Lee Nuclear Station Units 1 and 2
Description, Scope of Changes, and FSAR Impacts due to Plant Relocation and Additional Design Enhancements

Description and Rationale for Lee Nuclear Station Units 1 and 2 Relocation and Additional Design Enhancements

Duke Energy is relocating Lee Nuclear Station Units 1 and 2. Lee Unit 1 is relocated 50 feet east and 66 feet south, and Lee Unit 2 is relocated 66 feet south. The units are relocated to manage future construction risks and improve the overall construction schedule. In addition, the relocated Unit 1 better utilizes the existing concrete overlain on continuous rock in the Unit 1 nuclear island footprint and optimizes site earthwork by moving the nuclear island outside of the Unit 1 northwest depression. Unit 2 is being relocated south to maintain the original orientation between the two units.

The plant grade elevation (AP1000 elevation 100 feet) is raised from 590 ft. msl to 593 ft. msl, and the yard grade elevation immediately adjacent to the nuclear island is raised to 592 ft. msl. These elevation changes have the effect of producing additional margin in site-specific external flooding and maximum post-construction groundwater level elevations, and support optimization of site earthwork (cut/fill) activities.

The relocation of the Lee units required reanalysis of surface water flooding, groundwater movement, accidental release of liquid radioactive effluents, dose assessments, and confirmatory seismic and geotechnical field investigations and analyses. During the course of updating the dose assessments, information presented in the Final Safety Analysis Report (FSAR) regarding meteorological data is updated to consistently use two years of meteorological data (see Attachment 4). The following information provides additional details of the impacts to the FSAR from relocating Lee Units 1 and 2.

In addition to changes associated with plant relocation, additional design enhancements are included in this submittal. These enhancements are the extension of the planned rail spur and the addition of a debris barrier at the outlet structure of Make-Up Pond B (MUPB). The extension of the rail spur will be used to assist in material handling during construction activities at the Lee site. The addition of the debris barrier is a secondary measure to the MUPB shoreline management program, which lessens the environmental impacts of the shoreline management program around MUPB.

FSAR Chapter 1

In addition to incorporating the AP1000 DCD by reference, this chapter provides general site-specific introductory and summary information. The revisions to this chapter consist of updating the site layout, text, and a table revision required to reflect the relocation of Lee Units 1 and 2.

Design enhancements to the Lee Site result in changes to a figure in the FSAR. These changes are related to the addition of the debris barrier and the extension of the rail spur to the site layout.

The revisions to FSAR Chapter 1 are included in Attachment 1 of this enclosure and will be incorporated in a future revision of the FSAR.

FSAR Chapter 2

Section 2.0

This section of the FSAR provides a comparison of referenced AP1000 DCD site parameters to the Lee Nuclear Station Units 1 and 2 site characteristics in FSAR Table 2.0-201. Due to the relocation of Units 1 and 2, information presented in FSAR Table 2.0-201 is updated to reflect revised site characteristics.

The revisions to FSAR Table 2.0-201 are included in Attachment 2 of this enclosure and will be incorporated in a future revision of the FSAR.

Section 2.1

In addition to the information incorporated by reference to the AP1000 DCD, this section describes the geography and demography of the Lee Nuclear Station site and vicinity. This section also presents the center point coordinates for each unit, defines the Exclusion Area Boundary (EAB), and the Effluent Release Boundary. The center point coordinates for the Lee units are updated to reflect the new locations of Lee Units 1 and 2. In order to maintain an accurate presentation of the Effluent Release Boundary, the Effluent Release Boundary is changed from a 550 ft. radius circle centered between the Unit 1 and Unit 2 containment buildings encompassing all release points, to a 448 ft. radius circle centered at each Unit's containment building encompassing all release points. Additional discussions regarding the Effluent Release Boundary are presented in the subsequent discussion of FSAR Section 2.3 below.

The Exclusion Area Boundary for the Lee site has been modified. The EAB has expanded to allow the site to satisfy the AP1000 DCD 0.5 mile minimum distance parameter to the EAB (DCD Table 2.1, Sheet 3 of 4) from each reactor center point. The revised EAB boundary was extended across the Broad River to the northern direction and slightly modified portions of the southern and western boundaries, as illustrated in Figures 2.1-209A and 2.1-209B.

The revisions to FSAR Subsection 2.1 are included in Attachment 3 of this enclosure and will be incorporated in a future revision of the FSAR.

Section 2.3

In addition to the information incorporated by reference to the AP1000 DCD this section discusses site meteorology. As part of the plant relocation the site specific atmospheric dispersion values (FSAR Subsections 2.3.4 and 2.3.5) are updated to reflect the new source-to-receptor distances. In addition to updating this information, the meteorological data used in the updated analyses were revised to use only the two-year data set. The use of the two-year data set eliminates the need for the portion of FSAR Appendix 2CC which justified the use of one-year data by comparing one-year data to two-year site meteorological data and dose results. The portion of FSAR Appendix 2CC which compares the one-year and two-year site data sets with the longer period of record from the nearest local National Weather Service station was retained. The discussion of Lee Nuclear Station site meteorology in FSAR Subsection 2.3.2 uses the one-year data set, and no changes have been made to this subsection. Several elevation updates are required to Appendix 2DD as shown in Attachment 4.

The updated atmospheric dispersion analyses use a 448 ft. Effluent Release Boundary centered at each unit's containment building encompassing all release points. The results of the atmospheric dispersion analyses are now presented on a unit specific basis for locations on the EAB. The results of the routine release analysis conclude that the Unit 2 atmospheric dispersion values are most limiting for the EAB. The analysis assumes a ground level point source located at the Effluent Release Boundary closest to the receptor. For the off-site food pathway receptors beyond the EAB, such as cows and vegetable gardens, the analysis continues to use the center point between Lee Units 1 and 2 for distance and direction determination. The atmospheric dispersion factors for the milk pathway consider the cow and goat milk pathways independently. The updated atmospheric dispersion analyses (i.e., Long-Term Routine Release, Short-Term Design Basis Accident, Control Room, and TSC) conclude that the Lee Nuclear Station site characteristics remain within applicable DCD site parameters.

In addition to updating dispersion parameters, FSAR Subsection 2.3.1.2.2 is revised to add Polk and Rutherford county tornado occurrence data. The change was required for consistency between land area and tornado occurrence data used in the calculation of the annual frequency of a tornado striking a particular point, but did not change the result.

The revisions to FSAR Section 2.3, Appendix 2CC, and Appendix 2DD are included in Attachment 4 of this enclosure and will be incorporated in a future revision of the FSAR.

Section 2.4

In addition to the information incorporated by reference to the AP1000 DCD, this subsection addresses site specific hydrological engineering. As part of the plant relocation, the finished floor elevation of the Lee units is raised from 590 ft elevation to 593 ft elevation. The surrounding grade immediately adjacent to the units is raised from 589 ft. elevation to 592 ft elevation. The site grading is also being altered to create a site generally defined by wide flat areas. These changes impact the previously analyzed flooding events as discussed below.

The shoreline management program currently described in the FSAR Subsection 2.4.1.2.2.6 will be altered to not remove all trees from the Make-Up Pond B shoreline area from the 570 ft. elevation to 50 ft. beyond the 586 ft. elevation, but to annually inspect the shoreline and remove any downed or distressed trees. As a secondary measure, a debris barrier system will be installed approximately 350 ft. away from the MUPB spillway. The debris barrier system is designed to rise and fall with fluctuations in the pond water level. The debris barrier system is considered non-safety related.

In Subsection 2.4.2 the effects of surface water flooding are evaluated. The plant relocation and associated reconfiguration of site grading contours required modifications to the local intense precipitation analysis. The site analysis has been updated based on a series of level-pool routing models to represent the overall site area and the area generally within the vehicle barrier system. The downstream boundary conditions for the overall site area are defined by the adjacent water bodies; Broad River, Make-Up Pond A (MUPA), and Make-Up Pond B (MUPB).

The result of the overall site area representation sets the downstream boundary condition for the area generally within the vehicle barrier system, which sets the downstream boundary condition for the power block area. The power block analysis is updated based on the resulting downstream boundary condition and the reconfigured site contours. The extension of the rail spur and associated grading resulted in a small reduction of the MUPB drainage area and storage volume.

Based on plant relocation and reconfiguration of site grading contours, the contributing drainage areas to MUPA and MUPB were altered by a small amount. The drainage area contributing to MUPA has increased and the overall drainage area contributing to MUPB has decreased. The probable maximum flood (PMF) elevations for MUPA and MUPB have been updated to reflect the changes to the drainage area sizes. In addition, the culvert of the MUPB Upper Arm Dam has been evaluated assuming fully blocked conditions, providing a conservative result for the MUPB analysis. As a result of the updated PMF estimates, the resulting water surface elevations for MUPA and MUPB have also changed. The corresponding elevations have been used to update coincident wind wave activity analyses. The surge flooding analyses for MUPA and MUPB have been updated to reflect the change in drainage areas.

The result of these analyses find the maximum site flood elevation is 592.56 ft., which provides an increase in margin of 0.03 ft. as compared to the previous analyses. All Lee Nuclear Station safety-related structures are located above the effects of local intense precipitation at plant elevation 593 ft.

In Subsection 2.4.12 groundwater flow paths and the maximum post-construction groundwater level are discussed. The revision to the site grading plan resulted in removal of one groundwater pathway from consideration (see FSAR Figure 2.4.12-208 in Attachment 5). The removed pathway spanned from Unit 1 northwest towards a formerly depressed area. Due to alterations of the site topography north and west of Unit 1, the post-construction ground surface is expected to be more than 20 ft. higher than the anticipated groundwater potentiometric surface. Due to these changes in site grading there is no longer a depression in this area to act as a groundwater travel pathway receptor. In addition the groundwater pathway travel times analysis from a postulated source to the receptors is updated to reflect the revised distances due to the relocation of Lee Units 1 and 2.

The changes in post-construction conditions generally resulted in minor changes to modeled post-construction groundwater levels. Groundwater levels in the Power Block area were generally slightly higher in response to the southward relocation of Units 1 and 2 (generally the hydraulic upgradient direction) and/or decreased extent of hardscape material along the east side of the power block (allowing for increased local groundwater recharge). The limiting observation point in the analysis remains in the southwest corner of the Unit 1. The highest groundwater elevation during the representative model run remained below 584 ft. elevation. Therefore, the maximum post-construction groundwater elevation for the Lee Nuclear Station site considering the most severe of historically-recorded natural phenomena is estimated to be approximately 584 ft., which is well below the AP1000 DCD site parameter elevation for maximum groundwater of less than 591 ft.

In Subsection 2.4.13 the accidental release of radioactive liquid effluents in ground and surface waters is evaluated. This analysis was updated to reflect the removal of the groundwater pathway (as noted above) and to incorporate the revised pathway travel times. The groundwater pathway travel times analysis from a postulated source to the receptors is updated to reflect the revised distances due to the relocation of Lee Units 1 and 2. The analysis concluded that the pathway from Unit 2 to Hold-Up Pond A remains the limiting pathway and demonstrates that the requirements of 10 CFR 20.1301 and 10 CFR 20.1302 continue to be met.

The revisions to FSAR Section 2.4 are included in Attachment 5 of this enclosure and will be incorporated in a future revision of the FSAR.

FSAR Appendix 2AA

This appendix provides field exploration data for the Lee Nuclear Station site. To support the assessment of seismic/geotechnical impacts due to the relocation Units 1 and 2 (see Enclosure 2) additional geotechnical boring logs were completed. These additional geotechnical boring logs provide field exploration data for the relocated Units 1 and 2.

The revision to FSAR Appendix 2AA is included in Attachment 6 of this enclosure and will be incorporated in a future revision of the FSAR.

FSAR Chapter 8

The information provided in FSAR Chapter 8 is limited to the incorporation by reference to the AP1000 DCD and programmatic information that is not dependent on the plant location. However, FSAR Figure 8.2-202 provides a layout depicting orientation of the 230 kV and 525 kV switchyards relative to Lee Units 1 and 2. This figure is revised to incorporate the updated locations of the units.

The revision to FSAR Chapter 8 is included in Attachment 7 of this enclosure and will be incorporated in a future revision of the FSAR.

FSAR Chapter 11

In addition to the information incorporated by reference to the AP1000 DCD, this chapter addresses site-specific radioactive waste management and presents site-specific routine offsite dose assessment information.

In Section 11.3 the gaseous release dose assessment is updated to reflect changes in site-specific meteorology described in the updated FSAR Section 2.3. In addition to the dose assessment the cost benefit analysis was updated to reflect the revised information. The milk pathway in the updated dose assessment assumes consumption of milk from either a cow or goat that maximizes the dose via the milk pathway and no longer double-counts milk pathway contributions to calculated maximum individual doses. The updated dose assessment found the new locations of Lee Units 1 and 2 have no adverse impacts to the dose assessment results for the surrounding area. The maximum dose resulting from operation of the Lee Nuclear Station remains below regulatory limits. The maximum individual dose results for Lee Nuclear Station remain below 10 CFR 50 Appendix I dose objectives.

The revisions to FSAR Chapter 11 are included in Attachment 8 of this enclosure and will be incorporated in a future revision of the FSAR.

FSAR Chapter 12

In addition to the information incorporated by reference to the AP1000 DCD and programmatic information, this chapter addresses site-specific radiation dose to a construction worker.

In Section 12.4 the dose analysis to a construction worker on the unit under construction while the opposite unit is in operation is affected by the plant relocation. Since Unit 1 is being moved 50 ft. closer to Unit 2, the dose analysis is updated. The calculated annual dose due to exposure from operating unit routine gaseous effluents at the shield building of a unit under construction, the principle construction area, increased from 0.29 mrem to 0.397 mrem. Calculated annual dose to construction workers remains below 10 CFR 20.1301 annual dose limits for the public.

The revisions to FSAR Chapter 12 are included in Attachment 9 of this enclosure and will be incorporated in a future revision of the FSAR.

FSAR Chapter 19

The information provided in FSAR Chapter 19 is limited to the incorporation by reference to the AP1000 DCD, programmatic information and site specific data used to confirm the applicability of the PRA. Site specific information related to the flooding analyses is updated to reflect plant relocation.

The revisions to FSAR Chapter 19 are included in Attachment 10 of this enclosure and will be incorporated in a future revision of the FSAR.

Attachments:

1. Revisions to FSAR Chapter 1
2. Revisions to FSAR Chapter 2, Section 2.0
3. Revisions to FSAR Chapter 2, Section 2.1
4. Revisions to FSAR Chapter 2, Section 2.3, Appendix 2CC, and Appendix 2DD
5. Revisions to FSAR Chapter 2, Section 2.4
6. Revisions to FSAR Appendix 2AA
7. Revisions to FSAR Chapter 8
8. Revisions to FSAR Chapter 11
9. Revisions to FSAR Chapter 12
10. Revisions to FSAR Chapter 19

Attachment 1

Revisions to FSAR Chapter 1

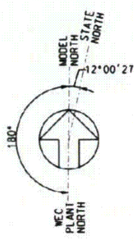
Subsection 1.2.2

Figure 1.1-202

1. COLA Part 2, FSAR Chapter 1, Subsection 1.2.2, second paragraph under the sub-heading 'Site Plan' is revised as follows:

The site plan for Lee Nuclear Station is shown on Figure 1.1-202. Principal structures and facilities, parking areas, roads, and transmission lines are illustrated. Orientation of the two AP1000 units is such that "plant north" faces 168 degrees from true north. Unless otherwise noted, directions in this subsection are based on true north. Similarly, design plant grade for the DCD is defined as 100 feet, whereas design plant grade for the Lee Nuclear Station Units 1 and 2 is ~~590~~ 593 feet; therefore, DCD elevations are to be increased by ~~490~~ 493 feet to be actual site elevations.

2. COLA Part 2, FSAR Chapter 1, Figure 1.1-202 is revised as follows:



NOTES:

1. DRAWING COORDINATES ARE BASED ON THE WS LEE MODEL COORDINATES WHICH HAVE THE UNIT 1 CENTER AT N 50,887.93 AND E 11,412.48, AND IS ALIGNED TO MODEL NORTH (AS SHOWN ON THE NORTH ARROW).
2. VERTICAL DATUM IS REFERENCED TO MEAN SEA LEVEL DATUM (NAVD 1988).
3. EXISTING CONDITIONS AND TOPOGRAPHY ARE BASED ON AERIAL TOPOGRAPHICAL SURVEY AND SANBORN MAPS.
4. FOR CONSTRUCTION FACILITIES SEE CONSTRUCTION FACILITIES SITE PLAN, DWG WLG-0000-X2-800008.
5. WETLANDS LOCATIONS ARE BASED ON SHAPE FILES PREPARED AND DELIVERED BY DUKE ENERGY.
6. FOR STANDARD PLANT BUILDING NAMES, SEE REFERENCE 1.
7. GRADE ADJACENT TO NUCLEAR ISLAND BUILDINGS 592.00'.
8. SITE BOUNDARY AS RECEIVED FROM DUKE ENERGY.
9. FACILITIES WITH CONTROLLED COORDINATE LOCATION MAY NOT BE RELOCATED WITHOUT PRIOR APPROVAL OF THE DESIGN CONTROL REVIEW BOARD. DASH (-) INDICATES NOT CONTROLLED.

REFERENCES:

1. APP-0000-X2-025, STANDARD PLANT SITE PLAN OVERALL YARD LAYOUT

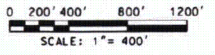
OPEN ITEMS:

THIS DRAWING CONTAINS EXTENSIVE OPEN ITEMS INCLUDING THE FOLLOWING:

1. AP1000 DESIGN REQUIRES CONFIRMATION UPON RELEASE OF THE REFERENCED DOCUMENT TO WILLIAM STATES LEE III NUCLEAR STATION PROJECT.
2. PROPOSED GRADING TO BE FINALIZED AT A LATER TIME.
3. FACILITY SIZES AND LOCATIONS OF UNCONTROLLED FACILITIES WILL BE FINALIZED LATER.

NUCLEAR SUPPORT FACILITIES

FEATURE NO.	DUKE BLDG NO.	DESCRIPTION	CONTROLLED LOCATION (SEE NOTE 9)
9A	-	CIRCULATING WATER PUMP HOUSE UNIT 1	-
9B	-	CIRCULATING WATER PUMP HOUSE UNIT 2	-
12A	-	CWS COOLING TOWER UNIT 1 A	CENTER OF STRUCTURE
12B	-	CWS COOLING TOWER UNIT 1 B	CENTER OF STRUCTURE
13A	-	CWS COOLING TOWER UNIT 2 A	CENTER OF STRUCTURE
13B	-	CWS COOLING TOWER UNIT 2 B	CENTER OF STRUCTURE
145	8890	CENTRAL CHILLER PLANT	NORTHEAST CORNER
165	88651	TRAINING CENTER/SIMULATOR	-
166	88861	MAIN ENTRANCE SECURITY CHECKPOINT	CENTER OF STRUCTURE
167	88672	VEHICLE MAINTENANCE FACILITY	NORTHEAST CORNER
169	8868	VISITOR CENTER	NORTHWEST CORNER
170	-	NOT USED	-
171	88661	RECEIVING WAREHOUSE	SOUTHEAST CORNER
172	88662	WAREHOUSE 1	SOUTHWEST CORNER
173	88663	WAREHOUSE 2	NORTHWEST CORNER
174	-	PERSONNEL ACCESS PORTAL	-
201	-	CLARIFIER BUILDING	-
202	-	CLARIFIED WATER STORAGE TANK	-
203	-	RWS CLARIFIER	-
204	-	CLARIFIED WATER TRANSFER TANK	-
206	-	YARD FIRE WATER TANKS/PUMP ENCLOSURE	CENTER OF TANK
207A	-	CWS POWER DISTRIBUTION CENTER UNIT 1 A	-
207B	-	CWS POWER DISTRIBUTION CENTER UNIT 1 B	-
208A	-	CWS POWER DISTRIBUTION CENTER UNIT 2 A	-
208B	-	CWS POWER DISTRIBUTION CENTER UNIT 2 B	-
209	-	MAKE-UP POND B POWER DISTRIBUTION CENTER	-
210	-	MAKE-UP POND B INTAKE/REFILL STRUCTURE	CENTER OF STRUCTURE
211	-	MAKE-UP POND B REFILL STRUCTURE	CENTER OF STRUCTURE
212	-	MAKE-UP POND A POWER DISTRIBUTION CENTER	-
213	-	MAKE-UP POND A INTAKE STRUCTURE	NORTHEAST CORNER
214	-	MAKE-UP POND A REFILL STRUCTURE	-
215	-	RIVER WATER INTAKE STRUCTURE	CENTER OF STRUCTURE
217	-	RWS RIVER POWER DISTRIBUTION CENTER	-
218	88671	MAINTENANCE SUPPORT BUILDING	-
219	8865	ADMINISTRATION BUILDING	-
220A	-	PRIMARY VEHICLE ACCESS PORTAL	NORTHWEST CORNER
220B	-	SECONDARY VEHICLE ACCESS PORTAL	NORTHWEST CORNER
221	-	PERMANENT PLANT GAS STORAGE	-
222A	-	UNIT 1 WASTE WATER RETENTION BASIN	SOUTHEAST CORNER
222B	-	UNIT 2 WASTE WATER RETENTION BASIN	SOUTHEAST CORNER
223A	-	RWS YARD POWER DISTRIBUTION CENTER UNIT 1	-
223B	-	RWS YARD POWER DISTRIBUTION CENTER UNIT 2	-
224	-	20,000 GALLON OFF ROAD DIESEL TANK	-
225	-	WWS BLOWDOWN SUMP	SOUTHEAST CORNER
226	88014	SWITCHYARD CONTROL BUILDING RELAY HOUSE	-
227	-	RWS BREAK TANK #1	-
228	-	NOT USED	-
229	-	NOT USED	-
230	-	NOT USED	-
231	-	NOT USED	-
232	-	12,000 GALLON ON-ROAD DIESEL TANK	-
233	-	8,000 GALLON GASOLINE TANK	-
-	-	PROTECTED AREA FENCE	-
-	-	UNIT 1	CENTER OF CONTAINMENT
-	-	UNIT 2	CENTER OF CONTAINMENT
	CONSTRUCTION FACILITIES PERMANENT		
111	88813	LEE OFFICE BUILDING	-
118	88841	CARPENTER SHOP	SOUTHWEST CORNER
120	88842	MECHANICAL AND STRUCTURAL FABRICATION SHOP	SOUTHWEST CORNER
122	88844	BLAST SHOP/COATING FACILITY	SOUTHWEST CORNER
124	88831	PAINT STORAGE FACILITY	SOUTHEAST CORNER
159	88894	NON-DESTRUCTIVE TESTING (NDT) BUILDING	SOUTHEAST CORNER



WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Site Layout

FIGURE 1.1-202

WLS COL 2.1-1

Attachment 2

Revisions to FSAR Chapter 2, Section 2.0

Table 2.0-201

1. COLA Part 2, FSAR Chapter 2, Table 2.0-201 is revised as follows:

WLS SUP 2.0-1

TABLE 2.0-201
COMPARISON OF AP1000 DCD SITE PARAMETERS AND LEE NUCLEAR STATION UNITS 1 & 2 SITE CHARACTERISTICS

	AP 1000 DCD Site Parameters	**WLS Site Characteristic**	**WLS FSAR Reference**	**WLS Within Site Parameter**
Air Temperature				
Maximum Safety	115°F dry bulb / 86.1°F coincident wet bulb(a),(h)	107°F dry bulb / 84°F coincident wet bulb (100-year maximum)	Table 2.3-293	Yes
	86.1°F wet bulb (noncoincident)	85°F (100-year maximum)	Table 2.3-293	Yes
Minimum Safety	-40°F(a)	-5°F (100-year minimum)	Table 2.3-293	Yes
Maximum Normal	101°F dry bulb / 80.1°F coincident wet bulb(b)	94°F dry bulb / 77°F coincident wet bulb (0.4% annual exceedance)	Table 2.3-293	Yes
	80.1°F wet bulb (noncoincident)(c)	77°F wet bulb (0.4% annual exceedance)	Table 2.3-293	Yes
Minimum Normal	-10°F(b)	20°F (99.6% annual exceedance)	Table 2.3-293	Yes
Wind Speed				
Operating Basis	145 mph (3 second gust); importance factor 1.15 (safety), 1.0 (nonsafety); exposure C; topographic factor 1.0	96 mph (3 second gust) (110 mph with 1.15 importance factor); exposure C; topographic factor 1.0	Subsection 2.3.1.2.8	Yes
Tornado	300 mph	230 mph	Subsection 2.3.1.2.2	Yes

WLS SUP 2.0-1

TABLE 2.0-201
COMPARISON OF AP1000 DCD SITE PARAMETERS AND LEE NUCLEAR STATION UNITS 1 & 2 SITE CHARACTERISTICS

	AP 1000 DCD Site Parameters	**WLS Site Characteristic**	**WLS FSAR Reference**	**WLS Within Site Parameter**
	Maximum Pressure Differential of 2.0 lb/in^2	1.2 lb/in^2	Subsection 2.3.1.2.2	Yes
Seismic				
CSDRS	CSDRS free field peak ground acceleration of 0.30 g with modified Regulatory Guide 1.60 response spectra (See Figures 5.0-1 and 5.0-2). The SSE is now referred to as CSDRS. Seismic input is defined at finished grade, except for sites where the nuclear island is founded on hard rock.(d) The hard rock high frequency (HRHF) envelope response spectra are shown in Figure 5.0-3 and Figure 5.0-4 defined at the foundation level for 5% damping. The HRHF envelope response spectra provide an alternative set of spectra for evaluation of site specific GMRS. A site is acceptable if its site-specific GMRS fall within the AP1000 HRHF envelope response spectra. (e) Evaluation of a site for application of the HRHF envelope response spectra includes consideration of the limitation on shear wave velocity identified for use of the HRHF envelope response spectra. This limitation is defined by a shear wave velocity at the bottom of the basemat equal to or higher than 7,500 fps, while maintaining a shear wave velocity equal to or above 8,000 fps at the lower depths.	GMRS PGA = 0.21g Unit 1 FIRS PGA = 0.~~22g~~23g GMRS and Unit 1 FIRS are below the WEC hard rock high frequency spectrum at all points.	Subsection 2.5.2.6 Subsection 2.5.2.7 Subsection 3.7.1.1.1 Figure 3.7-201 Figure 3.7-202	Yes
Fault Displacement Potential	No potential fault displacement considered beneath the seismic Category I and seismic Category II structures and immediate surrounding area. The immediate surrounding area includes the effective soil supporting media associated with the seismic Category I and seismic Category II structures.	Negligible.	Subsection 2.5.3.8	Yes

WLS SUP 2.0-1

TABLE 2.0-201
COMPARISON OF AP1000 DCD SITE PARAMETERS AND LEE NUCLEAR STATION UNITS 1 & 2 SITE CHARACTERISTICS

	AP 1000 DCD Site Parameters	WLS Site Characteristic	WLS FSAR Reference	WLS Within Site Parameter
Soil				
Average Allowable Static Bearing Capacity	The allowable bearing capacity, including a factor of safety appropriate for the design load combination, shall be greater than or equal to the average bearing demand of 8,900 lb/ft^2 over the footprint of the nuclear island at its excavation depth.	190,000 to ~~285~~242,000 lb/ft^2	Subsection 2.5.4.10.1	Yes
Dynamic Bearing Capacity for Normal Plus Safe Shutdown Earthquake (SSE)	The allowable bearing capacity, including a factor of safety appropriate for the design load combination, shall be greater than or equal to the maximum bearing demand of 35,000 lb/ft^2 at the edge of the nuclear island at its excavation depth, or site-specific analyses demonstrate factor of safety appropriate for normal plus safe shutdown earthquake loads.	190,000 to ~~285~~242,000 lb/ft^2	Subsection 2.5.4.10.1	Yes
Shear Wave Velocity	Greater than or equal to 1,000 ft/sec based on minimum low-strain soil properties over the footprint of the nuclear island at its excavation depth	9000 to 10,000 ft/sec	Subsection 2.5.4.7	Yes
Lateral Variability	Soils supporting the nuclear island should not have extreme variations in subgrade stiffness. This may be demonstrated by one of the following: 1. Soils supporting the nuclear island are uniform in accordance with Regulatory Guide 1.132 if the geologic and stratigraphic features at depths less than 120 feet below grade can be correlated from one boring or sounding location to the next with relatively smooth variations in thicknesses or properties of the geologic units, or 2. Site-specific assessment of subsurface conditions demonstrates that the bearing pressures below the footprint of the nuclear island do not exceed 120% of those from the generic analyses of the nuclear island at a uniform site, or	Category I structures are founded on hard rock; Case 1 applies	Subsection 2.5.1.2.6	N/A

WLS SUP 2.0-1

TABLE 2.0-201
COMPARISON OF AP1000 DCD SITE PARAMETERS AND LEE NUCLEAR STATION UNITS 1 & 2 SITE CHARACTERISTICS

	AP 1000 DCD Site Parameters	WLS Site Characteristic	WLS FSAR Reference	WLS Within Site Parameter
	3. Site-specific analysis of the nuclear island basemat demonstrates that the site specific demand is within the capacity of the basemat. As an example of sites that are considered uniform, the variation of shear wave velocity in the material below the foundation to a depth of 120 feet below finished grade within the nuclear island footprint and 40 feet beyond the boundaries of the nuclear island footprint meets the criteria in the case outlined below.	Case 1 applies. Non-dipping meta-plutonic rock displaying less than 20 percent variation in the shear wave velocity.	Subsection 2.5.4.7.4	Yes
	Case 1: For a layer with a low strain shear wave velocity greater than or equal to 2500 feet per second, the layer should have approximately uniform thickness, should have a dip not greater than 20 degrees, and should have less than 20 percent variation in the shear wave velocity from the average velocity in any layer.	Case 1 applies. Non-dipping meta-plutonic rock displaying less than 20 percent variation in the shear wave velocity.	Subsection 2.5.4.7.4	Yes
Minimum Soil Angle of Internal Friction	Minimum soil angle of internal friction is greater than or equal to 35 degrees below the footprint of nuclear island at its excavation depth. If the minimum soil angle of internal friction is below 35 degrees, a site specific analysis shall be performed using the site specific soil properties to demonstrate stability.	Category I structures are founded on hard rock, which satisfies the criterion.	Not applicable	Yes
Liquefaction Potential	No liquefaction considered beneath the seismic Category I and seismic Category II structures and immediate surrounding area. The immediate surrounding area includes the effective soil supporting media associated with the seismic Category I and seismic Category II structures.	None. Category I structures are founded on hard rock. Foundations for adjacent structures have negligible liquefaction potential.	Subsection 2.5.4.8	Yes

WLS SUP 2.0-1

TABLE 2.0-201
COMPARISON OF AP1000 DCD SITE PARAMETERS AND LEE NUCLEAR STATION UNITS 1 & 2 SITE CHARACTERISTICS

	AP 1000 DCD Site Parameters	WLS Site Characteristic	WLS FSAR Reference	WLS Within Site Parameter
Missiles				
Tornado	4000 - lb automobile at 105 mph horizontal, 74 mph vertical	4000 - lb automobile at 105 mph horizontal, 74 mph vertical	Subsection 3.5.1.5(f)	Yes(f)
	275 - lb, 8 in. shell at 105 mph horizontal, 74 mph vertical	275 - lb, 8 in. shell at 105 mph horizontal, 74 mph vertical	Subsection 3.5.1.5(f)	Yes(f)
	1 inch diameter steel ball at 105 mph in the most damaging direction	1 inch diameter steel ball at 105 mph in the most damaging direction	Subsection 3.5.1.5(f)	Yes(f)
Flood Level	Less than plant elevation 100' (WLS Elevation ~~590'~~ 593' msl)	~~589.59~~592.56 ft. msl(l)	Subsection 2.4.2.3	Yes
Groundwater Level	Less than plant elevation 98' (WLS Elevation ~~588'~~ 591' msl)	Maximum groundwater elevation considering the most severe historically recorded natural phenomena has been estimated to be approximately 584 ft. msl, with AP1000 elevation 100 ft at ~~590~~ 593 ft. msl. This allows for approximately ~~6~~9 ft. of unsaturated interval below the plant ~~grade~~ elevation ~~100~~ 593 ft.	Subsection 2.4.12.2.3.1	Yes
Plant Grade Elevation	Less than plant elevation 100' (WLS elevation ~~590'~~ 593' msl) except for portion at a higher elevation adjacent to the annex building	~~589.5~~592 ft. msl	Subsection 2.4.1.1.3	Yes

WLS SUP 2.0-1

TABLE 2.0-201
COMPARISON OF AP1000 DCD SITE PARAMETERS AND LEE NUCLEAR STATION UNITS 1 & 2 SITE CHARACTERISTICS

	AP 1000 DCD Site Parameters	WLS Site Characteristic	WLS FSAR Reference	WLS Within Site Parameter
Precipitation				
Rain	20.7 in./hr [1-hr 1-mi^2 PMP]	18.9 in./hr. [1-hr 1-mi^2 PMP]	Table 2.4.2-203	Yes
Snow / Ice	75 pounds per square foot on ground with exposure factor of 1.0 and importance factors of 1.2 (safety) and 1.0 (non-safety)	17.7 pounds per square foot	Subsection 2.3.1.2.7.3	Yes
Atmospheric Dispersion Values $\chi/Q^{(g)}$				
Site Boundary (0-2 hr)	$\leq 5.1 \times 10^{-4}$ sec/m^3	Unit 1: 3.32~~3.46~~ x 10^{-4} sec/m^3 Unit 2: 3.55 x 10^{-4} sec/m^3	Table 2.3-283 Subsection 2.3.4.2	Yes
Site Boundary (Annual Average)	$\leq 2.0 \times 10^{-5}$ sec/m^3	6.30 ~~5.8~~ x 10^{-6} sec/m^3	Table 2.3-289 (~~Sheet 1 of~~ 4EAB Unit 2 SE)	Yes
Low population zone boundary				
0-8 hr	$\leq 2.2 \times 10^{-4}$ sec/m^3	8.~~01~~ 05 x 10^{-5} sec/m^3	Table 2.3-283	Yes
8-24 hr	$\leq 1.6 \times 10^{-4}$ sec/m^3	5.~~49~~ 52 x 10^{-5} sec/m^3	Table 2.3-283	Yes
24-96 hr	$\leq 1.0 \times 10^{-4}$ sec/m^3	2.~~42~~ 43 x 10^{-5} sec/m^3	Table 2.3-283	Yes
96-720 hr	$\leq 8.0 \times 10^{-5}$ sec/m^3	7.~~46~~ 52 x 10^{-6} sec/m^3	Table 2.3-283	Yes
Control Room	Table 2.0-202	Table 2.0-202	Table 2.0-202	Yes

WLS SUP 2.0-1

TABLE 2.0-201
COMPARISON OF AP1000 DCD SITE PARAMETERS AND LEE NUCLEAR STATION UNITS 1 & 2 SITE CHARACTERISTICS

	AP 1000 DCD Site Parameters	WLS Site Characteristic	WLS FSAR Reference	WLS Within Site Parameter
Population Distribution				
Exclusion area (site)	0.5 mi	Unit 1: Minimum distance from the Effluent Release Boundary to the Exclusion Area Boundary is ~~2113~~3070 feet. The radius of the effluent release boundary is ~~550~~ 448 feet. The total minimum distance from the ~~site~~ Unit 1 center point to the EAB is ~~2663~~ 3518 feet (~~0.50~~0.67 mi).	Subsection 2.1 Figure 2.1-209A	Yes(i)
		Unit 2: Minimum distance from the Effluent Release Boundary to the Exclusion Area Boundary is 2914 feet. The radius of the effluent release boundary is 448 feet. The total minimum distance from the Unit 2 center point to the EAB is 3362 feet (0.64 mi).	Subsection 2.1 Figure 2.1-209B	Yes(l)

WLS SUP 2.0-1

TABLE 2.0-201
COMPARISON OF AP1000 DCD SITE PARAMETERS AND LEE NUCLEAR STATION UNITS 1 & 2 SITE CHARACTERISTICS

AP 1000 DCD Site Parameters	**WLS Site Characteristic**	**WLS FSAR Reference**	**WLS Within Site Parameter**

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a) Maximum and minimum safety values are based on historical data and exclude peaks of less than 2 hours duration.

b) The maximum normal value is the 1-percent seasonal exceedance temperature. The minimum normal value is the 99-percent seasonal exceedance temperature. The minimum temperature is for the months of December, January, and February in the northern hemisphere. The maximum temperature is for the months of June through September in the northern hemisphere. The 1-percent seasonal exceedance is approximately equivalent to the annual 0.4-percent exceedance. The 99-percent seasonal exceedance is. approximately equivalent to the annual 99.6-percent exceedance

c) The noncoincident wet bulb temperature is applicable to the cooling tower only.

d) With ground response spectra as given in DCD Figure 3.7.1-1 and DCD Figure 3.7.1-2. Seismic input is defined at finished grade except for sites where the nuclear island is founded on hard rock.

e) Sites that fall within the hard rock high frequency envelope response spectra given in DCD Figures 3I.1-1 and 3I.1-2 and satisfy the limitation on shear wave velocity in DCD Subsection 2.5.2.1 are acceptable.

f) Per APP-GW-GLR-020, the kinetic energies of the missiles discussed in DCD Section 3.5 are greater than the kinetic energies of the missiles discussed in Regulatory Guide 1.76 and results in a more conservative design.

g) For AP1000, the term "site boundary" and "exclusion area boundary" are used interchangeably. Thus, the χ/Q specified for the site boundary applies whenever a discussion refers to the exclusion area boundary. At Lee Nuclear Station, the “site boundary” and the “exclusion area boundary” are not interchangeable. See ~~Figure 2.1-209~~Figures 2.1-209A and 2.1-209B.

h) The containment pressure response analysis is based on a conservative set of dry-bulb and wet-bulb temperatures. These results envelop any conditions where the dry-bulb temperature is 115°F or less and wet-bulb temperature of less than or equal to 86.1°F.

i) The maximum flood level of ~~589.59~~592.56 ft. msl is a result of local PMP event as described in Subsection 2.4.2.3. See Subsection 2.4.2.2 for discussion of design basis considerations.

j) Lee Nuclear Station Units 1 and 2 comply with 0.5 mi EAB site parameter specified in the AP1000 DCD (Table 2-1).

Attachment 3

Revisions to FSAR Chapter 2, Section 2.1

Subsection 2.1.1

Figure 2.1-209 - Deleted

Figure 2.1-209A

Figure 2.1-209B

1. COLA Part 2, FSAR Chapter 2, Subsection 2.1.1, third paragraph is revised as follows:

The coordinates of the two new reactors are given below:

LONGITUDE AND LATITUDE (~~degrees/minutes/seconds~~decimal degrees [NAD83])

UNIT 1:	~~35° 02' 12.05"~~35.036527 North	~~81° 30' 47.38"~~-81.512962 West
UNIT 2:	~~35° 02' 13.84"~~35.036995 North	~~81° 30' 37.40"~~-81.510351 West

UNIVERSAL TRANSVERSE MERCATOR NAD83 ZONE 17 (Meters)

	Northing	Easting
UNIT 1:	~~3877231~~3877214.1	~~453194~~453211.9
UNIT 2:	~~3877285~~3877264.7	~~453447~~453450.3

2. COLA Part 2, FSAR Chapter 2, Subsection 2.1.1.2 is revised as follows:

Figure 2.1-203 illustrates the region surrounding the Nuclear Site within a radius of 50 mi. This map includes prominent geophysical and political features in the area. Figure 2.1-202 shows greater detail of the Lee Nuclear Site out to a radius of 6 mi. The Lee Nuclear Station site boundary is boldly outlined. As shown in the figure, there are no industrial and transportation facilities, commercial, institutional, recreational, and residential structures within the site area. Figure 2.1-204 is a USGS topographic map that shows prominent natural and manmade features. Figure 2.1-201 illustrates the site in greater detail. The reactor building, turbine building, and the cooling towers are labeled. The auxiliary buildings are shown in the background. Figures 2.1-209A and 2.1-209B illustrate~~s~~ the shortest distances from the Effluent Release Boundaries~~y~~ to the EAB for both Units 1 and 2.

The total area contained by the site boundary is about 1,900 acres of land. There are no industrial, military, transportation facilities, commercial, institutional, recreational, or residential structures within the site area. The EAB generally follows the site boundary (but extends beyond it on the northern and eastern sides of the site). The Effluent Release Boundary is defined as an~~is an~~ assumed ~~550~~ 448 ft. radius circle around each reactor that ~~encompassing~~ encompasses all site release points. Figures 2.1-209A and 2.1-209B show~~s~~ the location of the EAB and the shortest distances from the Effluent Release Boundaries associated with Units 1 and 2~~y~~. The nearest segment of the EAB to the Effluent Release Boundary is ~~2113~~ 2914 feet.

3. COLA Part 2, FSAR Chapter 2, Subsection 2.1.2 is revised as follows:

The boundary on which limits for the release of radioactive effluents are based is the exclusion area boundary shown in Figures 2.1-209A and 2.1-209B. The site is clearly posted with no trespassing signs that also include actions to be taken in the event of emergency conditions at the plant. The site's physical security plan contains information on actions to be taken by security force personnel in the event of unauthorized persons crossing the EAB during emergency operations.

4. COLA Part 2, FSAR Chapter 2, Subsection 2.1.2.1, is revised to read:

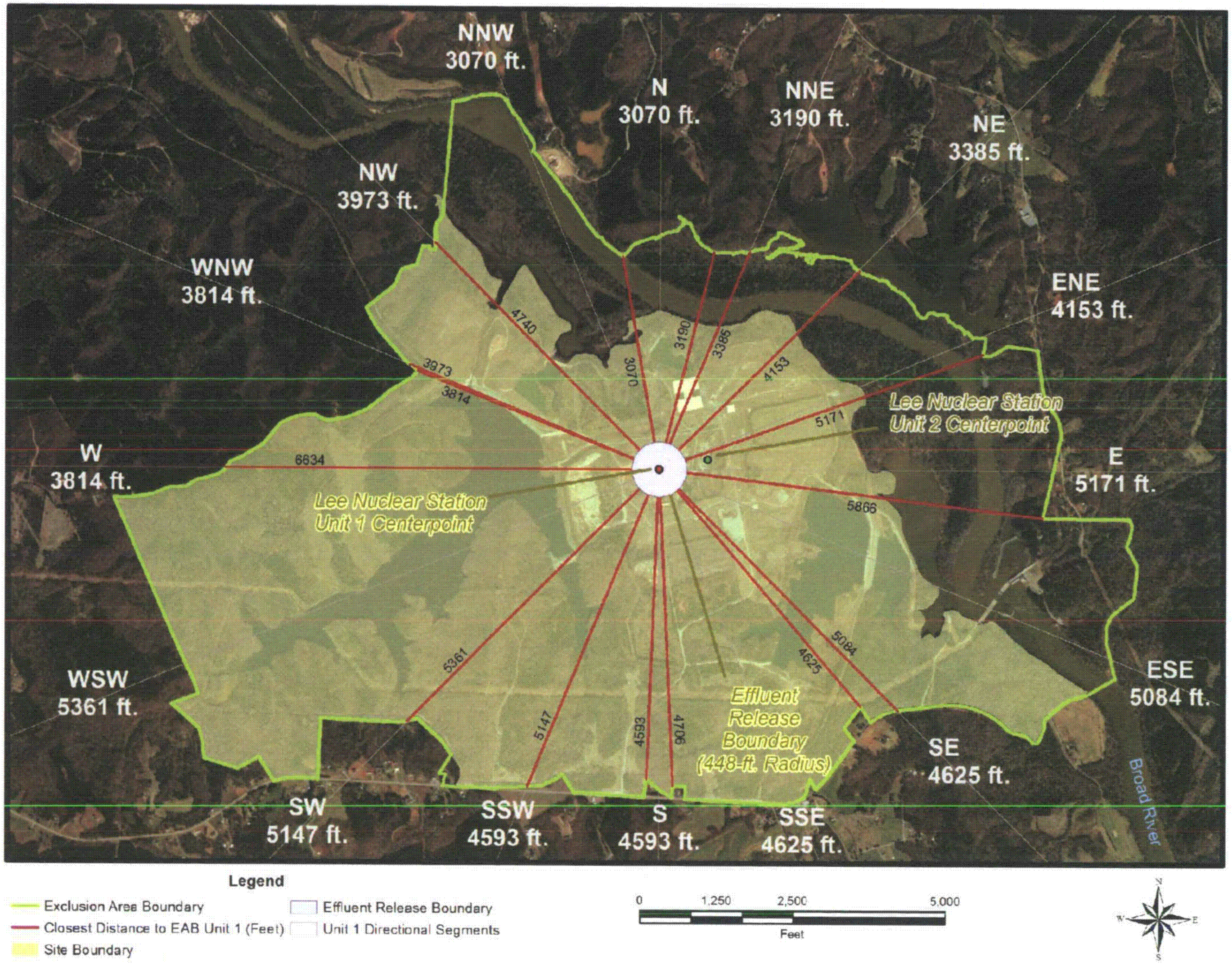
All of the land inside the site boundary (Figure 2.1-201) ~~Exclusion Area~~ is owned by Duke Energy. Duke Energy controls all activities within ~~the exclusion~~ this area ~~boundary~~ including exclusion and removal of personnel from the area during emergency operations. Duke Energy owns the mineral rights on the Lee Nuclear Site. There are no known easements that affect the Lee Nuclear Station. The Exclusion Area Boundary (EAB), shown in Figures 2.1-209A and 2.1-209B, extends beyond the site boundary to the north and east. Certain properties within the EAB that lay beyond the site boundary are currently not owned by Duke Energy. Negotiations regarding these properties have been initiated and Duke Energy ownership or control authority, including the mineral rights, will be obtained prior to start of construction.

