figure 2.4.6-2	Staggered Grid for Leap-Frog Scheme
Figure 2.4.6-3	Time Grid Scheme for Assignment of Variables
Figure 2.4.6-4	Spatial Grid Scheme for Assignment of Variables
Figure 2.4.6-5	Computational Domain for Tsunami Simulation in Chesapeake Bay
Figure 2.4.6-6a	Water Levels Along Internal Boundary, Case 1
Figure 2.4.6-6b	Water Levels Along Internal Boundary, Case 2
Figure 2.4.6-6c	Water Levels Along Internal Boundary, Case 3
Figure 2.4.6-6d	Water Levels Along Internal Boundary, Case 4
Figure 2.4.6-7a	Time History of Tsunami Water Levels at the Site, Case 1
Figure 2.4.6-7b	Time History of Tsunami Water Levels at the Site, Case 2
Figure 2.4.6-7c	Time History of Tsunami Water Levels at the Site, Case 3
Figure 2.4.6-7d	Time History of Tsunami Water Levels at the Site, Case 4
Figure 2.4.7-1	General Site Region
Figure 2.4.7-2	South Chesapeake Bay Ice Analysis - January 28, 2000
Figure 2.4.7-3	South Chesapeake Bay Ice Analysis - February 01, 2004
Figure 2.4.7-4	South Chesapeake Bay Ice Analysis - January 24, 2005
Figure 2.4.7-5	South Chesapeake Bay Ice Analysis - January 26, 2005
Figure 2.4.7-6a	EGG Code
Figure 2.4.7-6b	EGG Code: Stages of Ice Development
Figure 2.4.7-6c	EGG Code: Predominant Forms of Ice
Figure 2.4.9-1	Change in the Chesapeake Bay Shoreline Position Near the CCNPP Unit 3 Site Between 1848, 1942, and 1993

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.4.9-2 Chesapeake Bay Shoreline Erosion Rates Near the CCNPP Unit 3 Site Estimated by Maryland Department of Natural Resources
Figure 2.4.10-1 UHS Make-Up Intake Structure Modified Bulkhead Retaining Wall Location
Figure 2.4.11-1 Track of the Probable Maximum Hurricane
Figure 2.4.11-2 CCNPP Unit 3 Site Location
Figure 2.4.11-3 Low Water Level Data of Annapolis Station and the Curve Fitted by Visual Inspection
Figure 2.4.12-1 Location of CCNPP: 200 Mile (320 Km) Radius from the Plant Site
Figure 2.4.12-2 Mid-Atlantic Regional Physiographic Provinces and Hydrostratigraphic Units
Figure 2.4.12-3 Schematic Geologic Cross Section through the Mid-Atlantic Region
Figure 2.4.12-4 Southern Maryland Schematic Hydrostratigraphic Section
Figure 2.4.12-5 Schematic Cross-Section of Southern Maryland Hydrostratigraphic Units
Figure 2.4.12-6 Potentiometric Surface of the Aquia Aquifer in Southern MD, Sept 2003
Figure 2.4.12-7 Potentiometric Surface of the Magothy Aquifer in Southern MD, Sept 2003
Figure 2.4.12-8 Potentiometric Surface of the Upper Patapsco Aquifer in Southern MD, September 2003
Figure 2.4.12-9 Potentiometric Surface of the Lower Patapsco Aquifer in Southern Maryland, September 2003
Figure 2.4.12-10 CCNPP Site Area Topography and Drainage
Figure 2.4.12-11 Cross-Section and Soil Boring and Locations in the Proposed Unit 3 Power Block Area
Figure 2.4.12-12 Cross-Section A-A' through Proposed Unit 3 Power Block Area
Figure 2.4.12-13 Cross-Section B-B' through Proposed Unit 3 Power Block Area
Figure 2.4.12-14 Groundwater Observation Wells and Cross-Section Locations in the Vicinity of CCNPP Unit 3
Figure 2.4.12-15 Groundwater Elevations for the Surficial Aquifer, July 2006 through March 2007
Figure 2.4.12-16 Water Table Elevation Map and Groundwater Flow Direction for the Surficial Aquifer, July 2006
Figure 2.4.12-17 Water Table Elevation Map and Groundwater Flow Direction for the Surficial Aquifer, September 2006
Figure 2.4.12-18 Water Table Elevation Map and Groundwater Flow Direction for the Surficial Aquifer, December 2006
Figure 2.4.12-19 Water Table Elevation Map and Groundwater Flow Direction for the Surficial Aquifer, March 2007
Figure 2.4.12-20 Groundwater Elevations for the Upper Chesapeake Unit, July 2006 through March 2007

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.4.12-21 Potentiometric Surface Elevation Map and Groundwater Flow Directions for the Upper Chesapeake Unit, July 2006