5. COLA Part 2, FSAR Chapter 2, Figure 2.1-209 is deleted to provide EAB distances for each unit, presented as Figure 2.1-209A and Figure 2.1-209B as follows:

Figure 2.1-209

Deleted

6. COLA Part 2, FSAR Chapter 2, Figure 2.1-209A is added as follows:



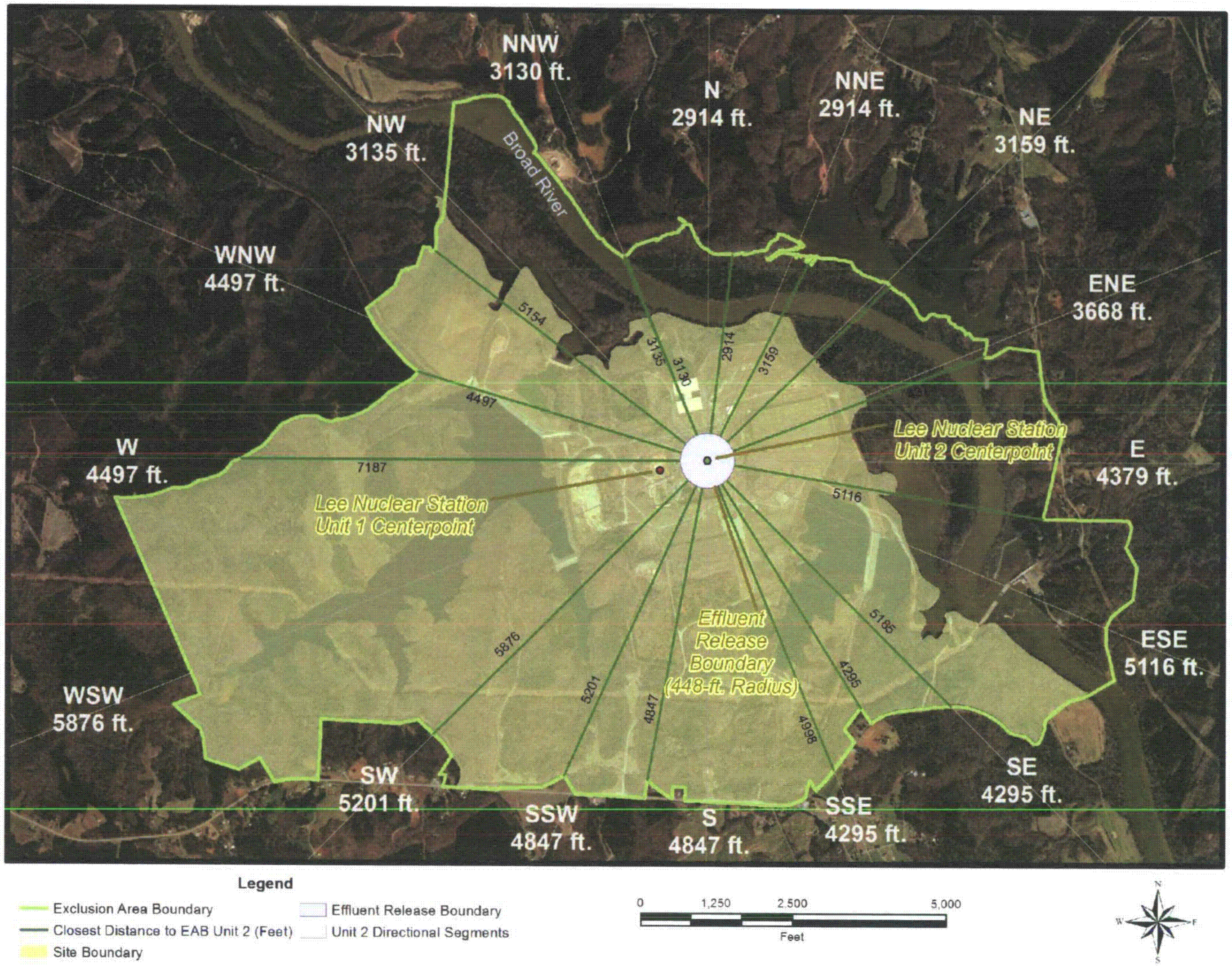
WLS COL 2.1-1

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Distance to EAB Map for Unit 1

FIGURE 2.1-209A

7. COLA Part 2, FSAR Chapter 2, Figure 2.1-209B is added as follows:



WLS COL 2.1-1

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Distance to EAB Map for Unit 2

FIGURE 2.1-209B

Attachment 4

Revisions to FSAR Chapter 2, Section 2.3, Appendix 2CC, and Appendix 2DD

Section 2.3

Table 2.3-204

Table 2.3-235

Table 2.3-236

Table 2.3-237

Table 2.3-238

Table 2.3-239

Table 2.3-240

Table 2.3-241

Table 2.3-282

Table 2.3-283

Table 2.3-286

Table 2.3-287

Table 2.3-288

Table 2.3-289

Table 2.3-290

Table 2.3-291

Table 2.3-292

Table 2.3-294

Table 2.3-295

Appendix 2CC

Appendix 2DD

1. COLA Part 2, FSAR Chapter 2, Subsection 2.3.1, first paragraph is revised as follows:

WLS COL 2.3-1 The description of the general climate of the region is based primarily on climatological records for Greenville/Spartanburg International Airport (GSP), located between Greenville and Spartanburg, South Carolina. This first order station was selected because the terrain and land-use in the surrounding area is similar to the area around the Lee Nuclear Site (i.e., rural). This description uses data from those records, as appropriate, and is augmented by recent data from the Lee Nuclear Station site meteorological tower (Tower 2). Meteorological data for the Lee Nuclear Site collected from 12/1/2005 through 11/30/2007~~6~~ is presented and used in FSAR Section 2.3 to calculate atmospheric dispersion values. ~~A second year of meteorological data for the Lee Nuclear Site was collected from 12/1/2006 through 11/30/2007.~~ FSAR Appendix 2CC provides an evaluation which concludes that one-year and two-year site data sets are consistent and representative of long-term conditions for the site.

2. COLA Part 2, FSAR Chapter 2, Subsection 2.3.1.2.2, second paragraph is revised as follows:

The tornadoes reported during the years 1950-2005 in the vicinity of Cherokee, Spartanburg, Union, Chester, and York Counties in South Carolina and Polk, Rutherford, Cleveland, Gaston, and Mecklenburg Counties in North Carolina are shown in Table 2.3-204. During the period 1950 to 2005, a total of 125~~118~~ tornadoes touched down in these counties, which have a combined total land area of 5,131.2 square miles (Reference 212). These local tornadoes have a mean path area of ~~0.460~~0.459 square miles, excluding tornadoes without a length specified. The site recurrence frequency of tornadoes can be calculated using the point probability method as follows:

Total area of tornado sightings = 5,131.2 sq mi

Average annual frequency = 125~~118~~ tornadoes/56 years = 2.23~~11~~ tornadoes/year

Annual frequency of a tornado striking a particular point P = [(0.459~~6~~ mi^2/tornado) (2.23~~11~~ tornadoes/year)] / 5,131.2 sq. mi = 0.0002 yr^{-1}

Mean recurrence interval = 1/P = 5000 years.

3. COLA Part 2, FSAR Chapter 2, Subsection 2.3.2.7, last paragraph is revised to read:

These air quality characteristics are not expected to be a significant factor in the design and operating bases of Units 1 and 2. The new nuclear steam supply system and other related radiological systems are not sources of criteria pollutants or other air toxics. The addition of supporting auxiliary boilers, emergency diesel generators, and station blackout generators (and other non-radiological emission sources) are not expected to be significant sources of criteria pollutant emissions because these units operate on an intermittent test and/or emergency basis.

4. COLA Part 2, FSAR Chapter 2, Subsection 2.3.3.1, second paragraph is revised as follows:

Calculations to determine diffusion estimates for both short- and long-term conditions are provided in Subsections 2.3.4 and 2.3.5, respectively. These analyses were completed using data from the meteorological Tower 2. The short-term and long-term χ/Q modeling is based on the 24-month period from December 1, 2005 to November 30, 2007. ~~However, the long-term χ/Q modeling is based on the 12-month period of December 2005 through November 2006. Appendix 2CC evaluates and justifies the use of two years of onsite meteorological data (December 2005 through November 2007) in determining the short-term atmospheric dispersion of accident releases and the use of one year of onsite meteorological data (December 2005 through November 2006) in determining the long-term atmospheric dispersion of normal airborne effluent releases. As discussed in Appendix 2CC, direct comparison of the atmospheric dispersion values for the one-year and two-year data sets is not possible because of the large number of source and receptor pairs, with some atmospheric dispersion values decreasing while others increase when using the two different sets of data. Instead, a comparison of the maximum individual and population offsite doses resulting from postulated normal airborne effluent releases using these two sets of data was performed. Comparison of the maximum individual and population doses showed that, although the doses increased slightly when the two-year data set was used, the doses are still only a fraction of the 10 CFR Part 50, Appendix I limits. Therefore, the χ/Q and D/Q values for normal airborne effluent releases based on one year of site meteorological data are retained.~~

5. COLA Part 2, FSAR Chapter 2, Subsection 2.3.3.1, fourth and fifth paragraphs are revised as follows:

The Tower 1 meteorological installation encompassed an original 55-meter (m) tower and a 10-m tower from the original Cherokee Nuclear site. Tower 1 was located at 588 ft. msl roughly ~~the same elevation as~~5 ft. lower than the future final grade of the Lee Nuclear Station containment structures. Because of its large size (e.g., transmission style tower), Tower 1 did not meet the structural requirements of Regulatory Guide 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants." Consequently, Tower 1 data was not used for the Lee Nuclear Station COLA analyses and are not discussed further. Tower 1 was decommissioned in May 2011.

Tower 2 is a 60-m meteorological tower, located on the east side of the power block. This tower is representative of both the wider site area and regional weather conditions. The base elevation for Tower 2 is approximately 611 ft., or approximately ~~22~~ 18 ft. above the ~~589~~ 593 ft. ~~yard~~ plant elevation~~grade of the plant~~. Data collection from this meteorological tower began on December 1, 2005.

6. COLA Part 2, FSAR Chapter 2, Subsection 2.3.4, first sentence is revised as follows:

WLS COL 2.3-4 The consequences of a design basis accident in terms of human exposure ~~is~~ are a function of the atmospheric dispersion conditions at the site of the potential release.

7. COLA Part 2, FSAR Chapter 2, Subsection 2.3.4.1, fifth and sixth paragraphs are revised as follows:

Using joint frequency distributions of wind direction and wind speed by atmospheric stability, PAVAN provides the χ/Q values as functions of direction for various time periods at the EAB and the LPZ. The meteorological data needed for this calculation includes wind speed, wind direction, and atmospheric stability. The meteorological data used for this analysis was obtained from the onsite meteorological Tower 2 data from December 1, 2005 through November 30, 2007. The joint frequency distribution for this period is reported in Table~~s~~ 2.3~~CC~~-23~~0~~5~~,~~ ~~2CC-206, 2CC-209, and 2CC-210~~through Table 2.3-241. Other plant specific data included tower height at which wind speed was measured (10.0 m) and distances to the EAB and LPZ. The Exclusion Area Boundary (EAB) for Lee Nuclear Station is shown in FSAR Figures 2.1-209A and 2.1-209B. The minimum EAB distances are reported in Table 2.3-282. In this table, the distances are measured from a ~~550~~448-foot radius effluent release boundary (from each Unit's containment building) to the EAB. The low population zone (LPZ) is defined as a circle with a 2-mile radius centered on the midpoint between the Unit 1 and 2 containment buildings.

Within the ground release category, two sets of meteorological conditions are treated differently. During neutral (D) or stable (E, F, or G) atmospheric stability conditions when the wind speed at the 10-meter level is less than 6 meters per second (m/s), horizontal plume meander is considered. The χ/Q values are determined through the selective use of the following set of equations for ground-level relative concentrations at the plume centerline:

8. COLA Part 2, FSAR Chapter 2, Subsection 2.3.4.1, eighth paragraph is revised as follows:

During all other meteorological conditions, unstable (A, B, or C) atmospheric stability and/or 10-meter level wind speeds of 6 m/s or more, plume meander is not considered. The higher value calculated from ~~e~~Equation 1 or 2 is used as the appropriate χ/Q value.

9. COLA Part 2, FSAR Chapter 2, Subsection 2.3.4.2, first paragraph is revised as follows:

The methodology described in Regulatory Guide 1.145 divides release configurations into two modes, ground release and stack release. A stack or elevated release includes all release points that are effectively greater than two and one-half times the height of the adjacent solid structures. Since the AP1000 release points do not meet this criterion, releases are considered to be ground level releases. The analysis also assumed a ~~550~~448 ft radius circle~~-~~, centered on each Unit's containment, which encompasses~~ing~~ all release points (sources) when calculating distances to the receptors.

10. COLA Part 2, FSAR Chapter 2, Subsection 2.3.4.2, fifth paragraph through the end of the subsection is revised as follows:

Building cross-sectional area is defined as the smallest vertical-plane area of the reactor building, in square meters. The area of the reactor building to be used in the determination of building-wake effects will be conservatively estimated as the above grade, cross-sectional area of the shield building. This area was determined to be 2843~~2~~ m^2. Building height is the height above plant grade of the containment structure used in the building-wake term for the annual-average calculations. The Passive Containment Cooling System (PCCS) tank roof is at Elevation 329 ft. The DCD design grade elevation for the AP1000 is 100 ft; therefore, the height above plant grade of the containment structure or building height is 229 ft.

As described in Regulatory Guide 1.145, a ground release includes all release points that are effectively lower than two and one-half times the height of adjacent solid structures. Therefore, as stated above, a ground release was assumed.

The tower height is the height at which the wind speed was measured. Based on the ground level release assumption, the lower measurement level (i.e., 10-meter level) on the tower height was used.

Table 2.3-283 gives the direction-dependent sector and the direction independent χ/Q values at the EAB and LPZ along with the 5 percent maximum χ/Q values for both Units 1 and 2. As shown, the 0.5 percent direction dependent maximum sector relative dispersion exceeds the 5 percent direction independent overall site dispersion at the EAB. Since a higher relative dispersion coefficient is conservative, the 0.5 percent maximum sector (SE at ~~1339~~ 1410 m for Unit 1 and SE at 1309 m for Unit 2) relative dispersion is limiting for the EAB. For the LPZ, the comparison also resulted in the conclusion that the 0.5 percent direction dependent relative dispersion was limiting. A summary of these results is provided below.

Short Term Accident χ/Q VALUES for Unit 1 (sec/m^3)
(Based on December 2005-November 2007 Meteorological Data)

	0-2 Hrs	0-8 Hrs	8-24 Hrs	24-96 Hrs	96-720 Hrs
EAB (~~1339~~ 1410 m, SE sector)	3.32~~46~~E-04	N/A	N/A	N/A	N/A
LPZ (3219 m, SE sector)	N/A	8.05~~1~~E-05	5.52~~49~~E-05	2.43~~2~~E-05	7.52~~46~~E-06

Short Term Accident χ/Q VALUES for Unit 2 (sec/m^3)
(Based on December 2005-November 2007 Meteorological Data)

	0-2 Hrs	0-8 Hrs	8-24 Hrs	24-96 Hrs	96-720 Hrs
EAB (1309 m, SE sector)	3.55E-04	N/A	N/A	N/A	N/A
LPZ (3219 m, SE sector)	N/A	8.05E-05	5.52E-05	2.43E-05	7.52E-06

As seen from the above tables, the atmospheric dispersion values for Unit 2 are limiting. The above Lee Nuclear Station site characteristics are compared to the AP1000 design criteria in Table 2.0-201.

11. COLA Part 2, FSAR Chapter 2, Subsection 2.3.4.4, third paragraph, third sentence is revised as follows:

The building area used for building wake corrections is the above grade containment shell area which was conservatively calculated to be ~~2842~~ 2843 m^2.

12. COLA Part 2, FSAR Chapter 2, Subsection 2.3.5.1, second and fourth paragraphs are revised as follows:

~~Appendix 2CC evaluates the use of two years of onsite meteorological data (December 2005 through November 2007) in determining the atmospheric dispersion of normal airborne effluent releases. As discussed in this appendix, direct comparison of the atmospheric dispersion and deposition values for the one-year and two-year data sets is not meaningful because of the large number of values and the various offsite receptor locations, some of which decrease while others increase. Instead, a comparison of the maximum individual and population doses using these two sets of data was performed. Comparison of the maximum individual and population doses showed that, although the doses increased slightly when the two-year data set was used, the doses are still only a fraction of the 10 CFR Part 50, Appendix I limits. Consequently, the χ/Q and D/Q values for normal releases based on the one-year of site meteorological data are retained. In addition to t~~The gridded receptor locations~~, receptor locations~~ were determined from the locations obtained from the ~~2006~~2007 and 2008 land use information. Hourly meteorological data was used in the development of joint frequency distributions, in hours, of wind direction and wind speed by atmospheric stability class. The wind speed categories used were consistent with the Lee Nuclear short-term (accident) diffusion χ/Q calculation discussed above. Calms (wind speeds below the anemometer starting speed of 1 mph) were distributed into the first wind speed class with the same proportion and direction as the direction frequency of the 2nd wind-speed class.

For receptors located at the EAB, the analysis assumed a ground level point source located at the Effluent Release Boundary closest to the receptor. For other offsite receptors such as cows and gardens, t~~T~~he analysis assumed a ground level point source located at the center of the facility midpoint between the Unit 1 and 2 containment buildings. At ground level locations beyond several miles from the plant, the annual average concentration of effluents are essentially independent of release mode; however, for ground level concentrations within a few miles, the release mode is important. Gaseous effluents released from tall stacks generally produce peak ground-level air concentrations near or beyond the site boundary. Near ground level releases usually produce concentrations that decrease from the release point to all locations downwind. Guidance for selection of the release mode is provided in Regulatory Guide 1.111. In general, in order for an elevated release to be assumed, either the release height must be at least twice the height of adjacent buildings or detailed information must be known about the wind speed at the height of the release. For this analysis, the routine releases were conservatively modeled as ground level releases.

13. COLA Part 2, FSAR Chapter 2, Subsection 2.3.5.1, sixth paragraph, last sentence is revised to read:

The calculation results, with and without consideration of dry deposition, are identified in the output as "depleted" and "undepleted".

14. COLA Part 2, FSAR Chapter 2, Subsection 2.3.5.2, last paragraph is revised as follows:

The results of the analysis, based on ~~one~~ two years of data collected on site, are presented in Tables 2.3-287 through 2.3-292. The limiting atmospheric dispersion factor (χ/Q) at the EAB, 6.30×10^{-6} sec/m^3, is in the SE direction from Unit 2 at ~~1339~~ 1309 meters. The limiting atmospheric dispersion at the nearest residence, 4.60×10^{-6} sec/m^3, is also in the SE direction at ~~1607~~ 1588 meters. Atmospheric dispersion factors for other receptors are given in Table 2.3-289. Long term atmospheric dispersion factors are not given in the AP1000 DCD except at the EAB. The DCD site boundary annual average χ/Q is 2.0×10^{-5} sec/m^3. This bounds the Lee Nuclear Station annual average routine release EAB χ/Q value of 6.3~~5.8~~ x 10^{-6} sec/m^3. Table 2.0-201 provides~~d~~ a comparison of the Lee Nuclear Station site characteristics with the DCD design parameters.

15. COLA Part 2, FSAR Chapter 2, Table 2.3-204, title is revised and information is added beginning on Sheet 8 to reflect the addition of Polk and Rutherford Counties as follows:

WLS COL 2.3-1

TABLE 2.3-204 (Sheet 8 of ~~8~~9)
TORNADOES IN CHEROKEE, SPARTANBURG, UNION, CHESTER, AND YORK COUNTIES, SOUTH CAROLINA AND CLEVELAND, GASTON, ~~AND~~ MECKLENBURG, POLK, AND RUTHERFORD COUNTIES, NORTH CAROLINA

Location or County	Date	Time	Magnitude Fujita Scale	Length (mi.)	Width (yards)	Area (mi^2)
12 MECKLENBURG	6/6/1985	1620	F0	1	267	0.15
13 MECKLENBURG	11/28/1990	1940	F1	0	20	
14 MECKLENBURG	3/10/1992	2107	F2	3	180	0.31
15 Mint Hill	3/20/1998	1442	F0	0	25	
16 Cornelius	5/7/1998	1845	F0	6	50	0.17
17 Pineville	8/1/1999	1935	F0	0	10	
18 Charlotte	9/7/2004	1045	F2	2	200	0.23
19 Charlotte	3/8/2005	0740	F1	3	50	0.09
Polk County, NC						
1 Polk	8/17/1977	1136	F1	6	33	0.11
Rutherford County, NC						
1 Rutherford	5/27/1973	1915	F0	0	0	
2 Rutherford	5/18/1975	100	F2	0	0	
3 Rutherford	5/18/1989	1630	F1	0	0	

WLS COL 2.3-1

TABLE 2.3-204 (Sheet ~~8~~ 9 of ~~8~~9)
TORNADOES IN CHEROKEE, SPARTANBURG, UNION, CHESTER, AND YORK COUNTIES, SOUTH CAROLINA AND CLEVELAND, GASTON, ~~AND~~ MECKLENBURG, POLK, AND RUTHERFORD COUNTIES, NORTH CAROLINA

Location or County	Date	Time	Magnitude Fujita Scale	Length (mi.)	Width (yards)	Area (mi^2)
4 Rutherford	5/5/1989	1635	F4	6	400	1.36
5 Rutherford	5/24/2000	1720	F0	2	30	0.03
6 Forest city	7/7/2005	952	F1	1	50	0.03

NOTES:

1. Tornado data from all years were used to calculate the annual frequencies given in text.
2. Tornadoes with a zero (or missing) reported area, path length, or width do not represent valid data for statistical purposes.
3. Data recorded in the NOAA's National Environmental Satellite, Data, and Information Service (NEDSIS) - NCDC Storm Event database, 1950-2005, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms.

16. COLA Part 2, FSAR Chapter 2, Table 2.3-235 is revised as follows:

WLS COL 2.3-2

TABLE 2.3-235 (Sheet 1 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS A

STABILITY CLASS A HOURS AT EACH WIND SPEED AND DIRECTION

	Wind Speed (m/sec)												Average Wind Speed (m/sec)
DIR	U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	
N	0	0	0	0	2	5	10	8~~6~~	11~~7~~	4~~2~~	2	0	42~~35~~	3.5~~3.2~~
NNE	0	0	0	0	0	8~~7~~	13~~11~~	21~~16~~	5~~3~~	3~~1~~	2	0	52~~40~~	3.2~~3.1~~
NE	0	0	0	0	0	13	33~~29~~	31~~16~~	4~~2~~	1	0	0	82~~61~~	2.9~~2.8~~
ENE	0	0	0	1	3	9~~8~~	27~~24~~	30~~16~~	8~~3~~	1~~0~~	0	0	79~~55~~	2.9~~2.7~~
E	0	0	0	1	1	8	25~~22~~	6~~3~~	0	0	0	0	41~~35~~	2.4~~2.3~~
ESE	0	0	0	1	3	15	17~~10~~	1~~0~~	0	0	0	0	37~~29~~	2.0~~1.9~~
SE	0	1~~0~~	0	2	1	14~~13~~	35~~19~~	13~~3~~	0	0	0	0	66~~38~~	2.4~~2.1~~
SSE	0	0	0	1	4~~3~~	19~~15~~	40~~30~~	21~~11~~	2	0	2	0	89~~64~~	2.7
S	0	~~0~~1	0	0	2	13	35~~22~~	26~~15~~	5~~3~~	3	1	0	86~~59~~	2.9~~2.8~~
SSW	0	0	0	0	3	9~~8~~	32~~24~~	62~~35~~	40~~20~~	18~~16~~	9~~5~~	2	175~~113~~	3.9~~3.8~~
SW	0	0	0	0	1	1	23~~16~~	55~~33~~	37~~21~~	33~~25~~	27~~11~~	4~~2~~	181~~110~~	4.5~~4.4~~
WSW	0	0	0	0	2	3	14~~12~~	37~~26~~	28~~12~~	11~~7~~	17~~2~~	3~~0~~	115~~65~~	4.4~~3.7~~

WLS COL 2.3-2

TABLE 2.3-235 (Sheet 2 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS A

STABILITY CLASS A HOURS AT EACH WIND SPEED AND DIRECTION

	Wind Speed (m/sec)												Average Wind Speed (m/sec)
DIR	U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	
W	0	0	0	1	0	3	9~~6~~	8~~2~~	17~~10~~	3~~1~~	1~~0~~	0	42~~24~~	3.7~~3.4~~
WNW	0	0	1	0	4	2	13~~11~~	18~~8~~	17~~10~~	16~~6~~	15~~10~~	6~~3~~	92~~57~~	4.6~~4.3~~
NW	0	0	0	1~~0~~	1	3~~2~~	12~~11~~	14~~6~~	16~~8~~	15~~9~~	15~~9~~	5~~1~~	82~~49~~	4.8~~4.5~~
NNW	0	0	0	0	0	4	7~~6~~	11~~5~~	2	6~~4~~	0	0	30~~22~~	3.5~~3.4~~
CALM	0													
TOTAL	0	2~~0~~	1	8~~7~~	27	129~~122~~	345~~264~~	362~~201~~	192~~105~~	114~~76~~	91~~46~~	20~~8~~	1291~~857~~	

NOTES:

1. Data from Lee Nuclear Station site Data, 12/1/2005 - 11/30/2007~~6~~.
2. Stability class is determined by the upper temperature gradient between 60m and 10m.
3. Wind direction data is from the 10 m level.
4. Calms are wind speeds below 1 mph (0.45 m/sec).
5. ~~Due to listing the joint frequency distribution in hours and rounding the total number of hours may exceed the number of hours in a year.~~

17. COLA Part 2, FSAR Chapter 2, Table 2.3-236 is revised as follows:

WLS COL 2.3-2

TABLE 2.3-236 (Sheet 1 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS B

STABILITY CLASS B HOURS AT EACH WIND SPEED AND DIRECTION

	Wind Speed (m/sec)													Average Wind Speed (m/sec)
DIR	U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	
N	0	0	0	1	1	6~~4~~	8~~5~~	16~~12~~	16~~10~~	4~~1~~	0	0	52~~35~~	3.5~~3.3~~
NNE	0	0	0	0	0	10~~8~~	19~~13~~	16~~7~~	10~~4~~	8~~3~~	1	0	64~~37~~	3.4~~3.1~~
NE	0	0	0	1~~0~~	3	15	20~~10~~	28~~9~~	8~~3~~	3~~1~~	0	0	78~~41~~	2.9~~2.5~~
ENE	0	0	0	2	7	5~~3~~	23~~15~~	32~~5~~	4~~0~~	1~~0~~	1~~0~~	0	75~~32~~	2.9~~2.3~~
E	0	0	0	2	0	8~~6~~	24~~11~~	6~~1~~	2~~0~~	0	0	0	42~~21~~	2.5~~2.1~~
ESE	0	0	0	0	2	7~~3~~	17~~7~~	1	0	0	0	0	27~~13~~	2.2
SE	0	0	1~~0~~	1	1~~0~~	11~~8~~	22~~6~~	1~~0~~	0	0	0	0	37~~16~~	2.2~~2.0~~
SSE	0	0	0	2	4	14~~7~~	33~~13~~	2~~1~~	0	0	1	0	56~~29~~	2.2
S	0	0	0	1	4	11~~8~~	46~~17~~	11~~6~~	2~~0~~	2~~1~~	0	0	77~~37~~	2.5~~2.3~~
SSW	0	0	0	0	0	4~~3~~	39~~13~~	39~~16~~	25~~15~~	12~~7~~	6~~3~~	2	127~~59~~	3.7~~4.0~~
SW	0	0	0	0	0	5~~4~~	32~~13~~	32~~21~~	37~~23~~	25~~16~~	18~~7~~	3~~1~~	152~~85~~	4.3~~4.2~~

WLS COL 2.3-2

TABLE 2.3-236 (Sheet 2 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS B

STABILITY CLASS B HOURS AT EACH WIND SPEED AND DIRECTION

DIR	Wind Speed (m/sec) U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	Average Wind Speed (m/sec)
WSW	0	0	0	0	0	7~~4~~	27~~16~~	39~~19~~	16~~9~~	12~~6~~	10~~5~~	1~~0~~	112~~59~~	3.9~~3.8~~
W	0	0	0	0	1	1~~0~~	19~~7~~	14~~7~~	12~~4~~	8~~5~~	2~~1~~	0	57~~26~~	3.7~~3.7~~
WNW	0	0	0	0	1~~0~~	6~~4~~	18~~10~~	13~~8~~	7~~6~~	10~~7~~	8~~5~~	8~~3~~	71~~45~~	4.4~~4.3~~
NW	0	0	0	0	2~~1~~	10~~9~~	30~~12~~	15~~5~~	10~~3~~	10~~9~~	7~~3~~	4~~0~~	88~~44~~	3.8~~3.5~~
NNW	0	0	1	1	1	0	7~~4~~	8~~4~~	8~~5~~	3~~2~~	0	1	30~~20~~	3.6
CALM	0													
TOTAL	0	0	2~~1~~	11~~10~~	27~~25~~	120~~88~~	384~~175~~	273~~123~~	157~~83~~	98~~59~~	54~~27~~	19~~7~~	1145~~59~~ ~~9~~	

NOTES:

1. Data from Lee Nuclear Station site Data, 12/1/2005 - 11/30/2007~~6~~.
2. Calms are wind speeds below 1 mph (0.45 m/sec).

18. COLA Part 2, FSAR Chapter 2, Table 2.3-237 is revised as follows:

WLS COL 2.3-2

TABLE 2.3-237 (Sheet 1 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS C

STABILITY CLASS C HOURS AT EACH WIND SPEED AND DIRECTION

	Wind Speed (m/sec)													Average Wind Speed (m/sec)
DIR	U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	
N	0	0	1	3~~1~~	3~~2~~	10~~7~~	16~~10~~	9~~2~~	5~~4~~	1	1	0	49~~30~~	2.7
NNE	0	0	0	0	3	5~~2~~	24~~11~~	21~~10~~	15~~5~~	4~~3~~	0	0	72~~35~~	3.3~~3.2~~
NE	0	0	0	2	5~~3~~	16~~12~~	47~~21~~	23~~7~~	10~~3~~	3~~0~~	0	0	106~~49~~	2.8~~2.5~~
ENE	0	0	0	2	4~~3~~	14~~6~~	32~~12~~	21~~7~~	5~~1~~	0	~~0~~1	0	79~~32~~	2.7~~2.4~~
E	0	0	0	0	2~~1~~	21~~10~~	22~~2~~	4~~2~~	1~~0~~	0	0	0	50~~16~~	2.2~~2.0~~
ESE	0	0	0	0	3~~2~~	12~~8~~	12~~6~~	1	0	0	0	0	28~~18~~	2.0
SE	0	0	0	3	8~~4~~	29~~16~~	35~~10~~	0	0	0	0	0	75~~33~~	1.9~~1.8~~
SSE	0	0	0	4~~0~~	8~~5~~	31~~13~~	49~~18~~	6~~5~~	0	1	0	0	99~~42~~	2.2~~2.3~~
S	0	0	1	2~~0~~	2	13~~5~~	53~~24~~	9~~4~~	3~~2~~	3	0	0	86~~41~~	2.5~~2.7~~
SSW	0	0	0	0	2~~0~~	9~~2~~	44~~21~~	33~~12~~	22~~10~~	10~~5~~	10~~4~~	2~~1~~	132~~56~~	3.6~~3.7~~
SW	0	0	1	1~~0~~	2	8~~3~~	41~~18~~	27~~17~~	21~~11~~	11~~4~~	29~~16~~	8~~7~~	149~~79~~	4.3~~4.5~~

WLS 2.3-2

TABLE 2.3-237 (Sheet 2 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS C

STABILITY CLASS C HOURS AT EACH WIND SPEED AND DIRECTION

DIR	Wind Speed (m/sec) U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	Average Wind Speed (m/sec)
WSW	0	0	0	1	5~~3~~	11~~5~~	48~~24~~	23~~15~~	13~~7~~	7~~4~~	4~~0~~	5~~2~~	117~~61~~	3.4~~3.3~~
W	0	0	1~~0~~	2~~1~~	3~~1~~	8~~2~~	24~~11~~	11~~4~~	4~~2~~	2~~1~~	2	0	57~~25~~	2.8~~3.1~~
WNW	0	0	0	3	1~~0~~	13~~1~~	18~~10~~	12~~9~~	6~~5~~	3	5~~4~~	3~~1~~	64~~37~~	3.5~~3.9~~
NW	0	0	0	0	1~~0~~	13~~9~~	25~~16~~	10~~4~~	9~~4~~	7~~6~~	13~~2~~	6~~0~~	84~~41~~	4.1~~3.3~~
NNW	0	0	0	1	0	5~~2~~	16~~9~~	8~~5~~	2~~1~~	5~~4~~	0	1	38~~24~~	3.1~~3.3~~
CALM	0													0.0
TOTAL	0	0	4~~3~~	24~~15~~	52~~32~~	218~~106~~	506~~224~~	218~~106~~	116~~57~~	57~~36~~	65~~29~~	25~~12~~	1285~~620~~	

NOTES:

1. Data from Lee Nuclear Station site Data, 12/1/2005 - 11/30/2007~~6~~.
2. Calms are wind speeds below 1 mph (0.45 m/sec)

19. COLA Part 2, FSAR Chapter 2, Table 2.3-238 is revised as follows:

WLS COL 2.3-2

TABLE 2.3-238 (Sheet 1 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS D

STABILITY CLASS D HOURS AT EACH WIND SPEED AND DIRECTION

DIR	Wind Speed (m/sec) U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	Average Wind Speed (m/sec)
N	0	0	13~~6~~	17~~8~~	32~~16~~	60~~25~~	113~~59~~	38~~32~~	39~~17~~	15~~9~~	5~~2~~	0	332~~174~~	2.6~~2.7~~
NNE	0	1~~0~~	11~~7~~	18~~8~~	28~~15~~	84~~27~~	151~~78~~	78~~52~~	41~~24~~	11~~6~~	2	0	425~~219~~	2.6~~2.8~~
NE	0	1~~0~~	10~~4~~	14~~7~~	25~~12~~	62~~26~~	143~~65~~	64~~34~~	26~~11~~	11~~5~~	1	0	357~~167~~	2.6
ENE	0	1	14~~9~~	25~~18~~	30~~12~~	58~~25~~	105~~40~~	47~~20~~	10~~5~~	5~~1~~	0	0	295~~132~~	2.3~~2.2~~
E	0	4~~0~~	19~~9~~	17~~7~~	30~~10~~	39~~18~~	46~~22~~	11~~7~~	3~~2~~	0	0	0	169~~76~~	1.8~~1.9~~
ESE	0	1	15~~9~~	14~~6~~	28~~15~~	50~~24~~	35~~12~~	7~~2~~	0	1	0	0	151~~70~~	1.8~~1.7~~
SE	0	3~~0~~	5~~4~~	19~~10~~	48~~26~~	78~~32~~	71~~25~~	10~~2~~	9~~5~~	2~~0~~	0	0	245~~105~~	2.0~~1.9~~
SSE	1	1~~0~~	8~~6~~	15~~8~~	35~~16~~	82~~36~~	92~~52~~	12~~6~~	10~~8~~	4~~3~~	6~~4~~	3	269~~144~~	2.3~~2.5~~
S	1~~0~~	1~~0~~	8~~6~~	8~~5~~	36~~21~~	83~~48~~	113~~64~~	48~~25~~	21~~12~~	5~~3~~	7~~5~~	1~~0~~	332~~190~~	2.5
SSW	0	0	9~~5~~	5~~3~~	16~~7~~	48~~23~~	143~~79~~	93~~38~~	65~~34~~	28~~17~~	4~~2~~	3~~0~~	414~~208~~	3.1
SW	0	1	8~~3~~	10~~4~~	17~~9~~	36~~17~~	83~~48~~	71~~39~~	62~~27~~	53~~26~~	27~~16~~	1	369~~191~~	3.6

WLS COL 2.3-2

TABLE 2.3-238 (Sheet 2 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS D

STABILITY CLASS D HOURS AT EACH WIND SPEED AND DIRECTION

	Wind Speed (m/sec)													Average Wind Speed (m/sec)
DIR	U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	
WSW	0	0	5~~3~~	13~~5~~	10~~3~~	28~~17~~	56~~27~~	44~~20~~	30~~16~~	15~~5~~	13~~10~~	5~~3~~	219~~109~~	3.3~~3.5~~
W	0	1~~0~~	8~~3~~	9~~6~~	7~~3~~	25~~10~~	43~~19~~	23~~12~~	11~~6~~	7~~3~~	2~~1~~	0	136~~64~~	2.6~~2.7~~
WNW	0	3~~2~~	8~~4~~	10~~6~~	16~~7~~	23~~9~~	40~~18~~	22~~13~~	23~~13~~	17~~6~~	13~~7~~	8~~3~~	183~~90~~	3.3
NW	0	2~~1~~	14~~6~~	18~~10~~	26~~22~~	58~~26~~	62~~34~~	30~~16~~	36~~15~~	27~~10~~	29~~4~~	13~~5~~	315~~149~~	3.3~~2.8~~
NNW	0	3~~1~~	16~~6~~	20~~10~~	33~~13~~	41~~25~~	57~~31~~	43~~22~~	27~~10~~	20~~9~~	7~~2~~	4~~1~~	271~~132~~	2.8~~2.7~~
CALM	5~~0~~													
TOTAL	7~~1~~	23~~7~~	171~~93~~	232~~124~~	417~~207~~	855~~386~~	1353~~67~~ ~~2~~	641~~341~~	413~~206~~	221~~106~~	116~~57~~	38~~17~~	4487~~2218~~	

NOTES:

1. Data from Lee Nuclear Station site Data, 12/1/2005 - 11/30/2007~~6~~.
2. Calms are wind speeds below 1 mph (0.45 m/sec).

20. COLA Part 2, FSAR Chapter 2, Table 2.3-239 is revised as follows:

WLS COL 2.3-2

TABLE 2.3-239 (Sheet 1 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS E

STABILITY CLASS E HOURS AT EACH WIND SPEED AND DIRECTION

	Wind Speed (m/sec)												Average Wind Speed (m/sec)
DIR	U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	
N	0	8~~4~~	34~~22~~	31~~12~~	34~~17~~	46~~27~~	43~~18~~	17~~7~~	3~~2~~	4~~2~~	1	0	221~~112~~	1.8
NNE	1~~0~~	9~~3~~	25~~10~~	23~~12~~	35~~21~~	39~~16~~	49~~11~~	28~~6~~	2~~1~~	0	0	0	211~~81~~	1.9~~1.7~~
NE	1~~0~~	8~~5~~	32~~15~~	27~~20~~	36~~18~~	36~~20~~	41~~16~~	18~~7~~	3~~1~~	0	0	0	202~~100~~	1.7~~1.6~~
ENE	1~~0~~	13~~6~~	25~~21~~	17~~6~~	27~~15~~	30~~15~~	36~~8~~	3~~0~~	1~~0~~	0	0	0	153~~70~~	1.6~~1.3~~
E	0	11~~6~~	40~~22~~	37~~23~~	30~~21~~	32~~18~~	18~~3~~	1~~0~~	0	0	0	0	169~~92~~	1.3
ESE	0	8~~3~~	33~~21~~	42~~21~~	30~~18~~	28~~13~~	13~~3~~	1	0	0	0	0	155~~80~~	1.3
SE	0	3~~0~~	31~~19~~	36~~23~~	44~~27~~	48~~25~~	23~~16~~	3~~0~~	1~~0~~	0	0	0	189~~109~~	1.5~~1.4~~
SSE	1~~0~~	1~~0~~	20~~7~~	37~~19~~	45~~27~~	70~~32~~	41~~23~~	12~~5~~	5~~1~~	2~~1~~	1~~0~~	0	235~~115~~	1.8
S	0	4~~0~~	12~~5~~	24~~9~~	38~~15~~	82~~44~~	132~~66~~	38~~25~~	2~~0~~	0	2~~0~~	0	334~~164~~	2.1~~2.2~~
SSW	0	4~~2~~	8~~3~~	21~~12~~	20~~9~~	29~~12~~	105~~42~~	56~~25~~	26~~21~~	9~~8~~	0	0	278~~136~~	2.6~~2.8~~

WLS COL 2.3-2

TABLE 2.3-239 (Sheet 2 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS E

STABILITY CLASS E HOURS AT EACH WIND SPEED AND DIRECTION

Wind Speed (m/sec)

DIR	U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	Average Wind Speed (m/sec)
SW	0	3~~1~~	7~~6~~	10~~8~~	10~~3~~	31~~16~~	52~~27~~	51~~30~~	45~~27~~	13~~9~~	3~~2~~	0	225~~129~~	3.0~~3.1~~
WSW	0	1~~0~~	7~~5~~	12~~10~~	9~~2~~	26~~19~~	33~~25~~	27~~18~~	14~~10~~	4~~3~~	0	0	133~~92~~	2.6
W	0	4~~2~~	11~~7~~	4~~3~~	9~~2~~	21~~13~~	37~~20~~	20~~11~~	3~~2~~	0	0	0	109~~61~~	2.2
WNW	0	0	15~~9~~	23~~16~~	27~~19~~	45~~28~~	58~~39~~	24~~11~~	11~~7~~	6~~4~~	0	0	209~~134~~	2.2
NW	1~~0~~	6~~1~~	28~~9~~	58~~34~~	63~~38~~	74~~41~~	69~~40~~	39~~24~~	7~~6~~	0	2~~1~~	0	347~~196~~	1.9~~2.0~~
NNW	1~~0~~	8~~5~~	29~~21~~	30~~18~~	47~~27~~	55~~29~~	53~~32~~	32~~24~~	9~~3~~	2~~0~~	1	0	267~~160~~	1.9
CALM	12~~5~~													
TOTAL	18~~5~~	91~~39~~	357~~202~~	432~~247~~	504~~277~~	692~~367~~	803~~390~~	370~~195~~	132~~82~~	40~~28~~	10~~5~~	0	3449~~1836~~	

NOTES:

1. Data from Lee Nuclear Station site Data, 12/1/2005 - 11/30/2007~~6~~.
2. Calms are wind speeds below 1 mph (0.45 m/sec)

21. COLA Part 2, FSAR Chapter 2, Table 2.3-240 is revised as follows:

WLS COL 2.3-2

TABLE 2.3-240 (Sheet 1 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS F

STABILITY CLASS F HOURS AT EACH WIND SPEED AND DIRECTION

	Wind Speed (m/sec)													Average Wind Speed (m/sec)
DIR	U≤0.5	0.5<U ≤0.75	0.75<U≤ 1.0	1.0<U ≤1.25	1.25<U≤ 1.5	1.5<U ≤ 2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	
N	3~~1~~	15~~10~~	30~~20~~	19~~9~~	11~~7~~	11~~3~~	7~~3~~	0	0	0	0	0	96~~54~~	1.1~~1.0~~
NNE	1	18~~9~~	28~~13~~	14~~5~~	17~~5~~	10~~5~~	4~~1~~	0	0	0	0	0	92~~40~~	1.1~~1.0~~
NE	1	19~~11~~	28~~9~~	13~~8~~	11~~7~~	14~~3~~	2~~0~~	1~~0~~	0	0	0	0	89~~40~~	1.1~~1.0~~
ENE	2~~1~~	17~~10~~	34~~21~~	20~~13~~	8~~5~~	2~~0~~	2~~1~~	0	0	0	0	0	85~~52~~	1.0
E	0	20~~7~~	55~~30~~	24~~15~~	8~~5~~	3~~2~~	0	0	0	0	0	0	110~~59~~	0.9~~1.0~~
ESE	2~~1~~	17~~10~~	42~~20~~	38~~25~~	11~~6~~	5~~3~~	1~~0~~	0	0	0	0	0	116~~65~~	1.0
SE	0	7~~1~~	30~~15~~	29~~16~~	35~~18~~	20~~15~~	6~~3~~	1~~0~~	0	0	0	0	128~~66~~	1.2~~1.3~~
SSE	0	6~~3~~	15~~6~~	30~~13~~	26~~16~~	24~~12~~	11~~7~~	0	2~~1~~	0	0	0	114~~59~~	1.4~~1.5~~
S	1	2~~1~~	12~~7~~	9~~3~~	17~~6~~	22~~7~~	31~~18~~	5~~2~~	0	0	0	0	99~~46~~	1.8
SSW	0	0	9~~5~~	6~~3~~	9~~5~~	7~~3~~	22~~8~~	5~~2~~	0	1	0	0	59~~28~~	2.0
SW	0	1~~0~~	3~~2~~	6~~3~~	9~~6~~	10~~6~~	3~~1~~	0	0	0	0	0	32~~19~~	1.5

WLS COL 2.3-2

TABLE 2.3-240 (Sheet 2 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS F

STABILITY CLASS F HOURS AT EACH WIND SPEED AND DIRECTION

						Wind Speed (m/sec)								Average Wind Speed (m/sec)
DIR	U≤0.5	0.5<U ≤0.75	0.75<U≤ 1.0	1.0<U ≤1.25	1.25<U≤ 1.5	1.5<U ≤ 2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	
WSW	0	3~~2~~	9~~7~~	10~~6~~	1	7~~6~~	7~~6~~	2~~0~~	0	0	0	~~0~~	39~~29~~	1.5~~1.4~~
W	0	4~~3~~	12~~4~~	6~~1~~	11~~3~~	12~~3~~	10~~4~~	2~~1~~	1~~0~~	0	0	~~0~~	58~~20~~	1.6~~1.5~~
WNW	0	7~~5~~	31~~22~~	23~~13~~	28~~17~~	48~~26~~	34~~27~~	3~~2~~	2~~1~~	0	0	0	176~~113~~	1.6
NW	1	15~~5~~	44~~28~~	49~~34~~	82~~50~~	102~~48~~	65~~36~~	4~~3~~	0	0	1~~0~~	0	363~~205~~	1.6~~1.5~~
NNW	0	18~~5~~	46~~22~~	31~~20~~	31~~19~~	22~~10~~	20~~8~~	4~~2~~	0	0	0	0	172~~86~~	1.3
CALM	33~~5~~													
TOTA	44~~12~~	169~~85~~	428~~231~~	327~~189~~	315~~176~~	319~~153~~	225~~124~~	27~~12~~	5~~2~~	1	1~~0~~	0	1861~~986~~	

NOTES:

1. Data from Lee Nuclear Station site Data, 12/1/2005 - 11/30/2007~~6~~.
2. Calms are wind speeds below 1 mph (0.45 m/sec).