Figure 2.4.12-22 Potentiometric Surface Elevation Map and Groundwater Flow Directions for the Upper Chesapeake Unit, Sept 2006

Figure 2.4.12-23 Potentiometric Surface Elevation Map and Groundwater Flow Directions for the Upper Chesapeake Unit, Dec 2006

Figure 2.4.12-24 Potentiometric Surface Elevation Map and Groundwater Flow Directions for the Upper Chesapeake Unit, March 2007

Figure 2.4.12-25 Groundwater Elevations for the Lower Chesapeake Unit, July 2006 through March 2007

Figure 2.4.12-26 Potentiometric Surface Elevation Map and Groundwater Flow Directions for the Lower Chesapeake Unit, July 2006

Figure 2.4.12-27 Potentiometric Surface Elevation Map and Groundwater Flow Directions for the Lower Chesapeake Unit, Sept 2006

Figure 2.4.12-28 Potentiometric Surface Elevation Map and Groundwater Flow Directions for the Lower Chesapeake Unit, Dec 2006

Figure 2.4.12-29 Potentiometric Surface Elevation Map and Groundwater Flow Directions for the Lower Chesapeake Unit, March 2007

Figure 2.4.12-30 US EPA Region 3 Sole Source Aquifers

Figure 2.4.12-31 Projected Location of Nearest Off-Site Groundwater Well and Community Water Supply System

Figure 2.4.12-32 CCNPP Water Production Wells

Figure 2.4.12-33 The Differences Between the Potentiometric Surfaces of the Aquia Aquifer, September 1982 and September 2003, in Southern Maryland

Figure 2.4.12-34 The Differences Between the Potentiometric Surfaces of the Magothy Aquifer, September 1975 and September 2003, in Southern Maryland

Figure 2.4.12-35 The Differences Between the Potentiometric Surfaces of the Upper Patapsco Aquifer, September 1990 and September 2003, in Southern Maryland

Figure 2.4.12-36 The Differences Between the Potentiometric Surfaces of the Lower Patapsco Aquifer, September 1990 and September 2003, in Southern Maryland

Figure 2.4.12-37 Calvert County Ground-Water-Level Monitoring Network, Location of Selected Water Level Monitoring Wells

Figure 2.4.12-38 Well Hydrograph for Monitoring Well CA Fd 51 Screened in the Piney Point - Nanjemoy Aquifer at Calvert Cliffs State Park

Figure 2.4.12-39 Well Hydrograph for Monitoring Well CA Ed 42 Screened in the Aquia Aquifer at CCNPP

Figure 2.4.12-40 Well Hydrograph for Monitoring Well CA Dc 35 Screened in the Magothy Aquifer at Scientists Cliffs

Figure 2.4.12-41 Well Hydrograph for Monitoring Well CA Db 96 Screened in the Upper Patapsco Aquifer at Prince Frederick

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.4.12-42 Well Hydrograph for Monitoring Well CA Fd 85 Screened in the Lower Patapsco Aquifer at Chesapeake Ranch Estates

Figure 2.4.12-43 Modeled Post-Construction Depth to Surficial Aquifer Water Table Around Power Block 3

Figure 2.4.12-44 Modeled Post-Construction Elevation of the Surficial Aquifer Water Table Around Power Block 3

Figure 2.4.13-1 Upper Chesapeake Unit Flow Direction from the Nuclear Auxiliary Building to Branch 2, July 2006

Figure 2.4.13-2 Upper Chesapeake Unit Flow Direction from the Nuclear Auxiliary Building to Branch 2, September 2006

Figure 2.4.13-3 Upper Chesapeake Unit Flow Direction from the Nuclear Auxiliary Building to Branch 2, December 2006

Figure 2.4.13-4 Upper Chesapeake Unit Flow Direction from the Nuclear Auxiliary Building to Branch 2, March 2007

Figure 2.4.13-5 Conceptual Model Transport Cross-Section

Figure 2.5.1-1 Map of Physiographic Province

Figure 2.5.1-2 Site Vicinity Topographic Map 25 mi (40 km) Radius

Figure 2.5.1-3 Site Area Topographic Map 5 mi (8 km) Radius

Figure 2.5.1-4 Site Topgraphic Map 0.6 mi (1 km) Radius

Figure 2.5.1-5a Regional Geologic Map 200 mi (320 km) Radius

Figure 2.5.1-5b Regional Geologic Map 200 mi (320 km) Radius Explanation

Figure 2.5.1-6 Physiographic Map of Maryland

Figure 2.5.1-7 Evolution of the Appalachian Orogen

Figure 2.5.1-8 Lithotectonic Belts of the Piedmont Province

Figure 2.5.1-9 Map of Mesozoic Basins by Various Authors

Figure 2.5.1-10 Lithologies of Basement Rocks from Coastal Plain Wells

Figure 2.5.1-11 Tectonic Features of the Mid-Atlantic Passive Margin

Figure 2.5.1-12 Stratigraphic Cross-Section Through Anne Arundel, Calvert and St. Mary's Counties

Figure 2.5.1-13 Structure-Contour Map of the Top of the Piney Point-Nanjemoy Aquifer

Figure 2.5.1-14 Crusted Ages

Figure 2.5.1-15 Regional Strip Maps Showing Tectonostratigraphic Divisions and Regional Cross-Section Lines

Figure 2.5.1-16 Crustal-Scale Cross Section Through the Appalachian, Orogen and Coastal Plain

Figure 2.5.1-17 Crustal-Scale Cross Section Across the Mid-Atlantic Continental Shelf, Slope, and Rise

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.5.1-18 Crustal-Scale Cross Section of the Mid-Atlantic Passive Margin
Figure 2.5.1-19 Regional Magnetic Anomaly Map
Figure 2.5.1-20 Regional Gravity Anomaly Map
Figure 2.5.1-21 Chesapeake Bay Region Magnetic Anomalies with Mesozoic Basins
Figure 2.5.1-22 Late Proterozoic and Paleozoic Tectonic Features
Figure 2.5.1-23 Seismic Zones and Seismicity in CEUS
Figure 2.5.1-24 Map of Tertiary Tectonic Features
Figure 2.5.1-25 LiDar Data for Calvert and St. Mary's Counties
Figure 2.5.1-26a Site Vicinity Geologic Map 25 mi (40 km) Radius
Figure 2.5.1-26b Site Vicinity Geologic Map 25 mi (40 km) Radius Unit Descriptions
Figure 2.5.1-27 Map of Seismic Lines (A) and Paleo-Susquehanna River Channels (B)
Figure 2.5.1-28 Location Map (A) and Cross Section (B) of Calvert Cliffs, Maryland
Figure 2.5.1-29 Potential Quaternary Features in the Site Region
Figure 2.5.1-30 Site Area Geologic Map 5 mi (8 km) Radius
Figure 2.5.1-31 Site Area Geologic Cross Sections A-A' and B-B' 5 mi (8 km) Radius
Figure 2.5.1-32 Site Geologic Map 0.6 mi (1 km) Radius
Figure 2.5.1-33 Boring Location Map Calvert Cliffs Nuclear Power Plant Unit 3
Figure 2.5.1-34 CCNPP Site Specific Stratigraphic Column
Figure 2.5.1-35 Boring B-301, Caliper, Natural Gamma, Resistivity and SP Logs
Figure 2.5.1-36 Boring B-401, Caliper, Natural Gamma, Resistivity and SP Logs
Figure 2.5.1-37 Subsurface Profile E-E'
Figure 2.5.1-38 Cross Section
Figure 2.5.1-39 Geologic Section C-C'
Figure 2.5.1-40 Geologic Section D-D'
Figure 2.5.1-41 Subsurface Profile E-E'
Figure 2.5.1-42 View of Calvert Cliffs Toward the Southwest from the Barge
Figure 2.5.2-1 Bechtel Group EPRI Source Zones
Figure 2.5.2-2 Dames & Moore EPRI Source Zones
Figure 2.5.2-3 Law Engineering EPRI Source Zones
Figure 2.5.2-4 Rondout EPRI Source Zones
Figure 2.5.2-5 Weston Geophysical EPRI Source Zones
Figure 2.5.2-6 Woodward-Clyde Consultants EPRI Source Zones
Figure 2.5.2-7 Various EPRI Geometries of the Central Virginia Seismic Zone
Figure 2.5.2-8 Seismic Zones and Seismicity in CEUS

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.5.2-9 USGS Model

Figure 2.5.2-10 SC Dot Model

Figure 2.5.2-11 EPRI (NP-6452-D 1989) EST's Charleston Map

Figure 2.5.2-12 UCSS Map

Figure 2.5.2-13 Regional Charleston Tectonic Features

Figure 2.5.2-14 Local Charleston Tectonic Features

Figure 2.5.2-15 Updated Charleston Seismic Source (UCSS) Logic Tree with Weights for Each Branch Shown in Italics

Figure 2.5.2-16 Map of ZRA-S

Figure 2.5.2-17 Region Surrounding CCNPP Unit 3 Site Showing Rondout Source 29, a 200 km Square Background, a 400 km Square Background, and Historical Earthquakes

Figure 2.5.2-18 Comparison of Seismicity Rate for 200km-Square Background Surrounding CCNPP Unit 3 Site, Using EPRI-SOG Earthquake Catalog and Using Earthquake Catalog Updated through 2005

Figure 2.5.2-19 Comparison of Seismicity Rate for 400km-Square Background Surrounding CCNPP Unit 3 Site, Using EPRI-SOG Earthquake Catalog and Using Earthquake Catalog Updated through 2005