22. COLA Part 2, FSAR Chapter 2, Table 2.3-241 is revised as follows:

WLS COL 2.3-2

TABLE 2.3-241 (Sheet 1 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS G

STABILITY CLASS G HOURS AT EACH WIND SPEED AND DIRECTION

	Wind Speed (m/sec)													Average Wind Speed (m/sec)
DIR	U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤ 2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	
N	7~~3~~	49~~23~~	65~~37~~	27~~20~~	8~~2~~	3~~1~~	1~~0~~	0	0	0	0	0	160~~86~~	0.9
NNE	7~~2~~	56~~32~~	36~~17~~	14~~8~~	6~~1~~	5~~0~~	1~~0~~	0	0	0	0	0	125~~60~~	0.8
NE	3~~2~~	44~~25~~	40~~26~~	7~~5~~	8~~4~~	2~~0~~	1~~1~~	0	0	0	0	0	105~~63~~	0.8
ENE	8~~3~~	41~~25~~	57~~36~~	12~~7~~	3~~1~~	1~~0~~	0	0	0	0	0	0	122~~73~~	0.8
E	6~~4~~	40~~19~~	81~~39~~	24~~18~~	22~~17~~	3~~2~~	1~~0~~	0	0	0	0	0	177~~98~~	0.9
ESE	5~~3~~	45~~12~~	73~~40~~	41~~25~~	18~~13~~	3~~2~~	0	0	0	0	0	0	185~~96~~	0.9~~1.0~~
SE	2~~1~~	40~~21~~	71~~44~~	33~~19~~	21~~12~~	11~~9~~	3~~2~~	0	0	0	0	0	181~~106~~	1.0
SSE	2~~1~~	17~~6~~	24~~17~~	17~~11~~	13~~8~~	8~~4~~	3~~0~~	0	0	0	0	0	84~~48~~	1.1~~1.0~~
S	0	15~~7~~	5~~2~~	4~~3~~	2	2~~1~~	4~~1~~	0	0	0	0	0	32~~17~~	1.0
SSW	1~~0~~	2~~0~~	3~~2~~	1	3~~1~~	4~~2~~	1	0	0	0	0	0	15~~7~~	1.2~~1.4~~
SW	0	4~~2~~	5~~2~~	3~~1~~	3~~0~~	1	0	0	0	0	0	0	16~~6~~	1.0

WLS COL 2.3-2

TABLE 2.3-241 (Sheet 2 of 2)
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION BY ATMOSPHERIC STABILITY CLASS
STABILITY CLASS G

STABILITY CLASS G HOURS AT EACH WIND SPEED AND DIRECTION

Wind Speed (m/sec)

DIR	U≤0.5	0.5<U ≤0.75	0.75<U ≤1.0	1.0<U ≤1.25	1.25<U ≤1.5	1.5<U ≤ 2.0	2.0<U ≤3.0	3.0<U ≤4.0	4.0<U ≤5.0	5.0<U ≤6.0	6.0<U ≤8.0	U>8	Total	Average Wind Speed (m/sec)
WSW	0	6~~4~~	9~~5~~	3~~2~~	2~~1~~	0	0	0	0	0	0	0	20~~12~~	0.9
W	1~~0~~	7~~2~~	17~~8~~	12~~8~~	6~~3~~	7~~1~~	6~~3~~	0	0	0	0	0	56~~26~~	1.2
WNW	7~~2~~	25~~10~~	36~~20~~	39~~21~~	46~~28~~	80~~44~~	60~~27~~	1	0	0	0	0	294~~152~~	1.5
NW	7~~4~~	48~~23~~	108~~60~~	165~~83~~	246~~121~~	412~~180~~	226~~90~~	0	0	0	0	0	1212~~561~~	1.6~~1.5~~
NNW	5~~2~~	61~~26~~	114~~58~~	90~~51~~	57~~23~~	19~~9~~	5~~1~~	2~~0~~	0	0	0	0	353~~170~~	1.0
CALM	180~~63~~													
TOTA	241~~91~~	500~~237~~	744~~411~~	492~~283~~	464~~238~~	561~~257~~	312~~126~~	3~~1~~	0	0	0	0	3317~~1645~~	

NOTES:

1. Data from Lee Nuclear Station site Data, 12/1/2005 - 11/30/2007~~6~~.
2. Calms are wind speeds below 1 mph (0.45 m/sec).

23. COLA Part 2, FSAR Chapter 2, Table 2.3-282 is revised as follows:

WLS COL 2.3-4

TABLE 2.3-282 (Sheet 1 of 2)
UNIT 1 MINIMUM EXCLUSION AREA BOUNDARY (EAB) DISTANCES.
[FROM INNER ~~550~~ 448 FT (~~168~~ 137 M) RADIUS CIRCLE ENCOMPASSING ALL SITE RELEASE POINTS]

Direction	Distance (ft)	Distance (m)
S	4593~~4576~~	1400~~1395~~
SSW	4593~~4576~~	1400~~1395~~
SW	5147~~5075~~	1569~~1547~~
WSW	5361~~5411~~	1634~~1649~~
W	3814~~3964~~	1163~~1208~~
WNW	3814~~3964~~	1163~~1208~~
NW	3973~~3985~~	1211~~1215~~
NNW	3070~~2192~~	936~~668~~
N	3070~~2113~~	936~~644~~
NNE	3190~~2113~~	972~~644~~
NE	3385~~2313~~	1032~~705~~
ENE	4153~~3124~~	1266~~952~~
E	5171~~4207~~	1576~~1282~~
ESE	5084~~5065~~	1550~~1544~~
SE	4625~~4393~~	1410~~1339~~
SSE	4625~~4393~~	1410~~1339~~

WLS COL 2.3-4

TABLE 2.3-282 (Sheet 2 of 2) UNIT 2 MINIMUM EXCLUSION AREA BOUNDARY (EAB) DISTANCES. [FROM INNER 448 FT (137 M) RADIUS CIRCLE ENCOMPASSING ALL SITE RELEASE POINTS]

Direction	Distance (ft)	Distance (m)
S	4847	1477
SSW	4847	1477
SW	5201	1585
WSW	5876	1791
W	4497	1371
WNW	4497	1371
NW	3135	956
NNW	3130	954
N	2914	888
NNE	2914	888
NE	3159	963
ENE	3668	1118
E	4379	1335
ESE	5116	1559
SE	4295	1309
SSE	4295	1309

NOTE:

1. Exclusion Area Boundary (EAB) for Lee Nuclear Station is shown in FSAR Figures 2.1-209A and 2.1-209B.
2. In accordance with Regulatory Guide 1.145, the distance to the EAB is the closest distance within a 45-degree section centered on the compass direction of interest.

24. COLA Part 2, FSAR Chapter 2, Table 2.3-283 is revised as follows:

WLS COL 2.3-4

TABLE 2.3-283 (Sheet 1 of 2)
LEE NUCLEAR STATION OFFSITE ATMOSPHERIC DISPERSION SHORT-TERM DIFFUSION ESTIMATES FOR ACCIDENTAL RELEASES

Unit 1 Exclusion Area Boundary χ/Q Values (sec/m^3)$^{(a)}$

	Direction Dependent χ/Q		Direction Independent χ/Q
Time Period	0.5% Max Sector $\chi/Q^{(b)}$	Sector/Distance	5% Overall Site Limit
0-2 Hrs	3.32~~46~~E-04	SE / 1410~~339~~ m	2.64~~3.00~~E-04

Unit 1 Low Population Zone χ/Q Values (sec/m^3)$^{(a)}$

	Direction Dependent χ/Q		Direction Independent χ/Q
Time Period	0.5% Max $\chi/Q^{(b)}$	Sector	5% Site Limit
0-8 Hrs	8.05~~1~~E-05	SE	6.28~~6~~E-05
8-24 Hrs	5.52~~49~~E-05	SE	4.41~~0~~E-05
1-4 Days	2.43~~2~~E-05	SE	2.05~~4~~E-05
4-30 Days	7.52~~46~~E-06	SE	6.84~~79~~E-06

Limiting Relative Dispersion Values$^{(a)}$
Lee Nuclear Station Unit 1 0.5% Maximum χ/Q Values (sec/m^3)

	0 – 2 Hrs	0 – 8 Hrs	8 – 24 Hrs	24 – 96 Hrs	96 – 720 Hrs
EAB (SE, 1410~~339~~ m)$^{(b)}$	3.32~~46~~E-04	N/A	N/A	N/A	N/A
LPZ (SE, 3219 m)$^{(b)}$	N/A	8.05~~1~~E-05	5.52~~49~~E-05	2.43~~2~~E-05	7.52~~46~~E-06

TABLE 2.3-283 (Sheet 2 of 2)
LEE NUCLEAR STATION OFFSITE ATMOSPHERIC DISPERSION
SHORT-TERM DIFFUSION ESTIMATES FOR ACCIDENTAL RELEASES

Unit 2 Exclusion Area Boundary χ/Q Values (sec/m^3)[a]

	Direction Dependent χ/Q		Direction Independent χ/Q
Time Period	0.5% Max Sector χ/Q[b]	Sector/Distance	5% Overall Site Limit
0-2 Hrs	3.55E-04	SE / 1309 m	2.80E-04

Unit 2 Low Population Zone χ/Q Values (sec/m^3)[a]

	Direction Dependent χ/Q		Direction Independent χ/Q
Time Period	0.5% Max χ/Q[b]	Sector	5% Site Limit
0-8 Hrs	8.05E-05	SE	6.28E-05
8-24 Hrs	5.52E-05	SE	4.41E-05
1-4 Days	2.43E-05	SE	2.05E-05
4-30 Days	7.52E-06	SE	6.84E-06

Limiting Relative Dispersion Values[a]
Lee Nuclear Station Unit 2 0.5% Maximum χ/Q Values (sec/m^3)

	0 – 2 Hrs	0 – 8 Hrs	8 – 24 Hrs	24 – 96 Hrs	96 – 720 Hrs
EAB (SE, 1309 m)[b]	3.55E-04	N/A	N/A	N/A	N/A
LPZ (SE, 3219 m)[b]	N/A	8.05E-05	5.52E-05	2.43E-05	7.52E-06

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a) Based on Lee Nuclear Station meteorological data for December 2005 - November 2007.

b) 0.5% χ/Q values represent the maximum for all sector-dependent values.

25. COLA Part 2, FSAR Chapter 2, Table 2.3-286 is revised as follows:

WLS COL 2.3-5

TABLE 2.3-286
LEE NUCLEAR SITE OFFSITE RECEPTOR LOCATIONS

Sector	Garden	~~Milk Cow/Goat~~Cow (Milk/Meat)	House	~~Animal for Meat~~Goat (Milk)
S	1592	5204	1597~~2578~~	-
SSW	1917~~2410~~	2091~~1705~~	1761	1690~~1705~~
SW	2011~~1927~~	1950~~2026~~	2011	-~~2026~~
WSW	3961~~4123~~	4497~~4494~~	3954~~4143~~	-~~4494~~
W	3543~~3968~~	3857~~3850~~	2887~~2846~~	4192~~3850~~
WNW	4110~~4094~~	4033~~4016~~	3553	6230~~4016~~
NW	3279~~3258~~	6163~~6143~~	3311~~4025~~	6163~~3876~~
NNW	2452~~2431~~	4722	2263~~3245~~	7013~~2360~~
N	2263~~2246~~	3648~~3715~~	1705	5506~~3715~~
NNE	2216~~2203~~	5464~~5449~~	2268	-~~5449~~
NE	1802~~1794~~	2364	1838	7886~~1792~~
ENE	1563~~1567~~	1956~~1957~~	1833	-~~1957~~
E	4460~~4469~~	4914~~4926~~	1985	-~~4469~~
ESE	4339~~4355~~	5002~~5017~~	3877	-~~5017~~
SE	6570~~6591~~	2650~~7437~~	1588~~1607~~	-~~2373~~
SSE	1606~~1627~~	1728~~1749~~	1752~~1775~~	2275~~1749~~

NOTES:

1. Distances, in meters, from the midpoint between Units 1 and 2 to the nearest receptor, of each type, for a given 22.5 degree sector.
2. ~~February~~ 2007 and 2008 survey results.

26. COLA Part 2, FSAR Chapter 2, Table 2.3-287 is revised as follows:

WLS COL 2.3-5

TABLE 2.3-287 (Sheet 1 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES NO DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	0.250	0.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	1.95E-05 ~~1.794E-05~~	5.77E-06 ~~5.298E-06~~	2.88E-06 ~~2.650E-06~~	1.82E-06 ~~1.679E-06~~	1.01E-06 ~~9.275E-07~~	6.71E-07 ~~6.161E-07~~	4.94E-07 ~~4.507E-07~~	3.93E-07 ~~3.581E-07~~	3.24E-07 ~~2.951E-07~~	2.74E-07 ~~2.496E-07~~	2.37E-07 ~~2.153E-07~~
SSW	1.78E-05 ~~1.439E-05~~	5.30E-06 ~~4.283E-06~~	2.67E-06 ~~2.156E-06~~	1.69E-06 ~~1.368E-06~~	9.35E-07 ~~7.541E-07~~	6.20E-07 ~~4.997E-07~~	4.55E-07 ~~3.647E-07~~	3.61E-07 ~~2.888E-07~~	2.97E-07 ~~2.373E-07~~	2.51E-07 ~~2.003E-07~~	2.16E-07 ~~1.724E-07~~
SW	1.45E-05 ~~1.475E-05~~	4.32E-06 ~~4.366E-06~~	2.19E-06 ~~2.195E-06~~	1.39E-06 ~~1.394E-06~~	7.72E-07 ~~7.690E-07~~	5.13E-07 ~~5.100E-07~~	3.76E-07 ~~3.724E-07~~	2.97E-07 ~~2.949E-07~~	2.44E-07 ~~2.423E-07~~	2.05E-07 ~~2.044E-07~~	1.76E-07 ~~1.760E-07~~
SWS	1.79E-05 ~~1.662E-05~~	5.29E-06 ~~4.897E-06~~	2.64E-06 ~~2.439E-06~~	1.67E-06 ~~1.541E-06~~	9.19E-07 ~~8.505E-07~~	6.10E-07 ~~5.650E-07~~	4.49E-07 ~~4.133E-07~~	3.57E-07 ~~3.286E-07~~	2.94E-07 ~~2.708E-07~~	2.49E-07 ~~2.291E-07~~	2.15E-07 ~~1.977E-07~~
W	1.84E-05 ~~1.875E-05~~	5.40E-06 ~~5.487E-06~~	2.68E-06 ~~2.719E-06~~	1.70E-06 ~~1.718E-06~~	9.37E-07 ~~9.491E-07~~	6.23E-07 ~~6.316E-07~~	4.58E-07 ~~4.630E-07~~	3.65E-07 ~~3.695E-07~~	3.02E-07 ~~3.055E-07~~	2.56E-07 ~~2.591E-07~~	2.21E-07 ~~2.241E-07~~
WNW	1.84E-05 ~~1.734E-05~~	5.40E-06 ~~5.082E-06~~	2.68E-06 ~~2.519E-06~~	1.69E-06 ~~1.591E-06~~	9.37E-07 ~~8.818E-07~~	6.25E-07 ~~5.881E-07~~	4.61E-07 ~~4.316E-07~~	3.68E-07 ~~3.442E-07~~	3.04E-07 ~~2.844E-07~~	2.58E-07 ~~2.411E-07~~	2.23E-07 ~~2.084E-07~~
NW	1.61E-05 ~~1.662E-05~~	4.78E-06 ~~4.898E-06~~	2.40E-06 ~~2.450E-06~~	1.52E-06 ~~1.553E-06~~	8.40E-07 ~~8.585E-07~~	5.58E-07 ~~5.706E-07~~	4.10E-07 ~~4.175E-07~~	3.25E-07 ~~3.318E-07~~	2.68E-07 ~~2.734E-07~~	2.26E-07 ~~2.312E-07~~	1.95E-07 ~~1.995E-07~~
NNW	1.18E-05 ~~1.122E-05~~	3.54E-06 ~~3.345E-06~~	1.82E-06 ~~1.706E-06~~	1.16E-06 ~~1.090E-06~~	6.47E-07 ~~6.061E-07~~	4.30E-07 ~~4.029E-07~~	3.15E-07 ~~2.944E-07~~	2.48E-07 ~~2.318E-07~~	2.02E-07 ~~1.895E-07~~	1.70E-07 ~~1.592E-07~~	1.45E-07 ~~1.365E-07~~

TABLE 2.3-287 (Sheet 1 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES NO DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	0.250	0.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
N	8.81E-06 ~~8.164E-06~~	2.69E-06 ~~2.487E-06~~	1.42E-06 ~~1.314E-06~~	9.22E-07 ~~8.524E-07~~	5.19E-07 ~~4.779E-07~~	3.45E-07 ~~3.176E-07~~	2.52E-07 ~~2.314E-07~~	1.96E-07 ~~1.799E-07~~	1.59E-07 ~~1.455E-07~~	1.32E-07 ~~1.211E-07~~	1.12E-07 ~~1.030E-07~~
NNE	6.57E-06 ~~5.527E-06~~	2.01E-06 ~~1.693E-06~~	1.07E-06 ~~9.056E-07~~	6.93E-07 ~~5.899E-07~~	3.85E-07 ~~3.296E-07~~	2.54E-07 ~~2.180E-07~~	1.85E-07 ~~1.582E-07~~	1.43E-07 ~~1.220E-07~~	1.15E-07 ~~9.807E-08~~	9.56E-08 ~~8.117E-08~~	8.11E-08 ~~6.872E-08~~
NE	5.02E-06 ~~5.083E-06~~	1.55E-06 ~~1.556E-06~~	8.22E-07 ~~8.276E-07~~	5.32E-07 ~~5.369E-07~~	2.94E-07 ~~2.975E-07~~	1.93E-07 ~~1.958E-07~~	1.40E-07 ~~1.416E-07~~	1.08E-07 ~~1.091E-07~~	8.64E-08 ~~8.763E-08~~	7.15E-08 ~~7.249E-08~~	6.05E-08 ~~6.134E-08~~
ENE	4.41E-06 ~~5.195E-06~~	1.34E-06 ~~1.565E-06~~	6.99E-07 ~~8.105E-07~~	4.48E-07 ~~5.198E-07~~	2.48E-07 ~~2.893E-07~~	1.63E-07 ~~1.917E-07~~	1.18E-07 ~~1.395E-07~~	9.19E-08 ~~1.087E-07~~	7.43E-08 ~~8.801E-08~~	6.17E-08 ~~7.336E-08~~	5.25E-08 ~~6.250E-08~~
E	5.86E-06 ~~4.540E-06~~	1.75E-06 ~~1.357E-06~~	8.86E-07 ~~6.958E-07~~	5.63E-07 ~~4.456E-07~~	3.12E-07 ~~2.475E-07~~	2.07E-07 ~~1.643E-07~~	1.52E-07 ~~1.199E-07~~	1.20E-07 ~~9.425E-08~~	9.80E-08 ~~7.695E-08~~	8.24E-08 ~~6.457E-08~~	7.08E-08 ~~5.534E-08~~
ESE	1.93E-05 ~~1.831E-05~~	5.65E-06 ~~5.358E-06~~	2.78E-06 ~~2.652E-06~~	1.75E-06 ~~1.672E-06~~	9.64E-07 ~~9.285E-07~~	6.41E-07 ~~6.199E-07~~	4.72E-07 ~~4.553E-07~~	3.78E-07 ~~3.631E-07~~	3.13E-07 ~~3.000E-07~~	2.66E-07 ~~2.543E-07~~	2.30E-07 ~~2.199E-07~~
SE	5.07E-05 ~~4.815E-05~~	1.48E-05 ~~1.402E-0~~	7.21E-06 ~~6.850E-06~~	4.52E-06 ~~4.296E-06~~	2.48E-06 ~~2.359E-06~~	1.65E-06 ~~1.567E-06~~	1.21E-06 ~~1.149E-06~~	9.75E-07 ~~9.219E-07~~	8.10E-07 ~~7.657E-07~~	6.90E-07 ~~6.519E-07~~	5.98E-07 ~~5.657E-07~~
SSE	2.59E-05 ~~2.382E-05~~	7.58E-06 ~~6.987E-06~~	3.75E-06 ~~3.469E-06~~	2.37E-06 ~~2.194E-0~~	1.31E-06 ~~1.211E-06~~	8.67E-07 ~~8.049E-07~~	6.39E-07 ~~5.897E-07~~	5.11E-07 ~~4.706E-07~~	4.23E-07 ~~3.891E-07~~	3.59E-07 ~~3.300E-07~~	3.10E-07 ~~2.855E-07~~