Figure 2.5.2-20 Comparizon of Seismicity Rate for Rondout Source 29, Using EPRI-SOG Earthquake Catalog and Using Earthquake Catalog Updated through 2005

Figure 2.5.2-21 Uniform Hazard Spectra for Rock Conditions at 7 Structural Frequencies for Which Ground Motion Equations are Available

Figure 2.5.2-22 Mean 10^{-4} Rock Deaggregation for 1 and 2.5 Hz

Figure 2.5.2-23 Mean 10^{-4} Rock Deaggregation for 5 and 10 Hz

Figure 2.5.2-24 Mean 10^{-5} Rock Deaggregation for 1 and 2.5 Hz

Figure 2.5.2-25 Mean 10^{-5} Rock Deaggregation for 5 and 10 Hz

Figure 2.5.2-26 Mean 10^{-4} Rock UHS Values and Smooth Spectra Fit to HF and LF Spectral Shapes

Figure 2.5.2-27 Mean 10^{-5} Rock UHS Values and Smooth Spectra Fit to HF and LF Spectral Shapes

Figure 2.5.2-28 Shear-Wave Velocity [V_s] and its Logarithmic Standard Deviation for the Top 140 m

Figure 2.5.2-29 Shear-Wave Velocity [V_s] and its Logarithmic Standard Deviation, used for Depths from 140 m to 800 m using Data from Chester and Lexington Park Wells

Figure 2.5.2-30 Shear-Wave Velocty [V_s] vs. Depth for Profiles 1 thorugh 10

Figure 2.5.2-31 Median [Mean of Logarithmic Values] ± Standard Deviation [Sigma of Log Values] of Shear-Wave Velocity [V_s] vs. Depth for all 60 Profiles (Thin Solid

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

	and Dashed Lines), Compared to Median vs Profile (Red) Described in Section 2.5.2.5.1.2
Figure 2.5.2-32	G/G_{max} Curves Representing Uncertainty in Shear Stiffness for Layer 4 (Chesapeake Clay/Silt)
Figure 2.5.2-33	Damping Curves Representing Uncertainty in Damping for Layer 4 (Chesapeake Clay/Silt)
Figure 2.5.2-34	Logarithmic Mean Site Amplification Factor and Standard Deviation at 41' Depth for 10^{-4} HF Input Motion
Figure 2.5.2-35	Maximum Strains vs. Depth for 10^{-4} HF Input Motion
Figure 2.5.2-36	Logarithmic Mean Site Amplification Factor and Standard Deviation at 41' Depth for 10^{-4} LF Input Motion
Figure 2.5.2-37	Maximum Strains vs. Depth for 10^{-4} LF Input Motion
Figure 2.5.2-38	Logarithmic Mean Site Amplification Factor and Standard Deviation at 41' Depth for 10^{-5} HF Input Motion
Figure 2.5.2-39	Maximum Strains vs. Depth for 10^{-5} HF Input Motion
Figure 2.5.2-40	Logarithmic Mean Site Amplification Factor and Standard Deviation at 41' Depth for 10^{-5} LF Input Motion
Figure 2.5.2-41	Maximum Strains vs. Depth for 10^{-5} LF Input Motion
Figure 2.5.2-42	HF and LF Spectra, and Envelopes, for 10^{-4} and 10^{-5}
Figure 2.5.2-43	Recommended Horizontal and Vertical SSE Spectra
Figure 2.5.2-44	V/H Ratios from Several Publications, and Recommended V/H Ratios
Figure 2.5.2-45	Mean 10^{-6} Deaggregation Plot for 1 and 2.5 Hz
Figure 2.5.2-46	Mean 10^{-6} Deaggregation Plot for 5 and 10 Hz
Figure 2.5.2-47	Mean Seismic Hazard by Source for Rondout Team, 10 Hz Spectral Acceleration
Figure 2.5.2-48	Mean Seismic Hazard by Source for Rondout Team, 1 Hz Spectral Acceleration
Figure 2.5.2-49	Mean Seismic Hazard by Source for Rondout Team, 10 Hz Spectral Acceleration
Figure 2.5.2-50	Mean Seismic Hazard by Source for Rondout Team, 1 Hz Spectral Acceleration
Figure 2.5.2-51	Mean and Fractile Rock Hazard Curves for PGA
Figure 2.5.2-52	Mean and Fractile Rock Hazard Curves for 25 Hz
Figure 2.5.2-53	Mean and Fractile Rock Hazard Curves for 10 Hz
Figure 2.5.2-54	Mean and Fractile Rock Hazard Curves for 5 Hz
Figure 2.5.2-55	Mean and Fractile Rock Hazard Curves for 2.5 Hz
Figure 2.5.2-56	Mean and Fractile Rock Hazard Curves for 1 Hz