WLS COL 2.3-5

TABLE 2.3-287 (Sheet 2 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES NO DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.07E-07 ~~1.888E-07~~	1.25E-07 ~~1.139E-07~~	8.78E-08 ~~7.976E-08~~	5.33E-08 ~~4.841E-08~~	3.75E-08 ~~3.406E-08~~	2.86E-08 ~~2.596E-08~~	2.29E-08 ~~2.081E-08~~	1.90E-08 ~~1.728E-08~~	1.62E-08 ~~1.471E-08~~	1.41E-08 ~~1.276E-08~~	1.24E-08 ~~1.125E-08~~
SSW	1.89E-07 ~~1.509E-07~~	1.14E-07 ~~9.054E-08~~	7.94E-08 ~~6.315E-08~~	4.81E-08 ~~3.815E-08~~	3.37E-08 ~~2.676E-08~~	2.57E-08 ~~2.035E-08~~	2.06E-08 ~~1.629E-08~~	1.71E-08 ~~1.350E-08~~	1.45E-08 ~~1.148E-08~~	1.26E-08 ~~9.955E-09~~	1.11E-08 ~~8.765E-09~~
SW	1.54E-07 ~~1.540E-07~~	9.18E-08 ~~9.243E-08~~	6.38E-08 ~~6.448E-08~~	3.84E-08 ~~3.897E-08~~	2.68E-08 ~~2.735E-08~~	2.04E-08 ~~2.081E-08~~	1.63E-08 ~~1.666E-08~~	1.35E-08 ~~1.382E-08~~	1.14E-08 ~~1.175E-08~~	9.89E-09 ~~1.019E-08~~	8.70E-09 ~~8.973E-09~~
SWS	1.88E-07 ~~1.733E-07~~	1.14E-07 ~~1.047E-07~~	7.95E-08 ~~7.338E-08~~	4.83E-08 ~~4.459E-08~~	3.40E-08 ~~3.140E-08~~	2.59E-08 ~~2.395E-08~~	2.08E-08 ~~1.921E-08~~	1.73E-08 ~~1.595E-08~~	1.47E-08 ~~1.358E-08~~	1.28E-08 ~~1.179E-08~~	1.13E-08 ~~1.040E-08~~
W	1.94E-07 ~~1.969E-07~~	1.18E-07 ~~1.197E-07~~	8.26E-08 ~~8.424E-08~~	5.03E-08 ~~5.146E-08~~	3.55E-08 ~~3.634E-08~~	2.71E-08 ~~2.778E-08~~	2.18E-08 ~~2.232E-08~~	1.81E-08 ~~1.856E-08~~	1.54E-08 ~~1.582E-08~~	1.34E-08 ~~1.375E-08~~	1.18E-08 ~~1.213E-08~~
WNW	1.96E-07 ~~1.830E-07~~	1.19E-07 ~~1.111E-07~~	8.35E-08 ~~7.804E-08~~	5.09E-08 ~~4.758E-08~~	3.59E-08 ~~3.356E-08~~	2.74E-08 ~~2.563E-08~~	2.20E-08 ~~2.057E-08~~	1.83E-08 ~~1.710E-08~~	1.56E-08 ~~1.457E-08~~	1.36E-08 ~~1.265E-08~~	1.20E-08 ~~1.116E-08~~
NW	1.71E-07 ~~1.748E-07~~	1.03E-07 ~~1.055E-07~~	7.18E-08 ~~7.384E-08~~	4.35E-08 ~~4.482E-08~~	3.05E-08 ~~3.154E-08~~	2.33E-08 ~~2.404E-08~~	1.86E-08 ~~1.927E-08~~	1.55E-08 ~~1.600E-08~~	1.32E-08 ~~1.362E-08~~	1.14E-08 ~~1.182E-08~~	1.01E-08 ~~1.042E-08~~
NNW	1.27E-07 ~~1.191E-07~~	7.48E-08 ~~7.058E-08~~	5.16E-08 ~~4.881E-08~~	3.07E-08 ~~2.916E-08~~	2.14E-08 ~~2.031E-08~~	1.61E-08 ~~1.537E-08~~	1.29E-08 ~~1.225E-08~~	1.06E-08 ~~1.011E-08~~	8.98E-09 ~~8.575E-09~~	7.76E-09 ~~7.415E-09~~	6.81E-09 ~~6.513E-09~~

WLS COL 2.3-5

TABLE 2.3-287 (Sheet 2 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES NO DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
N	9.74E-08 ~~8.919E-08~~	5.62E-08 ~~5.142E-08~~	3.82E-08 ~~3.488E-08~~	2.22E-08 ~~2.029E-08~~	1.52E-08 ~~1.387E-08~~	1.13E-08 ~~1.035E-08~~	8.93E-09 ~~8.153E-09~~	7.31E-09 ~~6.670E-09~~	6.15E-09 ~~5.609E-09~~	5.28E-09 ~~4.816E-09~~	4.61E-09 ~~4.204E-09~~
NNE	7.01E-08 ~~5.925E-08~~	4.02E-08 ~~3.364E-08~~	2.71E-08 ~~2.258E-08~~	1.57E-08 ~~1.294E-08~~	1.07E-08 ~~8.769E-09~~	7.98E-09 ~~6.495E-09~~	6.28E-09 ~~5.089E-09~~	5.13E-09 ~~4.144E-09~~	4.31E-09 ~~3.470E-09~~	3.70E-09 ~~2.969E-09~~	3.23E-09 ~~2.583E-09~~
NE	5.22E-08 ~~5.289E-08~~	2.97E-08 ~~3.006E-08~~	2.00E-08 ~~2.020E-08~~	1.15E-08 ~~1.161E-08~~	7.84E-09 ~~7.892E-09~~	5.83E-09 ~~5.861E-09~~	4.58E-09 ~~4.602E-09~~	3.74E-09 ~~3.755E-09~~	3.14E-09 ~~3.150E-09~~	2.69E-09 ~~2.699E-09~~	2.35E-09 ~~2.352E-09~~
ENE	4.55E-08 ~~5.420E-08~~	2.63E-08 ~~3.149E-08~~	1.79E-08 ~~2.149E-08~~	1.04E-08 ~~1.262E-08~~	7.18E-09 ~~8.700E-09~~	5.39E-09 ~~6.532E-09~~	4.26E-09 ~~5.174E-09~~	3.50E-09 ~~4.252E-09~~	2.95E-09 ~~3.590E-09~~	2.54E-09 ~~3.093E-09~~	2.22E-09 ~~2.708E-09~~
E	6.18E-08 ~~4.823E-08~~	3.68E-08 ~~2.851E-08~~	2.55E-08 ~~1.969E-08~~	1.53E-08 ~~1.173E-08~~	1.07E-08 ~~8.163E-09~~	8.12E-09 ~~6.169E-09~~	6.49E-09 ~~4.913E-09~~	5.37E-09 ~~4.055E-09~~	4.56E-09 ~~3.436E-09~~	3.95E-09 ~~2.970E-09~~	3.47E-09 ~~2.608E-09~~
ESE	2.02E-07 ~~1.931E-07~~	1.23E-07 ~~1.172E-07~~	8.70E-08 ~~8.237E-08~~	5.33E-08 ~~5.023E-08~~	3.78E-08 ~~3.544E-08~~	2.89E-08 ~~2.707E-08~~	2.33E-08 ~~2.173E-08~~	1.94E-08 ~~1.806E-08~~	1.65E-08 ~~1.539E-08~~	1.44E-08 ~~1.336E-08~~	1.27E-08 ~~1.178E-08~~
SE	5.27E-07 ~~4.983E-07~~	3.24E-07 ~~3.061E-07~~	2.30E-07 ~~2.168E-07~~	1.42E-07 ~~1.336E-07~~	1.01E-07 ~~9.490E-08~~	7.73E-08 ~~7.284E-08~~	6.23E-08 ~~5.871E-08~~	5.20E-08 ~~4.895E-08~~	4.44E-08 ~~4.182E-08~~	3.87E-08 ~~3.641E-08~~	3.42E-08 ~~3.218E-08~~
SSE	2.73E-07 ~~2.508E-07~~	1.66E-07 ~~1.525E-07~~	1.17E-07 ~~1.073E-07~~	7.16E-08 ~~6.551E-08~~	5.06E-08 ~~4.626E-08~~	3.87E-08 ~~3.536E-08~~	3.11E-08 ~~2.841E-08~~	2.59E-08 ~~2.362E-08~~	2.21E-08 ~~2.013E-08~~	1.92E-08 ~~1.750E-08~~	1.70E-08 ~~1.543E-08~~

WLS COL 2.3-5

TABLE 2.3-287 (Sheet 3 of 3)

ANNUAL AVERAGE χ/Q (sec/m^3) FOR NORMAL RELEASES NO DECAY, UNDEPLETED (FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.05E-06 ~~2.807E-06~~	1.04E-06 ~~9.562E-07~~	5.01E-07 ~~4.578E-07~~	3.25E-07 ~~2.958E-07~~	2.37E-07 ~~2.156E-07~~	1.27E-07 ~~1.154E-07~~	5.40E-08 ~~4.900E-08~~	2.87E-08 ~~2.606E-08~~	1.91E-08 ~~1.731E-08~~	1.41E-08 ~~1.278E-08~~
SSW	2.82E-06 ~~2.278E-06~~	9.63E-07 ~~7.775E-07~~	4.61E-07 ~~3.704E-07~~	2.98E-07 ~~2.379E-07~~	2.16E-07 ~~1.727E-07~~	1.15E-07 ~~9.178E-08~~	4.87E-08 ~~3.864E-08~~	2.58E-08 ~~2.043E-08~~	1.71E-08 ~~1.353E-08~~	1.26E-08 ~~9.966E-09~~
SW	2.31E-06 ~~2.321E-06~~	7.94E-07 ~~7.927E-07~~	3.81E-07 ~~3.781E-07~~	2.44E-07 ~~2.429E-07~~	1.77E-07 ~~1.763E-07~~	9.32E-08 ~~9.370E-08~~	3.89E-08 ~~3.948E-08~~	2.04E-08 ~~2.090E-08~~	1.35E-08 ~~1.384E-08~~	9.90E-09 ~~1.020E-08~~
WSW	2.79E-06 ~~2.586E-06~~	9.48E-07 ~~8.770E-07~~	4.55E-07 ~~4.199E-07~~	2.95E-07 ~~2.714E-07~~	2.15E-07 ~~1.980E-07~~	1.15E-07 ~~1.060E-07~~	4.89E-08 ~~4.513E-08~~	2.60E-08 ~~2.404E-08~~	1.73E-08 ~~1.598E-08~~	1.28E-08 ~~1.181E-08~~
W	2.85E-06 ~~2.889E-06~~	9.65E-07 ~~9.789E-07~~	4.65E-07 ~~4.705E-07~~	3.02E-07 ~~3.061E-07~~	2.21E-07 ~~2.244E-07~~	1.19E-07 ~~1.211E-07~~	5.09E-08 ~~5.202E-08~~	2.72E-08 ~~2.788E-08~~	1.81E-08 ~~1.859E-08~~	1.34E-08 ~~1.376E-08~~
WNW	2.84E-06 ~~2.676E-06~~	9.65E-07 ~~9.087E-07~~	4.67E-07 ~~4.384E-07~~	3.05E-07 ~~2.850E-07~~	2.23E-07 ~~2.087E-07~~	1.20E-07 ~~1.124E-07~~	5.15E-08 ~~4.812E-08~~	2.75E-08 ~~2.572E-08~~	1.83E-08 ~~1.713E-08~~	1.36E-08 ~~1.267E-08~~
NW	2.54E-06 ~~2.595E-06~~	8.65E-07 ~~8.849E-07~~	4.15E-07 ~~4.240E-07~~	2.68E-07 ~~2.740E-07~~	1.95E-07 ~~1.997E-07~~	1.04E-07 ~~1.068E-07~~	4.40E-08 ~~4.536E-08~~	2.34E-08 ~~2.413E-08~~	1.55E-08 ~~1.603E-08~~	1.14E-08 ~~1.183E-08~~
NNW	1.91E-06 ~~1.796E-06~~	6.65E-07 ~~6.233E-07~~	3.19E-07 ~~2.983E-07~~	2.03E-07 ~~1.900E-07~~	1.46E-07 ~~1.368E-07~~	7.60E-08 ~~7.169E-08~~	3.12E-08 ~~2.960E-08~~	1.62E-08 ~~1.544E-08~~	1.06E-08 ~~1.014E-08~~	7.77E-09 ~~7.425E-09~~

WLS COL 2.3-5

TABLE 2.3-287 (Sheet 3 of 3)

ANNUAL AVERAGE χ/Q (sec/m^3) FOR NORMAL RELEASES NO DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	1.48E-06 ~~1.370E-06~~	5.31E-07 ~~4.899E-07~~	2.55E-07 ~~2.338E-07~~	1.59E-07 ~~1.460E-07~~	1.13E-07 ~~1.033E-07~~	5.73E-08 ~~5.246E-08~~	2.26E-08 ~~2.068E-08~~	1.14E-08 ~~1.041E-08~~	7.33E-09 ~~6.690E-09~~	5.29E-09 ~~4.824E-09~~
NNE	1.11E-06 ~~9.402E-07~~	3.96E-07 ~~3.378E-07~~	1.87E-07 ~~1.597E-07~~	1.16E-07 ~~9.848E-08~~	8.13E-08 ~~6.890E-08~~	4.10E-08 ~~3.441E-08~~	1.60E-08 ~~1.323E-08~~	8.03E-09 ~~6.539E-09~~	5.15E-09 ~~4.157E-09~~	3.71E-09 ~~2.975E-09~~
NE	8.53E-07 ~~8.603E-07~~	3.02E-07 ~~3.055E-07~~	1.41E-07 ~~1.431E-07~~	8.68E-08 ~~8.801E-08~~	6.07E-08 ~~6.151E-08~~	3.04E-08 ~~3.075E-08~~	1.18E-08 ~~1.187E-08~~	5.86E-09 ~~5.899E-09~~	3.75E-09 ~~3.766E-09~~	2.70E-09 ~~2.704E-09~~
ENE	7.30E-07 ~~8.489E-07~~	2.54E-07 ~~2.971E-07~~	1.20E-07 ~~1.411E-07~~	7.45E-08 ~~8.833E-08~~	5.26E-08 ~~6.264E-08~~	2.68E-08 ~~3.209E-08~~	1.06E-08 ~~1.285E-08~~	5.42E-09 ~~6.567E-09~~	3.51E-09 ~~4.263E-09~~	2.55E-09 ~~3.097E-09~~
E	9.34E-07 ~~7.316E-07~~	3.21E-07 ~~2.546E-07~~	1.54E-07 ~~1.215E-07~~	9.83E-08 ~~7.718E-08~~	7.09E-08 ~~5.544E-08~~	3.74E-08 ~~2.897E-08~~	1.55E-08 ~~1.191E-08~~	8.16E-09 ~~6.198E-09~~	5.38E-09 ~~4.064E-09~~	3.95E-09 ~~2.974E-09~~
ESE	2.96E-06 ~~2.818E-06~~	9.95E-07 ~~9.566E-07~~	4.79E-07 ~~4.623E-07~~	3.13E-07 ~~3.006E-07~~	2.30E-07 ~~2.202E-07~~	1.25E-07 ~~1.186E-07~~	5.39E-08 ~~5.080E-08~~	2.90E-08 ~~2.716E-08~~	1.94E-08 ~~1.809E-08~~	1.44E-08 ~~1.338E-08~~
SE	7.69E-06 ~~7.309E-06~~	2.56E-06 ~~2.437E-06~~	1.23E-06 ~~1.170E-06~~	8.11E-07 ~~7.670E-07~~	5.99E-07 ~~5.663E-07~~	3.27E-07 ~~3.092E-07~~	1.43E-07 ~~1.349E-07~~	7.75E-08 ~~7.307E-08~~	5.20E-08 ~~4.902E-08~~	3.87E-08 ~~3.645E-08~~
SSE	3.99E-06 ~~3.684E-06~~	1.35E-06 ~~1.249E-06~~	6.48E-07 ~~5.994E-07~~	4.23E-07 ~~3.899E-07~~	3.11E-07 ~~2.858E-07~~	1.68E-07 ~~1.542E-07~~	7.24E-08 ~~6.624E-08~~	3.89E-08 ~~3.549E-08~~	2.60E-08 ~~2.366E-08~~	1.92E-08 ~~1.751E-08~~

27. COLA Part 2, FSAR Chapter 2, Table 2.3-288 is revised as follows:

WLS COL 2.3-5

TABLE 2.3-288 (Sheet 1 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES NO DECAY, DEPLETED (FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	0.250	0.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	1.85E-05~~1.669E-05~~	5.27E-06 ~~4.819E-06~~	2.57E-06 ~~2.361E-06~~	1.60E-06 ~~1.470E-06~~	8.57E-07 ~~7.877E-07~~	5.56E-07 ~~5.101E-07~~	4.00E-07 ~~3.651E-07~~	3.12E-07 ~~2.845E-07~~	2.53E-07 ~~2.303E-07~~	2.10E-07 ~~1.916E-07~~	1.79E-07 ~~1.628E-07~~
SSW	1.69E-05~~1.339E-05~~	4.84E-06 ~~3.896E-06~~	2.38E-06 ~~1.921E-06~~	1.48E-06 ~~1.198E-06~~	7.94E-07 ~~6.404E-07~~	5.13E-07 ~~4.138E-07~~	3.69E-07 ~~2.954E-07~~	2.87E-07~~2.294E-07~~	2.32E-07~~1.852E-07~~	1.93E-07 ~~1.537E-07~~	1.63E-07 ~~1.304E-07~~
SW	1.37E-05~~1.373E-05~~	3.94E-06~~3.971E-06~~	1.95E-06 ~~1.956E-06~~	1.22E-06~~1.220E-06~~	6.56E-07 ~~6.531E-07~~	4.24E-07 ~~4.223E-07~~	3.05E-07 ~~3.017E-07~~	2.36E-07 ~~2.342E-07~~	1.90E-07~~1.891E-07~~	1.57E-07~~1.569E-07~~	1.33E-07 ~~1.331E-07~~
WSW	1.69E-05~~1.546E-05~~	4.83E-06 ~~4.454E-06~~	2.35E-06 ~~2.173E-06~~	1.46E-06 ~~1.349E-06~~	7.81E-07 ~~7.223E-07~~	5.05E-07 ~~4.678E-07~~	3.63E-07 ~~3.348E-07~~	2.83E-07 ~~2.610E-07~~	2.29E-07~~2.113E-07~~	1.91E-07 ~~1.759E-07~~	1.62E-07 ~~1.495E-07~~
W	1.74E-05~~1.745E-05~~	4.93E-06~~4.991E-06~~	2.39E-06 ~~2.423E-06~~	1.48E-06~~1.504E-06~~	7.95E-07 ~~8.060E-07~~	5.16E-07 ~~5.230E-07~~	3.71E-07 ~~3.750E-07~~	2.90E-07 ~~2.935E-07~~	2.36E-07 ~~2.384E-07~~	1.96E-07 ~~1.989E-07~~	1.67E-07 ~~1.694E-07~~
WNW	1.74E-05~~1.614E-05~~	4.93E-06 ~~4.622E-06~~	2.39E-06 ~~2.245E-06~~	1.48E-06 ~~1.392E-06~~	7.96E-07~~7.489E-07~~	5.17E-07 ~~4.870E-07~~	3.73E-07 ~~3.496E-07~~	2.92E-07 ~~2.734E-07~~	2.37E-07 ~~2.219E-07~~	1.98E-07 ~~1.851E-07~~	1.69E-07 ~~1.576E-07~~
NW	1.53E-05~~1.547E-05~~	4.36E-06 ~~4.455E-06~~	2.14E-06~~2.183E-06~~	1.33E-06~~1.360E-06~~	7.13E-07~~7.291E-07~~	4.62E-07~~4.725E-07~~	3.32E-07 ~~3.382E-07~~	2.58E-07 ~~2.635E-07~~	2.09E-07 ~~2.133E-07~~	1.74E-07 ~~1.775E-07~~	1.47E-07 ~~1.508E-07~~
NNW	1.12E-05~~1.044E-~~	3.23E-06~~3.042E-~~	1.62E-06 ~~1.520E-06~~	1.02E-06~~9.539E-~~	5.50E-07~~5.147E-~~	3.56E-07 ~~3.336E-07~~	2.55E-07 ~~2.385E-07~~	1.97E-07 ~~1.841E-07~~	1.58E-07 ~~1.479E-07~~	1.30E-07~~1.222E-~~	1.10E-07 ~~1.032E-07~~

WLS COL 2.3-5

TABLE 2.3-288 (Sheet 1 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES NO DECAY, DEPLETED (FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

	~~05~~	~~06~~		~~07~~	~~07~~					~~07~~	
N	8.34E-06 ~~7.597E-06~~	2.45E-06 ~~2.262E-06~~	1.27E-06 ~~1.171E-06~~	8.07E-07 ~~7.461E-07~~	4.40E-07 ~~4.059E-07~~	2.86E-07 ~~2.630E-07~~	2.04E-07 ~~1.875E-07~~	1.56E-07 ~~1.429E-07~~	1.24E-07 ~~1.135E-07~~	1.01E-07 ~~9.295E-08~~	8.50E-08 ~~7.788E-08~~
NNE	6.22E-06 ~~5.144E-06~~	1.84E-06 ~~1.540E-06~~	9.53E-07 ~~8.070E-07~~	6.07E-07 ~~5.164E-07~~	3.27E-07 ~~2.799E-07~~	2.11E-07 ~~1.805E-07~~	1.50E-07 ~~1.281E-07~~	1.14E-07 ~~9.694E-08~~	8.99E-08 ~~7.652E-08~~	7.34E-08 ~~6.231E-08~~	6.13E-08 ~~5.195E-08~~
NE	4.75E-06 ~~4.730E-06~~	1.41E-06 ~~1.415E-06~~	7.32E-07 ~~7.375E-07~~	4.65E-07 ~~4.700E-07~~	2.49E-07 ~~2.527E-07~~	1.60E-07 ~~1.621E-07~~	1.13E-07 ~~1.147E-07~~	8.54E-08 ~~8.669E-08~~	6.74E-08 ~~6.838E-08~~	5.49E-08 ~~5.564E-08~~	4.58E-08 ~~4.638E-08~~
ENE	4.17E-06 ~~4.835E-06~~	1.23E-06 ~~1.423E-06~~	6.23E-07 ~~7.222E-07~~	3.92E-07 ~~4.550E-07~~	2.10E-07 ~~2.457E-07~~	1.35E-07 ~~1.587E-07~~	9.59E-08 ~~1.130E-07~~	7.30E-08 ~~8.631E-08~~	5.79E-08 ~~6.867E-08~~	4.74E-08 ~~5.631E-08~~	3.97E-08 ~~4.725E-08~~
E	5.54E-06 ~~4.225E-06~~	1.60E-06 ~~1.235E-06~~	7.89E-07 ~~6.200E-07~~	4.93E-07 ~~3.901E-07~~	2.65E-07 ~~2.102E-07~~	1.71E-07 ~~1.360E-07~~	1.23E-07 ~~9.712E-08~~	9.51E-08 ~~7.486E-08~~	7.65E-08 ~~6.004E-08~~	6.33E-08 ~~4.957E-08~~	5.35E-08 ~~4.184E-08~~
ESE	1.83E-05 ~~1.704E-05~~	5.16E-06 ~~4.874E-06~~	2.48E-06 ~~2.363E-06~~	1.53E-06 ~~1.464E-06~~	8.19E-07 ~~7.885E-07~~	5.31E-07 ~~5.133E-07~~	3.83E-07 ~~3.688E-07~~	3.00E-07 ~~2.884E-07~~	2.44E-07 ~~2.341E-07~~	2.04E-07 ~~1.952E-07~~	1.74E-07 ~~1.662E-07~~
SE	4.80E-05 ~~4.481E-05~~	1.35E-05 ~~1.275E-05~~	6.43E-06 ~~6.104E-06~~	3.96E-06 ~~3.761E-06~~	2.11E-06 ~~2.003E-06~~	1.36E-06 ~~1.298E-06~~	9.83E-07 ~~9.307E-07~~	7.74E-07 ~~7.322E-07~~	6.32E-07 ~~5.975E-07~~	5.29E-07 ~~5.004E-07~~	4.53E-07 ~~4.277E-07~~
SSE	2.45E-05 ~~2.217E-05~~	6.92E-06 ~~6.355E-06~~	3.34E-06 ~~3.091E-06~~	2.07E-06 ~~1.921E-06~~	1.11E-06 ~~1.028E-06~~	7.18E-07 ~~6.665E-07~~	5.17E-07 ~~4.777E-07~~	4.06E-07 ~~3.738E-07~~	3.30E-07 ~~3.036E-07~~	2.75E-07 ~~2.534E-07~~	2.35E-07 ~~2.158E-07~~

WLS COL 2.3-5

TABLE 2.3-288 (Sheet 2 of 3)
ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES NO DECAY, DEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.55E-07 ~~1.407E-07~~	8.83E-08 ~~8.031E-08~~	5.90E-08 ~~5.359E-08~~	3.32E-08 ~~3.011E-08~~	2.19E-08 ~~1.989E-08~~	1.58E-08 ~~1.437E-08~~	1.21E-08 ~~1.098E-08~~	9.61E-09 ~~8.722E-09~~	7.86E-09 ~~7.132E-09~~	6.57E-09 ~~5.960E-09~~	5.59E-09 ~~5.068E-09~~
SSW	1.41E-07 ~~1.125E-07~~	8.02E-08 ~~6.383E-08~~	5.34E-08 ~~4.243E-08~~	2.99E-08 ~~2.372E-08~~	1.97E-08 ~~1.563E-08~~	1.42E-08 ~~1.126E-08~~	1.08E-08 ~~8.591E-09~~	8.61E-09 ~~6.817E-09~~	7.03E-09 ~~5.568E-09~~	5.87E-09 ~~4.649E-09~~	4.99E-09 ~~3.950E-09~~
SW	1.15E-07 ~~1.148E-07~~	6.47E-08 ~~6.516E-08~~	4.29E-08 ~~4.332E-08~~	2.39E-08 ~~2.423E-08~~	1.57E-08 ~~1.597E-08~~	1.13E-08 ~~1.152E-08~~	8.57E-09 ~~8.788E-09~~	6.79E-09 ~~6.975E-09~~	5.54E-09 ~~5.698E-09~~	4.62E-09 ~~4.759E-09~~	3.92E-09 ~~4.044E-09~~
WSW	1.40E-07 ~~1.292E-07~~	8.00E-08 ~~7.383E-08~~	5.34E-08 ~~4.930E-08~~	3.00E-08 ~~2.773E-08~~	1.99E-08 ~~1.834E-08~~	1.44E-08 ~~1.325E-08~~	1.10E-08 ~~1.013E-08~~	8.72E-09 ~~8.054E-09~~	7.13E-09 ~~6.588E-09~~	5.96E-09 ~~5.507E-09~~	5.07E-09 ~~4.685E-09~~
W	1.45E-07 ~~1.468E-07~~	8.29E-08 ~~8.440E-08~~	5.55E-08 ~~5.660E-08~~	3.13E-08 ~~3.200E-08~~	2.07E-08 ~~2.122E-08~~	1.50E-08 ~~1.537E-08~~	1.15E-08 ~~1.177E-08~~	9.14E-09 ~~9.369E-09~~	7.48E-09 ~~7.672E-09~~	6.26E-09 ~~6.420E-09~~	5.32E-09 ~~5.465E-09~~
WNW	1.46E-07 ~~1.364E-07~~	8.37E-08 ~~7.829E-08~~	5.61E-08 ~~5.243E-08~~	3.17E-08 ~~2.958E-08~~	2.10E-08 ~~1.960E-08~~	1.52E-08 ~~1.418E-08~~	1.16E-08 ~~1.085E-08~~	9.24E-09 ~~8.632E-09~~	7.56E-09 ~~7.064E-09~~	6.33E-09 ~~5.909E-09~~	5.38E-09 ~~5.028E-09~~
NW	1.27E-07 ~~1.303E-07~~	7.24E-08 ~~7.436E-08~~	4.82E-08 ~~4.961E-08~~	2.70E-08 ~~2.787E-08~~	1.78E-08 ~~1.842E-08~~	1.29E-08 ~~1.330E-08~~	9.83E-09 ~~1.017E-08~~	7.81E-09 ~~8.078E-09~~	6.38E-09 ~~6.605E-09~~	5.33E-09 ~~5.520E-09~~	4.53E-09 ~~4.694E-09~~
NNW	9.44E-08 ~~8.878E-08~~	5.27E-08 ~~4.976E-08~~	3.47E-08 ~~3.280E-08~~	1.91E-08 ~~1.813E-08~~	1.25E-08 ~~1.186E-08~~	8.93E-09 ~~8.503E-09~~	6.78E-09 ~~6.459E-09~~	5.35E-09 ~~5.107E-09~~	4.35E-09 ~~4.158E-09~~	3.62E-09 ~~3.463E-09~~	3.07E-09 ~~2.935E-09~~

TABLE 2.3-288 (SHEET 2 OF 3)

Annual Average χ/Q (sec/m^3) for Normal Releases No Decay, Depleted
(for Each 22.5° Sector at the Distances (Miles) Shown at the Top

Sector	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
N	7.26E-08~~6.649E-08~~	3.96E-08~~3.625E-08~~	2.56E-08 ~~2.343E-08~~	1.38E-08 ~~1.262E-08~~	8.87E-09~~8.102E-09~~	6.27E-09~~5.726E-09~~	4.71E-09~~4.300E-09~~	3.69E-09~~3.368E-09~~	2.98E-09~~2.720E-09~~	2.47E-09 ~~2.249E-09~~	2.08E-09~~1.894E-09~~
NNE	5.23E-08~~4.417E-08~~	2.83E-08 ~~2.372E-08~~	1.82E-08~~1.517E-08~~	9.76E-09~~8.048E-09~~	6.26E-09~~5.121E-09~~	4.42E-09~~3.594E-09~~	3.31E-09 ~~2.684E-09~~	2.59E-09 ~~2.092E-09~~	2.09E-09 ~~1.683E-09~~	1.73E-09~~1.387E-09~~	1.46E-09~~1.164E-09~~
NE	3.89E-08~~3.943E-08~~	2.10E-08 ~~2.119E-08~~	1.34E-08 ~~1.357E-08~~	7.16E-09~~7.219E-09~~	4.58E-09 ~~4.609E-09~~	3.22E-09 ~~3.243E-09~~	2.42E-09 ~~2.427E-09~~	1.89E-09 ~~1.896E-09~~	1.52E-09 ~~1.527E-09~~	1.26E-09 ~~1.260E-09~~	1.06E-09~~1.060E-09~~
ENE	3.39E-08~~4.040E-08~~	1.85E-08 ~~2.220E-08~~	1.20E-08~~1.443E-08~~	6.49E-09~~7.845E-09~~	4.20E-09~~5.081E-09~~	2.98E-09~~3.615E-09~~	2.25E-09~~2.729E-09~~	1.77E-09~~2.147E-09~~	1.43E-09~~1.741E-09~~	1.19E-09~~1.444E-09~~	1.00E-09~~1.220E-09~~
E	4.61E-08~~3.595E-08~~	2.60E-08 ~~2.010E-08~~	1.72E-08~~1.323E-08~~	9.53E-09~~7.297E-09~~	6.26E-09~~4.767E-09~~	4.50E-09~~3.414E-09~~	3.42E-09~~2.591E-09~~	2.71E-09~~2.047E-09~~	2.21E-09~~1.666E-09~~	1.84E-09~~1.387E-09~~	1.56E-09~~1.175E-09~~
ESE	1.51E-07~~1.439E-07~~	8.70E-08~~8.263E-08~~	5.85E-08 ~~5.534E-08~~	3.32E-08 ~~3.124E-08~~	2.21E-08 ~~2.070E-08~~	1.60E-08~~1.498E-08~~	1.23E-08~~1.146E-08~~	9.77E-09 ~~9.117E-09~~	8.01E-09~~7.462E-09~~	6.71E-09~~6.241E-09~~	5.72E-09~~5.311E-09~~
SE	3.93E-07~~3.715E-07~~	2.29E-07 ~~2.158E-07~~	1.54E-07 ~~1.457E-07~~	8.81E-08~~8.308E-08~~	5.88E-08 ~~5.542E-08~~	4.28E-08~~4.031E-08~~	3.29E-08~~3.097E-08~~	2.62E-08~~2.471E-08~~	2.15E-08~~2.028E-08~~	1.81E-08~~1.701E-08~~	1.54E-08~~1.450E-08~~
SSE	2.03E-07~~1.869E-07~~	1.17E-07~~1.075E-07~~	7.86E-08 ~~7.207E-08~~	4.45E-08 ~~4.074E-08~~	2.96E-08 ~~2.702E-08~~	2.14E-08 ~~1.957E-08~~	1.64E-08~~1.498E-08~~	1.31E-08 ~~1.192E-08~~	1.07E-08~~9.764E-09~~	8.97E-09~~8.171E-09~~	7.64E-09~~6.955E-09~~

WLS COL 2.3-5

TABLE 2.3-288 (Sheet 3 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES NO DECAY, DEPLETED (FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	2.74E-06 ~~2.511E-06~~	8.87E-07 ~~8.160E-07~~	4.06E-07 ~~3.715E-07~~	2.54E-07 ~~2.310E-07~~	1.79E-07 ~~1.632E-07~~	9.00E-08 ~~8.185E-08~~	3.39E-08 ~~3.078E-08~~	1.60E-08 ~~1.448E-08~~	9.66E-09 ~~8.761E-09~~	6.59E-09 ~~5.977E-09~~
SSW	2.53E-06 ~~2.038E-06~~	8.22E-07 ~~6.635E-07~~	3.74E-07 ~~3.006E-07~~	2.32E-07 ~~1.859E-07~~	1.64E-07 ~~1.307E-07~~	8.18E-08 ~~6.513E-08~~	3.06E-08 ~~2.428E-08~~	1.43E-08 ~~1.136E-08~~	8.65E-09 ~~6.848E-09~~	5.89E-09 ~~4.662E-09~~
SW	2.07E-06 ~~2.077E-06~~	6.78E-07 ~~6.765E-07~~	3.09E-07 ~~3.069E-07~~	1.91E-07 ~~1.897E-07~~	1.34E-07 ~~1.334E-07~~	6.61E-08 ~~6.649E-08~~	2.44E-08 ~~2.480E-08~~	1.14E-08 ~~1.161E-08~~	6.82E-09 ~~7.007E-09~~	4.63E-09 ~~4.772E-09~~
WSW	2.50E-06 ~~2.314E-06~~	8.09E-07 ~~7.484E-07~~	3.69E-07 ~~3.408E-07~~	2.30E-07 ~~2.120E-07~~	1.63E-07 ~~1.498E-07~~	8.16E-08 ~~7.523E-08~~	3.07E-08 ~~2.835E-08~~	1.45E-08 ~~1.336E-08~~	8.76E-09 ~~8.089E-09~~	5.98E-09 ~~5.523E-09~~
W	2.55E-06 ~~2.585E-06~~	8.24E-07 ~~8.354E-07~~	3.77E-07 ~~3.819E-07~~	2.36E-07 ~~2.391E-07~~	1.67E-07 ~~1.698E-07~~	8.44E-08 ~~8.590E-08~~	3.20E-08 ~~3.268E-08~~	1.51E-08 ~~1.549E-08~~	9.18E-09 ~~9.409E-09~~	6.27E-09 ~~6.437E-09~~
WNW	2.55E-06 ~~2.394E-06~~	8.24E-07 ~~7.754E-07~~	3.79E-07 ~~3.557E-07~~	2.38E-07 ~~2.226E-07~~	1.69E-07 ~~1.579E-07~~	8.53E-08 ~~7.971E-08~~	3.23E-08 ~~3.022E-08~~	1.53E-08 ~~1.429E-08~~	9.28E-09 ~~8.669E-09~~	6.35E-09 ~~5.925E-09~~
NW	2.27E-06 ~~2.322E-06~~	7.38E-07 ~~7.552E-07~~	3.37E-07 ~~3.441E-07~~	2.10E-07 ~~2.140E-07~~	1.48E-07 ~~1.511E-07~~	7.38E-08 ~~7.579E-08~~	2.77E-08 ~~2.850E-08~~	1.30E-08 ~~1.341E-08~~	7.84E-09 ~~8.114E-09~~	5.35E-09 ~~5.536E-09~~
NNW	1.71E-06 ~~1.607E-06~~	5.68E-07 ~~5.318E-07~~	2.59E-07 ~~2.421E-07~~	1.58E-07 ~~1.484E-07~~	1.10E-07 ~~1.035E-07~~	5.39E-08 ~~5.089E-08~~	1.96E-08 ~~1.860E-08~~	9.01E-09 ~~8.581E-09~~	5.38E-09 ~~5.132E-09~~	3.64E-09 ~~3.474E-09~~
N	1.33E-06 ~~1.225E-06~~	4.53E-07 ~~4.180E-07~~	2.07E-07 ~~1.898E-07~~	1.24E-07 ~~1.141E-07~~	8.53E-08 ~~7.813E-08~~	4.07E-08 ~~3.727E-08~~	1.42E-08 ~~1.301E-08~~	6.34E-09 ~~5.789E-09~~	3.71E-09 ~~3.388E-09~~	2.47E-09 ~~2.257E-09~~
NNE	9.96E-07 ~~8.406E-07~~	3.38E-07 ~~2.883E-07~~	1.51E-07 ~~1.296E-07~~	9.04E-08 ~~7.694E-08~~	6.16E-08 ~~5.214E-08~~	2.92E-08 ~~2.446E-08~~	1.01E-08 ~~8.329E-09~~	4.47E-09 ~~3.637E-09~~	2.61E-09 ~~2.105E-09~~	1.74E-09 ~~1.392E-09~~

WLS COL 2.3-5

TABLE 2.3-288 (Sheet 3 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES NO DECAY, DEPLETED (FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

Sector	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
NE	7.64E-07 ~~7.692E-07~~	2.58E-07 ~~2.607E-07~~	1.14E-07 ~~1.161E-07~~	6.78E-08 ~~6.876E-08~~	4.59E-08 ~~4.655E-08~~	2.16E-08 ~~2.186E-08~~	7.40E-09 ~~7.470E-09~~	3.26E-09 ~~3.281E-09~~	1.90E-09 ~~1.907E-09~~	1.26E-09 ~~1.265E-09~~
ENE	6.54E-07 ~~7.592E-07~~	2.17E-07 ~~2.535E-07~~	9.72E-08 ~~1.145E-07~~	5.82E-08 ~~6.900E-08~~	3.98E-08 ~~4.740E-08~~	1.90E-08 ~~2.279E-08~~	6.69E-09 ~~8.081E-09~~	3.01E-09 ~~3.651E-09~~	1.78E-09 ~~2.159E-09~~	1.19E-09 ~~1.449E-09~~
E	8.37E-07 ~~6.544E-07~~	2.74E-07 ~~2.172E-07~~	1.25E-07 ~~9.859E-08~~	7.68E-08 ~~6.029E-08~~	5.37E-08 ~~4.195E-08~~	2.65E-08 ~~2.057E-08~~	9.77E-09 ~~7.490E-09~~	4.54E-09 ~~3.446E-09~~	2.72E-09 ~~2.057E-09~~	1.85E-09 ~~1.391E-09~~
ESE	2.65E-06 ~~2.521E-06~~	8.49E-07 ~~8.163E-07~~	3.89E-07 ~~3.752E-07~~	2.45E-07 ~~2.348E-07~~	1.74E-07 ~~1.666E-07~~	8.85E-08 ~~8.412E-08~~	3.38E-08 ~~3.191E-08~~	1.61E-08 ~~1.510E-08~~	9.81E-09 ~~9.156E-09~~	6.73E-09 ~~6.258E-09~~
SE	6.90E-06 ~~6.540E-06~~	2.19E-06 ~~2.080E-06~~	1.00E-06 ~~9.492E-07~~	6.33E-07 ~~5.990E-07~~	4.53E-07 ~~4.284E-07~~	2.32E-07 ~~2.192E-07~~	8.98E-08 ~~8.470E-08~~	4.31E-08 ~~4.060E-08~~	2.63E-08 ~~2.481E-08~~	1.81E-08 ~~1.705E-08~~
SSE	3.57E-06 ~~3.296E-06~~	1.15E-06 ~~1.066E-06~~	5.26E-07 ~~4.865E-07~~	3.31E-07 ~~3.045E-07~~	2.35E-07 ~~2.162E-07~~	1.19E-07 ~~1.094E-07~~	4.55E-08 ~~4.160E-08~~	2.16E-08 ~~1.972E-08~~	1.31E-08 ~~1.198E-08~~	8.99E-09 ~~8.193E-09~~

28. COLA Part 2, FSAR Chapter 2, Table 2.3-289 is revised as follows:

WLS COL 2.3-5

TABLE 2.3-289 (Sheet 1 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

		Distance		χ/Q (sec/m^3) No Decay	χ/Q (sec/m^3) No Decay	χ/Q (sec/m^3) 2.26 Day Decay	χ/Q (sec/m^3) 8.00 Day Decay	D/Q
Type of Location	Sector	(miles)	(meters)	Undepleted	Depleted	Undepleted	Depleted	(m^{-2})
EAB (U1)~~EAB~~	S	0.87~~0.87~~	1400~~1395~~	2.30E-06~~2.10E-06~~	2.00E-06~~1.90E-06~~	2.20E-06~~2.10E-06~~	2.00E-06~~1.90E-06~~	4.60E-09~~4.80E-09~~
EAB (U1)~~EAB~~	SSW	0.87~~0.87~~	1400~~1395~~	2.10E-06~~1.70E-06~~	1.90E-06~~1.50E-06~~	2.10E-06~~1.70E-06~~	1.90E-06~~1.50E-06~~	5.00E-09~~4.60E-09~~
EAB (U1)~~EAB~~	SW	0.97~~0.96~~	1569~~1547~~	1.40E-06~~1.50E-06~~	1.30E-06~~1.30E-06~~	1.40E-06~~1.50E-06~~	1.30E-06~~1.30E-06~~	4.00E-09~~4.00E-09~~
EAB (U1)~~EAB~~	WSW	1.02~~1.02~~	1634~~1649~~	1.60E-06~~1.50E-06~~	1.40E-06~~1.30E-06~~	1.60E-06~~1.50E-06~~	1.40E-06~~1.30E-06~~	3.30E-09~~3.10E-09~~
EAB (U1)~~EAB~~	W	0.72~~0.75~~	1163~~1208~~	2.90E-06~~2.70E-06~~	2.50E-06~~2.40E-06~~	2.80E-06~~2.70E-06~~	2.50E-06~~2.40E-06~~	4.90E-09~~4.70E-09~~
EAB (U1)~~EAB~~	WNW	0.72~~0.75~~	1163~~1208~~	2.80E-06~~2.50E-06~~	2.50E-06~~2.20E-06~~	2.80E-06~~2.50E-06~~	2.50E-06~~2.20E-06~~	4.60E-09~~4.30E-09~~
EAB (U1)~~EAB~~	NW	0.75~~0.75~~	1211~~1215~~	2.40E-06~~2.40E-06~~	2.10E-06~~2.20E-06~~	2.40E-06~~2.40E-06~~	2.10E-06~~2.20E-06~~	5.50E-09~~5.40E-09~~

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TABLE 2.3-289 (Sheet 1 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

				χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	
		Distance		No Decay	No Decay	2.26 Day Decay	8.00 Day Decay	D/Q
Type of Location	Sector	(miles)	(meters)	Undepleted	Depleted	Undepleted	Depleted	(m^{-2})
EAB (U1)~~EAB~~	NNW	0.58~~0.42~~	936~~668~~	2.80E-06~~4.60E-06~~	2.50E-06~~4.20E-06~~	2.70E-06~~4.60E-06~~	2.50E-06~~4.20E-06~~	8.70E-09~~1.50E-08~~
EAB (U1)~~EAB~~	N	0.58~~0.~~4	936~~644~~	2.10E-06~~3.60E-06~~	1.90E-06~~3.30E-06~~	2.10E-06~~3.60E-06~~	1.90E-06~~3.30E-06~~	9.60E-09~~1.80E-08~~
EAB (U1)~~EAB~~	NNE	0.60~~0.~~4	972~~644~~	1.50E-06~~2.40E-06~~	1.30E-06~~2.20E-06~~	1.50E-06~~2.40E-06~~	1.30E-06~~2.20E-06~~	1.00E-08~~1.90E-08~~
EAB (U1)~~EAB~~	NE	0.64~~0.44~~	1032~~705~~	1.00E-06~~1.90E-06~~	9.40E-07~~1.80E-06~~	1.00E-06~~1.90E-06~~	9.40E-07~~1.80E-06~~	8.70E-09~~1.70E-08~~
EAB (U1)~~EAB~~	ENE	0.79~~0.59~~	1266~~952~~	6.50E-07~~1.20E-06~~	5.80E-07~~1.10E-06~~	6.50E-07~~1.20E-06~~	5.80E-07~~1.10E-06~~	4.20E-09~~7.30E-09~~
EAB (U1)~~EAB~~	E	0.98~~0.8~~	1576~~1282~~	5.80E-07~~6.30E-07~~	5.10E-07~~5.60E-07~~	5.80E-07~~6.30E-07~~	5.10E-07~~5.60E-07~~	2.00E-09~~2.50E-09~~
EAB (U1)~~EAB~~	ESE	0.96~~0.96~~	1550~~15~~44	1.90E-06~~1.80E-06~~	1.60E-06~~1.60E-06~~	1.80E-06~~1.80E-06~~	1.60E-06~~1.60E-06~~	4.30E-09~~4.80E-09~~