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.5.2-57 Mean and Fractile Rock Hazard Curves for 0.5 Hz
Figure 2.5.4-1 Subsurface Investigation Location Plan
Figure 2.5.4-2 Subsurface Investigation Location Plan (Powerblock)
Figure 2.5.4-3 Test Pit Test Location Plan
Figure 2.5.4-4 Subsurface Profile Legend
Figure 2.5.4-5 Inferred Subsurface Profile NS-1
Figure 2.5.4-6 Inferred Subsurface Profile NS-2
Figure 2.5.4-7 Inferred Subsurface Profile NS-3
Figure 2.5.4-8 Inferred Subsurface Profile NS-4
Figure 2.5.4-9 Inferred Subsurface Profile IDP-1
Figure 2.5.4-10 Measured Standard Penetration Test N-Values
Figure 2.5.4-11 Measured CPT TIP Resistance Values
Figure 2.5.4-12 Water Contents and Limits Profile
Figure 2.5.4-13 Plasticity Chart
Figure 2.5.4-14 Friction Angle Interpretation From CPT Results
Figure 2.5.4-15 Preconsolidation Pressure From Laboratory Testing
Figure 2.5.4-16 OCR Interpretation from CPT Results
Figure 2.5.4-17 Undrained Shear Strength From Laboratory Tests
Figure 2.5.4-18 Undrained Shear Strength Interpreted From CPT Data
Figure 2.5.4-19 Uphole Seismic Survey Results From UFSAR
Figure 2.5.4-20 Geophysical Model of the Site for Units 1 and 2 from UFSAR
Figure 2.5.4-21 Vp Measurements from Suspension P-S Velocity Logging
Figure 2.5.4-22 Vs Measurements from Suspension P-S Velocity Logging
Figure 2.5.4-23 Average Vs Measurements from Suspension P-S Velocity Logging
Figure 2.5.4-24 Poisson's Ratio from Suspension P-S Velocity Logging
Figure 2.5.4-25 Average Poisson's Ratio from Suspension P-S Velocity Logging
Figure 2.5.4-26 Comparison of Vs Measurements from Suspension P-S Velocity Logging and CPT Seismic Tests
Figure 2.5.4-27 Site Grading Plan
Figure 2.5.4-28 Excavation Profile NS-1
Figure 2.5.4-29 Excavation Profile NS-2
Figure 2.5.4-30 Excavation Profile NS-3
Figure 2.5.4-31 Excavation Profile NS-4
Figure 2.5.4-32 Excavation Profile IDP1

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.5.4-33 Elevation Contours of Top of Stratum IIb Cemented Sand
Figure 2.5.4-34 Proximity of Chester and Lexington Park Sites to CCNPP
Figure 2.5.4-35 Vs Log Based on Chester (Kent Island) Measurements
Figure 2.5.4-36 Vs Log Based on Lexington Park Measurements
Figure 2.5.4-37 Smoothed and Averaged Vs Log for Chester and Lexington Park Measurements
Figure 2.5.4-38 Comparison of Average Vs for Chester, Lexington Park, Maryland and Deep Measurements in Coastal Plain Soils
Figure 2.5.4-39 Recommended Vs Soil Profile at CCNPP Site
Figure 2.5.4-40 Bedrock Vs Log for Chester (Kent Island), Maryland
Figure 2.5.4-41 Bedrock Vs Log for Lexington Park, Maryland
Figure 2.5.4-42 Interpretation of Bedrock Velocity Gradient for Chester Measurement
Figure 2.5.4-43 Recommended Vs Profile for the CCNPP Site
Figure 2.5.4-44 Recommended Poisson's Ratio Profile for the CCNPP Site
Figure 2.5.4-45 Recommended Modulus and Damping Ratio Curves for the CCNPP Site
Figure 2.5.4-46 Measured SPT N-Values (Uncorrected)
Figure 2.5.4-47 Calculated FOS Based on SPT N-Values
Figure 2.5.4-48 Calculated FOS <1.1 Based on SPT N-Values
Figure 2.5.4-49 Measured Suspension P-S Velocity Logging Vs Data (Uncorrected)
Figure 2.5.4-50 Calculated FOS Based on P-S Logging Vs Data
Figure 2.5.4-51 Measured CPT TIP Resistance Values
Figure 2.5.4-52 Measured CPT TIP Resistance Values
Figure 2.5.4-53 Calculated FOS Based on CPT TIP Resistance Data
Figure 2.5.4-54 Calculated FOS <1.1 Based on CPT TIP Resistance Data
Figure 2.5.4-55 Sample Active Lateral Earth Pressure Diagrams
Figure 2.5.4-56 Sample At-Rest Lateral Earth Pressure Diagrams
Figure 2.5.5-1 Site Grading Plan
Figure 2.5.5-2 Cross-Sections in Powerblock Area
Figure 2.5.5-3 Cross-Sections in Intake Structures Area
Figure 2.5.5-4 Schematic Section of Calvert Cliffs
Figure 2.5.5-5 Soil Stratigraphy and Properties for Slope Stability Analysis
Figure 2.5.5-6 Limit Equilibrium Slope Stability Analysis
Figure 2.5.5-7 Static and Pseudo-Static Stability Analyses of Slope Section A
Figure 2.5.5-8 Static and Pseudo-Static Stability Analyses of Slope Section B

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Figure 2.5.5-9 Static and Pseudo-Static Stability Analyses of Slope Section C
Figure 2.5.5-10 Static and Pseudo-Static Stability Analyses of Slope Section D
Figure 2.5.5-11 Static and Pseudo-Static Stability Analyses of Slope Section E
Figure 2.5.5-12 Static and Pseudo-Static Stability Analyses of Slope Section F
Figure 2.5.5-13 Static and Pseudo-Static Stability Analyses of Slope Section G
Figure 2.5.5-14 Static and Pseudo-Static Stability Analyses of Slope Section A (Forced Deeper Surface)
Figure 2.5.5-15 Static and Pseudo-Static Stability Analyses of Slope Section C (Forced Deeper Surface)
Figure 2.5.5-16 Static and Pseudo-Static Stability Analyses of Slope Section D (Forced Deeper Surface)
Figure 2.5.5-17 Static and Pseudo-Static Stability Analyses of Slope Section E (Forced Deeper Surface)
Figure 2.5.5-18 Static and Pseudo-Static Stability Analyses of Slope Section F (Forced Deeper Surface)

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

2.0 SITE CHARACTERISTICS

This section of the Design Control Document (DCD) is incorporated by reference with the departure(s) and supplement(s) as identified in the following sections.

Chapter 2 describes the geological, seismological, hydrological, and meteorological characteristics of the {Calvert Cliffs Nuclear Power Plant (CCNPP)} site and vicinity. The site characteristics are described in conjunction with present and projected population distribution, land use, and site activities and controls. The {CCNPP} site characteristics were developed in accordance with the relevant requirements of Title 10 CFR Part 20, Subpart D (CFR, 2007a); Title 10 CFR Part 50 (CFR, 2007b); Title 10 CFR Part 100 (CFR, 2007c); and Regulatory Guide 1.206 (NRC, 2007).

The U.S. EPR DCD includes the following COL Item in Section 2.0.

> A COL applicant that references the U.S. EPR design certification will compare site-specific data to the data in DCD Table 2-1. If the specific characteristics of the site fall within the bounds of the assumed characteristics in DCD Table 2-1, the site is acceptable. For site-specific parameters or characteristics that are outside the bounds of the conservative limiting assumptions presented in DCD Table 2-1, the COL applicant will verify that the U.S. EPR design acceptably meets any additional requirements that may be imposed by the more limiting site-specific characteristics, and that the design maintains conformance to the design commitments and acceptance criteria described in the DCD.

The {CCNPP Unit 3} site-specific parameters and characteristics have been reviewed and compared to determine if they are within the bounds of the assumed parameters and characteristics for a U.S. EPR. This comparison is provided in Tables 2.0-1 and 2.0-2. {For the CCNPP Unit 3 site-specific parameters or characteristics that are outside the bounds of the conservative limiting assumptions presented in Tables 2.0-1 and 2.0-2, justification of the acceptability of these conditions is provided in the associated section of Chapter 3, Design of Structures, Systems, Components, and Equipment or as specified in the associated table.}

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.0-1 U.S. EPR Site Design Envelope Comparison (Page 1 of 4)

	U.S. EPR DCD Design Parameter Value/Characteristic	{CCNPP Unit 3} Design Parameter Value/Characteristic
Precipitation		
Rainfall	≤ 19.4 inch/hr	{18.5 inch/hr} (See Section 2.4.3)
Snow (design: extreme live load, including 48 hour probable maximum winter precipitation)	≤ 100 psf	{53 psf} (See Section 2.3.1)
Seismology		
Horizontal SSE Acceleration	0.3 g (peak, EUR spectral shapes – See Section 2.5)	{0.165 g} (See Section 2.5.2)
Vertical SSE Acceleration	0.3 g (peak, EUR spectral shapes – See Section 2.5)	{0.133 g} (See Section 2.5.2)
Fault Displacement Potential	No fault displacement is considered for safety-related SSCs in U.S. EPR design certification	{No fault displacement potential} (See Section 2.5.3)
Soil		
Minimum Shear Wave Velocity	700 fps	{790 fps} (See Section 2.5.4)
Liquefaction	None	{None} (See Section 2.5.4)
Slope Failure Potential	No slope failure potential is considered in the design of safety-related SSCs for U.S. EPR design certification	{No slope failure potential that would adversely affect the safety of the proposed CCNPP Unit 3} (See Section 2.5.5)
Maximum Ground Water (Nuclear Island)	3.3 ft below grade	{Ranges between 4.0 ft and 10.0 ft below grade} (See Section 2.4.12)

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.0-1 U.S. EPR Site Design Envelope Comparison (Page 2 of 4)

	U.S. EPR DCD Design Parameter Value/Characteristic	{CCNPP Unit 3} Design Parameter Value/Characteristic
Inventory of Radionuclides Which Could Potentially Seep Into the Groundwater		
Radionuclide Inventory Which Could Potentially Seep Into Groundwater	See Table 2.0-2	See Table 2.0-2
Flood Level		
Maximum Flood (or Tsunami)	1 ft below grade	{Approximately 3 ft below grade, except for the UHS makeup water intake structure which is designed to function under submerged conditions (refer to Section 9.2.5)} (See Sections 2.4.1 and 2.4.2)
Wind		
Maximum Sustained Speed	145 mph (based on 3 second gust at 33 feet above ground level and factored for 50 year mean recurrence interval)	{95 mph} (based on 3 second gust at 33 feet for 50 year recurrence interval) (See Section 2.3.1)
Importance Factor	1.15 (safety related structures for 100 year mean recurrence interval)	{1.07} (safety related structures for 100 year mean recurrence interval) (See Section 2.3.1)
Tornado		
Maximum Pressure Drop	1.2 psi at ≤ 0.5 psi/sec	{0.9 psi at 0.4 psi/sec} (See Section 2.3.1)
Maximum Rotational Speed	184 mph	{160 mph} (See Section 2.3.1)
Maximum Translational Speed	46 mph	{40 mph} (See Section 2.3.1)
Maximum Wind Speed	230 mph	{200 mph} (See Section 2.3.1)
Radius of Maximum	150 feet	{150 feet}

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.0-1 U.S. EPR Site Design Envelope Comparison (Page 3 of 4)

	U.S. EPR DCD Design Parameter Value/Characteristic	{CCNPP Unit 3} Design Parameter Value/Characteristic
Rotational Speed		(See Section 2.3.1)
Missile Spectra	6" Schedule 40 pipe, 6.625" diameter x 15' long, 287 lb, 34.5 in^2 impact area, impact velocity of 135 ft/sec horizontal & 90 ft/sec vertical	{6" Schedule 40 pipe, 6.625" diameter x 15' long, 287 lb, 34.5 in^2 impact area, impact velocity of 135 ft/sec horizontal & 90 ft/sec vertical} (No site-specific missile hazards – See Section 2.2)
	Automobile, 16.4' x 6.6' x 4.3', 4000 lb, 4086.7 in^2 impact area, impact velocity of 135 ft/sec horizontal & 90 ft/sec vertical (automobile missile is considered at elevations up to 30.0 ft above all grade elevations within 0.5 mi of the plant structures)	{Automobile, 16.4' x 6.6' x 4.3', 4000 lb, 4086.7 in^2 impact area, impact velocity of 135 ft/sec horizontal & 90 ft/sec vertical (automobile missile is considered at elevations up to 30.0 ft above all grade elevations within 0.5 mi of the plant structures) } (No site-specific missile hazards – See Section 2.2)
	Solid steel sphere, 1" diameter, 0.147 lb, 0.79 in^2 impact area, impact velocity of 26 ft/sec horizontal and 17 ft/sec vertical	{Solid steel sphere, 1" diameter, 0.147 lb, 0.79 in^2 impact area, impact velocity of 26 ft/sec horizontal & 17 ft/sec vertical} (No site-specific missile hazards – See Section 2.2)
Temperature		
Water (UHS; ESWS to CCWS HX)	≤ 95 °F	{UHS shall be designed to maintain water temperature ≤ 95 °F} (See Section 9.2.5)
Atmospheric Dispersion Factors (*X*/Q)		
Annual Average (0.5 miles – limiting sector)	≤ 4.973E-6 sec / m^3	{4.973E-6 sec / m^3} (See Section 2.3.5)

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.0-1 U.S. EPR Site Design Envelope Comparison (Page 4 of 4)

	U.S. EPR DCD Design Parameter Value/Characteristic	{CCNPP Unit 3} Design Parameter Value/Characteristic
Accident		
0-2 hr (Exclusion area boundary (EAB) 0.5 miles)	≤ 1E-3 sec / m^3	{5.525E-4 sec / m^3} (See Section 2.3.4)
0-2 hr (Low population zone (LPZ) 1.5 miles)	≤ 1.753E-4 sec / m^3	{1.753E-4 sec / m^3} (See Section 2.3.4)
2-8 hr (LPZ 1.5 miles)	≤ 1.35E-4 sec / m^3	{9.781E-5 sec / m^3} (See Section 2.3.4)
8-24 hr (LPZ 1.5 miles)	≤ 1.00E-4 sec / m^3	{5.809E-5 sec / m^3} (See Section 2.3.4)
1-4 day (LPZ 1.5 miles)	≤ 5.40E-5 sec / m^3	{2.613E-5 sec / m^3} (See Section 2.3.4)
4-30 day (LPZ 1.5 miles)	≤ 2.20E-5 sec / m^3	{8.296E-6 sec / m^3} (See Section 2.3.4)

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.0-2 Comparison of Inventory of Radionuclides Which Could Potentially Seep Into the Groundwater (Page 1 of 3)

	U.S. EPR DCD Design Parameter Value/Characteristic	{CCNPP Unit 3} Design Parameter Value/Characteristic (See Section 2.4.13)
Nuclide	**Activity (μCi/g)**	**Activity (μCi/g)**
Br-83	3.2E-02	{3.2E-02}
Br-84	1.7E-02	{1.7E-02}
Br-85	2.0E-03	{2.0E-03}
I-129	4.6E-08	{4.6E-08}
I-130	5.0E-02	{5.0E-02}
I-131	7.4E-01	{7.4E-01}
I-132	3.7E-01	{3.7E-01}
I-133	1.3E+00	{1.3E+00}
I-134	2.4E-01	{2.4E-01}
I-135	7.9E-01	{7.9E-01}
Cs-134	1.7E-01	{4.4E-01}
Cs-136	5.3E-02	{1.1E-01}
Cs-137	1.1E-01	{1.7E-01}
Cs-138	2.2E-01	{2.3E-01}
Cr-51	2.0E-03	{2.1E-03}
Mn-54	1.0E-03	{1.1E-03}
Fe-55	7.6E-04	{8.1E-04}
Fe-59	1.9E-04	{2.0E-04}
Co-58	2.9E-03	{3.1E-03}
Co-60	3.4E-04	{3.6E-04}
Na-24	3.7E-02	{3.8E-02}
Zn-65	3.2E-04	{3.4E-04}
W-187	1.8E-03	{1.9E-03}
Rb-88	1.0E+00	{1.0E+00}
Rb-89	4.7E-02	{4.7E-02}
Sr-89	6.3E-04	{6.7E-04}

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.0-2 Comparison of Inventory of Radionuclides Which Could Potentially Seep Into the Groundwater (Page 2 of 3)

	U.S. EPR DCD Design Parameter Value/Characteristic	{CCNPP Unit 3} Design Parameter Value/Characteristic (See Section 2.4.13)
Nuclide	**Activity (µCi/g)**	**Activity (µCi/g)**
Sr-90	3.3E-05	{4.6E-05}
Sr-91	1.0E-03	{1.1E-03}
Sr-92	1.7E-04	{1.7E-04}
Y-90	7.7E-06	{1.1E-05}
Y-91m	5.2E-04	{5.4E-04}
Y-91	8.1E-05	{8.6E-05}
Y-92	1.4E-04	{1.4E-04}
Y-93	6.5E-05	{6.7E-05}
Zr-95	9.3E-05	{9.9E-05}
Nn-95	9.3E-05	{9.9E-05}
Mo-99	1.1E-01	{1.3E-01}
Tc-99m	4.6E-02	{5.7E-02}
Ru-103	7.7E-05	{1.1E-04}
Ru-106	2.7E-05	{6.2E-05}
Rh-103m	6.8E-05	{9.4E-05}
Rh-106	2.7E-05	{6.2E-05}
Ag-110m	2.0E-07	{1.0E-06}
Te-127m	4.4E-04	{6.6E-04}
Te-129m	1.5E-03	{1.9E-03}
Te-129	2.4E-03	{3.1E-03}
Te-131m	3.7E-03	{4.6E-03}
Te-131	2.6E-03	{3.0E-03}
Te-132	4.1E-02	{5.0E-02}
Te-134	6.7E-03	{6.7E-03}
Ba-137m	1.0E-01	{1.6E-01}
Ba-140	6.2E-04	{7.1E-04}

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED

Table 2.0-2 Comparison of Inventory of Radionuclides Which Could Potentially Seep Into the Groundwater (Page 3 of 3)

	U.S. EPR DCD Design Parameter Value/Characteristic	{CCNPP Unit 3} Design Parameter Value/Characteristic (See Section 2.4.13)
Nuclide	**Activity (µCi/g)**	**Activity (µCi/g)**
La-140	1.6E-04	{1.9E-04}
Ce-141	8.9E-05	{9.7E-05}
Ce-143	7.6E-05	{8.3E-05}
Ce-144	6.9E-05	{7.3E-05}
Pr-143	8.8E-05	{9.7E-05}
Pr-144	6.9E-05	{7.3E-05}
Np-239	8.7E-04	{1.5E-03}

© 2007 UniStar Nuclear Development, LLC. All rights reserved.
COPYRIGHT PROTECTED