WLS COL 2.3-5

TABLE 2.3-289 (Sheet 1 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

				χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	
		Distance		No Decay	No Decay	2.26 Day Decay	8.00 Day Decay	D/Q
Type of Location	Sector	(miles)	(meters)	Undepleted	Depleted	Undepleted	Depleted	(m^{-2})
EAB (U1)~~EAB~~	SE	0.88~~0.83~~	1410~~1339~~	5.60E-06~~5.80E-06~~	4.90E-06~~5.10E-06~~	5.60E-06~~5.70E-06~~	4.90E-06~~5.10E-06~~	1.20E-08~~1.20E-08~~
EAB (U1)~~EAB~~	SSE	0.88~~0.83~~	1410~~1339~~	2.90E-06~~2.90E-06~~	2.60E-06~~2.60E-06~~	2.90E-06~~2.90E-06~~	2.60E-06~~2.60E-06~~	5.40E-09~~5.90E-09~~

WLS COL 2.3-5

TABLE 2.3-289 (Sheet 2 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

Type of Location	Sector	Distance (miles)	Distance (meters)	χ/Q (sec/m^3) No Decay Undepleted	χ/Q (sec/m^3) No Decay Depleted	χ/Q (sec/m^3) 2.26 Day Decay Undepleted	χ/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
EAB (U2)	S	0.92	1477	2.10E-06	1.80E-06	2.10E-06	1.80E-06	4.20E-09
EAB (U2)	SSW	0.92	1477	1.90E-06	1.70E-06	1.90E-06	1.70E-06	4.50E-09
EAB (U2)	SW	0.98	1585	1.40E-06	1.20E-06	1.40E-06	1.20E-06	3.90E-09
EAB (U2)	WSW	1.11	1791	1.40E-06	1.20E-06	1.40E-06	1.20E-06	2.80E-09
EAB (U2)	W	0.85	1371	2.20E-06	1.90E-06	2.20E-06	1.90E-06	3.70E-09
EAB (U2)	WNW	0.85	1371	2.20E-06	1.90E-06	2.20E-06	1.90E-06	3.50E-09
EAB (U2)	NW	0.59	956	3.60E-06	3.20E-06	3.50E-06	3.20E-06	8.10E-09
EAB (U2)	NNW	0.59	954	2.70E-06	2.40E-06	2.70E-06	2.40E-06	8.40E-09
EAB (U2)	N	0.55	888	2.30E-06	2.10E-06	2.30E-06	2.10E-06	1.00E-08
EAB (U2)	NNE	0.55	888	1.70E-06	1.60E-06	1.70E-06	1.60E-06	1.20E-08
EAB (U2)	NE	0.60	963	1.20E-06	1.00E-06	1.20E-06	1.00E-06	9.70E-09
EAB (U2)	ENE	0.69	1118	7.90E-07	7.10E-07	7.90E-07	7.00E-07	5.10E-09
EAB (U2)	E	0.83	1335	7.50E-07	6.70E-07	7.50E-07	6.70E-07	2.60E-09
EAB (U2)	ESE	0.97	1559	1.80E-06	1.60E-06	1.80E-06	1.60E-06	4.30E-09
EAB (U2)	SE	0.81	1309	6.30E-06	5.60E-06	6.30E-06	5.60E-06	1.30E-08
EAB (U2)	SSE	0.81	1309	3.30E-06	2.90E-06	3.30E-06	2.90E-06	6.10E-09

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TABLE 2.3-289 (Sheet 3 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

Type of Location	Sector	Distance (miles)	Distance (meters)	χ/Q (sec/m^3) No Decay Undepleted	χ/Q (sec/m^3) No Decay Depleted	χ/Q (sec/m^3) 2.26 Day Decay Undepleted	χ/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
NEAREST HOUSE	S	0.99~~1.6~~	1597~~2578~~	1.80~~8.40~~E-06~~7~~	1.60~~7.10~~E-06~~7~~	1.80~~8.30~~E-06~~7~~	1.60~~7.10~~E-06~~7~~	3.60~~1.70~~E-09
NEAREST HOUSE	SSW	1.09	1761	1.50E-06	1.30E-06	1.50E-06	1.30E-06	3.40E-09
NEAREST HOUSE	SW	1.25	2011	1.00E-06	8.70E-07	9.90E-07	8.60E-07	2.60E-09
NEAREST HOUSE	WSW	2.46~~2.57~~	3954~~4143~~	4.60E-07~~4.00E-07~~	3.70E-07~~3.20E-07~~	4.50E-07~~3.90E-07~~	3.70E-07~~3.20E-07~~	7.10E-10~~6.20E-10~~
NEAREST HOUSE	W	1.79~~1.77~~	2887~~2846~~	7.30E-07~~7.50E-07~~	6.10E-07~~6.30E-07~~	7.10E-07~~7.40E-07~~	6.00E-07~~6.30E-07~~	1.00E-09~~1.10E-09~~
NEAREST HOUSE	WNW	2.21	3553	5.40E-07	4.50E-07	5.30E-07	4.40E-07	6.70E-10
NEAREST HOUSE	NW	2.06~~2.5~~	3311~~4025~~	5.40E-07~~4.20E-07~~	4.40E-07~~3.40E-07~~	5.30E-07~~4.10E-07~~	4.40E-07~~3.40E-07~~	9.80E-10~~6.90E-10~~
NEAREST HOUSE	NNW	1.41~~2.02~~	2263~~3245~~	7.10E-07~~4.00E-07~~	6.10E-07~~3.30E-07~~	7.00E-07~~3.90E-07~~	6.00E-07~~3.30E-07~~	2.00E-09~~1.10E-09~~
NEAREST HOUSE	N	1.06	1705	8.50E-07	7.40E-07	8.40E-07	7.40E-07	3.50E-09
NEAREST HOUSE	NNE	1.41	2268	4.20E-07	3.60E-07	4.20E-07	3.60E-07	2.40E-09
NEAREST HOUSE	NE	1.14	1838	4.40E-07	3.80E-07	4.40E-07	3.80E-07	3.30E-09
NEAREST HOUSE	ENE	1.14	1833	3.7E-07	3.20E-07	3.70E-07	3.20E-07	2.20E-09

WLS COL 2.3-5

TABLE 2.3-289 (Sheet 3 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

Type of Location	Sector	Distance (miles)	Distance (meters)	χ/Q (sec/m^3) No Decay Undepleted	χ/Q (sec/m^3) No Decay Depleted	χ/Q (sec/m^3) 2.26 Day Decay Undepleted	χ/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
NEAREST HOUSE	E	1.23	1985	4.10E-07	3.60E-07	4.10E-07	3.60E-07	1.30E-09
NEAREST HOUSE	ESE	2.41	3877	4.90E-07	4.00E-07	4.80E-07	4.00E-07	8.90E-10
NEAREST HOUSE	SE	0.99~~1~~	1588~~1607~~	4.60E-06~~4.30E-06~~	4.00E-06~~3.80E-06~~	4.60E-06~~4.30E-06~~	4.00E-06~~3.80E-06~~	9.40E-09~~8.90E-09~~
NEAREST HOUSE	SSE	1.09~~1.1~~	1752~~1775~~	2.10E-06~~1.90E-06~~	1.80E-06~~1.60E-06~~	2.10E-06~~1.90E-06~~	1.80E-06~~1.60E-06~~	3.70E-09~~3.70E-09~~

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TABLE 2.3-289 (Sheet 4 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

				χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	
		Distance		No Decay	No Decay	2.26 Day Decay	8.00 Day Decay	D/Q
Type of Location	Sector	(miles)	(meters)	Undepleted	Depleted	Undepleted	Depleted	(m^{-2})
NEAREST GARDEN	S	0.99	1592	1.90E-06	1.60E-06	1.80E-06	1.60E-06	3.70E-09
NEAREST GARDEN	SSW	1.19~~1.5~~	1917~~2410~~	1.30E-06~~7.60E-07~~	1.10E-06~~6.40E-07~~	1.30E-06~~7.50E-07~~	1.10E-06~~6.40E-07~~	2.90E-09~~1.80E-09~~
NEAREST GARDEN	SW	1.25~~1.2~~	2011~~1927~~	1.00E-06~~1.10E-06~~	8.70E-07~~9.20E-07~~	9.90E-07~~1.10E-06~~	8.60E-07~~9.20E-07~~	2.60E-09~~2.70E-09~~
NEAREST GARDEN	WSW	2.46~~2.56~~	3961~~4123~~	4.60E-07~~4.00E-07~~	3.70E-07~~3.20E-07~~	4.40E-07~~3.90E-07~~	3.70E-07~~3.20E-07~~	7.10E-10~~6.30E-10~~
NEAREST GARDEN	W	2.20~~2.47~~	3543~~3968~~	5.40E-07~~4.70E-07~~	4.50E-07~~3.80E-07~~	5.30E-07~~4.60E-07~~	4.40E-07~~3.80E-07~~	7.30E-10~~6.00E-10~~
NEAREST GARDEN	WNW	2.55~~2.54~~	4110~~4094~~	4.50E-07~~4.20E-07~~	3.60E-07~~3.40E-07~~	4.40E-07~~4.10E-07~~	3.60E-07~~3.40E-07~~	5.20E-10~~5.30E-10~~
NEAREST GARDEN	NW	2.04~~2.02~~	3279~~3258~~	5.40E-07~~5.60E-07~~	4.50E-07~~4.60E-07~~	5.40E-07~~5.50E-07~~	4.50E-07~~4.60E-07~~	9.90E-10~~1.00E-09~~
NEAREST GARDEN	NNW	1.52~~1.51~~	2452~~2431~~	6.30E-07~~6.00E-07~~	5.40E-07~~5.10E-07~~	6.30E-07~~5.90E-07~~	5.40E-07~~5.10E-07~~	1.70E-09~~1.70E-09~~

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TABLE 2.3-289 (Sheet 4 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

Type of Location	Sector	Distance (miles)	Distance (meters)	χ/Q (sec/m^3) No Decay Undepleted	χ/Q (sec/m^3) No Decay Depleted	χ/Q (sec/m^3) 2.26 Day Decay Undepleted	χ/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
NEAREST GARDEN	N	1.41~~1.~~4	2263~~2246~~	5.70E-07~~5.30E-07~~	4.90E-07~~4.50E-07~~	5.60E-07~~5.30E-07~~	4.80E-07~~4.50E-07~~	2.10E-09~~2.20E-09~~
NEAREST GARDEN	NNE	1.38~~1.37~~	2216~~2203~~	4.40E-07~~3.80E-07~~	3.70E-07~~3.20E-07~~	4.30E-07~~3.70E-07~~	3.70E-07~~3.20E-07~~	2.50E-09~~2.50E-09~~
NEAREST GARDEN	NE	1.12~~1.11~~	1802~~1794~~	4.50E-07~~4.60E-07~~	3.90E-07~~4.00E-07~~	4.50E-07~~4.60E-07~~	3.90E-07~~4.00E-07~~	3.40E-09~~3.60E-09~~
NEAREST GARDEN	ENE	0.97~~0.97~~	1563~~1567~~	4.70E-07~~5.40E-07~~	4.10E-07~~4.70E-07~~	4.70E-07~~5.40E-07~~	4.10E-07~~4.70E-07~~	2.90E-09~~3.20E-09~~
NEAREST GARDEN	E	2.77~~2.78~~	4460~~4469~~	1.30E-07~~1.00E-07~~	1.10E-07~~8.40E-08~~	1.30E-07~~1.00E-07~~	1.10E-07~~8.30E-08~~	3.20E-10~~2.90E-10~~
NEAREST GARDEN	ESE	2.70~~2.71~~	4339~~4355~~	4.30E-07~~4.10E-07~~	3.50E-07~~3.30E-07~~	4.20E-07~~4.10E-07~~	3.40E-07~~3.30E-07~~	7.30E-10~~7.90E-10~~
NEAREST GARDEN	SE	4.08~~4.1~~	6570~~6591~~	6.70E-07~~6.30E-07~~	5.20E-07~~4.80E-07~~	6.60E-07~~6.20E-07~~	5.10E-07~~4.80E-07~~	7.90E-10~~7.50E-10~~
NEAREST GARDEN	SSE	1.00~~1.01~~	1606~~1627~~	2.40E-06~~2.20E-06~~	2.10E-06~~1.90E-06~~	2.40E-06~~2.10E-06~~	2.10E-06~~1.90E-06~~	4.30E-09~~4.30E-09~~

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TABLE 2.3-289 (Sheet 5 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

Type of Location	Sector	Distance (miles)	Distance (meters)	χ/Q (sec/m^3) No Decay Undepleted	χ/Q (sec/m^3) No Decay Depleted	χ/Q (sec/m^3) 2.26 Day Decay Undepleted	χ/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
COW	S	3.23	5204	3.60E-07	2.80E-07	3.50E-07	2.80E-07	4.70E-10
COW	SSW	1.30	2091	1.20E-06	9.90E-07	1.10E-06	9.90E-07	2.50E-09
COW	SW	1.21	1950	1.10E-06	9.10E-07	1.00E-06	9.00E-07	2.70E-09
COW	WSW	2.79	4497	3.90E-07	3.10E-07	3.80E-07	3.10E-07	5.70E-10
COW	W	2.40	3857	4.80E-07	3.90E-07	4.70E-07	3.90E-07	6.30E-10
COW	WNW	2.51	4033	4.60E-07	3.70E-07	4.50E-07	3.70E-07	5.40E-10
COW	NW	3.83	6163	2.40E-07	1.80E-07	2.30E-07	1.80E-07	3.30E-10
COW	NNW	2.93	4722	2.50E-07	2.00E-07	2.50E-07	2.00E-07	5.40E-10
COW	N	2.27	3648	2.90E-07	2.40E-07	2.90E-07	2.40E-07	9.40E-10
COW	NNE	3.40	5464	1.20E-07	9.40E-08	1.20E-07	9.40E-08	5.20E-10
COW	NE	1.47	2364	3.00E-07	2.60E-07	3.00E-07	2.60E-07	2.10E-09
COW	ENE	1.22	1956	3.40E-07	2.90E-07	3.30E-07	2.90E-07	2.00E-09
COW	E	3.05	4914	1.20E-07	9.30E-08	1.10E-07	9.20E-08	2.70E-10
COW	ESE	3.11	5002	3.60E-07	2.90E-07	3.50E-07	2.80E-07	5.70E-10
COW	SE	1.65	2650	2.20E-06	1.80E-06	2.10E-06	1.80E-06	3.90E-09
COW	SSE	1.07	1728	2.10E-06	1.90E-06	2.10E-06	1.80E-06	3.80E-09

WLS COL 2.3-5

TABLE 2.3-289 (Sheet 6 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

Type of Location	Sector	Distance (miles)	Distance (meters)	χ/Q (sec/m^3) No Decay Undepleted	χ/Q (sec/m^3) No Decay Depleted	χ/Q (sec/m^3) 2.26 Day Decay Undepleted	χ/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
GOAT	S	-	-	-	-	-	-	-
GOAT	SSW	1.05	1690	1.60E-06	1.40E-06	1.60E-06	1.40E-06	3.60E-09
GOAT	SW	-	-	-	-	-	-	-
GOAT	WSW	-	-	-	-	-	-	-
GOAT	W	2.60	4192	4.40E-07	3.50E-07	4.30E-07	3.50E-07	5.40E-10
GOAT	WNW	3.87	6230	2.70E-07	2.10E-07	2.60E-07	2.00E-07	2.50E-10
GOAT	NW	3.83	6163	2.40E-07	1.80E-07	2.30E-07	1.80E-07	3.30E-10
GOAT	NNW	4.36	7013	1.50E-07	1.20E-07	1.50E-07	1.10E-07	2.70E-10
GOAT	N	3.42	5506	1.60E-07	1.30E-07	1.60E-07	1.30E-07	4.50E-10
GOAT	NNE	-	-	-	-	-	-	-
GOAT	NE	4.90	7886	5.40E-08	4.00E-08	5.30E-08	4.00E-08	2.50E-10
GOAT	ENE	-	-	-	-	-	-	-
GOAT	E	-	-	-	-	-	-	-
GOAT	ESE	-	-	-	-	-	-	-
GOAT	SE	-	-	-	-	-	-	-
GOAT	SSE	1.41	2275	1.40E-06	1.20E-06	1.40E-06	1.20E-06	2.40E-09
~~MILK COW/GOAT~~	~~SSW~~	~~1.06~~	~~1705~~	~~1.30E-06~~	~~1.10E-06~~	~~1.20E-06~~	~~1.10E-06~~	~~3.30E-09~~
~~MILK COW/GOAT~~	~~SW~~	~~1.26~~	~~2026~~	~~9.90E-07~~	~~8.50E-07~~	~~9.80E-07~~	~~8.50E-07~~	~~2.50E-09~~

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TABLE 2.3-289 (Sheet 6 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

		Distance		χ/Q (sec/m^3) No Decay	χ/Q (sec/m^3) No Decay	χ/Q (sec/m^3) 2.26 Day Decay	χ/Q (sec/m^3) 8.00 Day Decay	D/Q
Type of Location	Sector	(miles)	(meters)	Undepleted	Depleted	Undepleted	Depleted	(m^{-2})
~~MILK COW/GOAT~~	~~WSW~~	~~2.79~~	~~4494~~	~~3.60E-07~~	~~2.90E-07~~	~~3.50E-07~~	~~2.90E-07~~	~~5.40E-10~~
~~MILK COW/GOAT~~	~~W~~	~~2.39~~	~~3850~~	~~4.90E-07~~	~~4.00E-07~~	~~4.80E-07~~	~~4.00E-07~~	~~6.30E-10~~
~~MILK COW/GOAT~~	~~WNW~~	~~2.5~~	~~4016~~	~~4.30E-07~~	~~3.50E-07~~	~~4.20E-07~~	~~3.50E-07~~	~~5.50E-10~~
~~MILK COW/GOAT~~	~~NW~~	~~3.82~~	~~6143~~	~~2.50E-07~~	~~1.90E-07~~	~~2.40E-07~~	~~1.90E-07~~	~~3.30E-10~~
~~MILK COW/GOAT~~	~~N~~	~~2.31~~	~~3715~~	~~2.60E-07~~	~~2.10E-07~~	~~2.60E-07~~	~~2.10E-07~~	~~9.20E-10~~
~~MILK COW/GOAT~~	~~NNE~~	~~3.39~~	~~5449~~	~~1.00E-07~~	~~8.10E-08~~	~~1.00E-07~~	~~8.00E-08~~	~~5.10E-10~~
~~MILK COW/GOAT~~	~~ENE~~	~~1.22~~	~~1957~~	~~3.90E-07~~	~~3.40E-07~~	~~3.90E-07~~	~~3.40E-07~~	~~2.20E-09~~
~~MILK COW/GOAT~~	~~E~~	~~3.06~~	~~4926~~	~~9.20E-08~~	~~7.30E-08~~	~~9.00E-08~~	~~7.20E-08~~	~~2.40E-10~~
~~MILK COW/GOAT~~	~~ESE~~	~~3.12~~	~~5017~~	~~3.50E-07~~	~~2.70E-07~~	~~3.40E-07~~	~~2.70E-07~~	~~6.10E-10~~
~~MILK COW/GOAT~~	~~SE~~	~~4.62~~	~~7437~~	~~5.50E-07~~	~~4.10E-07~~	~~5.30E-07~~	~~4.10E-07~~	~~6.10E-10~~
~~MILK COW/GOAT~~	~~SSE~~	~~1.09~~	~~1749~~	~~1.90E-06~~	~~1.70E-06~~	~~1.90E-06~~	~~1.70E-06~~	~~3.80E-09~~
~~ANIMAL FOR MEAT~~	~~SSW~~	~~1.06~~	~~1705~~	~~1.30E-06~~	~~1.10E-06~~	~~1.20E-06~~	~~1.10E-06~~	~~3.30E-09~~
~~ANIMAL FOR MEAT~~	~~SW~~	~~1.26~~	~~2026~~	~~9.90E-07~~	~~8.50E-07~~	~~9.80E-07~~	~~8.50E-07~~	~~2.50E-09~~
~~ANIMAL FOR MEAT~~	~~WSW~~	~~2.79~~	~~4494~~	~~3.60E-07~~	~~2.90E-07~~	~~3.50E-07~~	~~2.90E-07~~	~~5.40E-10~~
~~ANIMAL FOR MEAT~~	~~W~~	~~2.39~~	~~3850~~	~~4.90E-07~~	~~4.00E-07~~	~~4.80E-07~~	~~4.00E-07~~	~~6.30E-10~~
~~ANIMAL FOR MEAT~~	~~WNW~~	~~2.5~~	~~4016~~	~~4.30E-07~~	~~3.50E-07~~	~~4.20E-07~~	~~3.50E-07~~	~~5.50E-10~~
~~ANIMAL FOR MEAT~~	~~NW~~	~~2.41~~	~~3876~~	~~4.40E-07~~	~~3.60E-07~~	~~4.30E-07~~	~~3.60E-07~~	~~7.40E-10~~
~~ANIMAL FOR MEAT~~	~~NNW~~	~~1.47~~	~~2360~~	~~6.30E-07~~	~~5.30E-07~~	~~6.20E-07~~	~~5.30E-07~~	~~1.80E-09~~

WLS COL 2.3-5

TABLE 2.3-289 (Sheet 6 of 6)
χ/Q AND D/Q VALUES FOR NORMAL RELEASES

Type of Location	Sector	Distance (miles)	(meters)	χ/Q (sec/m^3) No Decay Undepleted	χ/Q (sec/m^3) No Decay Depleted	χ/Q (sec/m^3) 2.26 Day Decay Undepleted	χ/Q (sec/m^3) 8.00 Day Decay Depleted	D/Q (m^{-2})
~~ANIMAL FOR MEAT~~	~~N~~	~~2.31~~	~~3715~~	~~2.60E-07~~	~~2.10E-07~~	~~2.60E-07~~	~~2.10E-07~~	~~9.20E-10~~
~~ANIMAL FOR MEAT~~	~~NNE~~	~~3.39~~	~~5449~~	~~1.00E-07~~	~~8.10E-08~~	~~1.00E-07~~	~~8.00E-08~~	~~5.10E-10~~
~~ANIMAL FOR MEAT~~	~~NE~~	~~1.11~~	~~1792~~	~~4.60E-07~~	~~4.00E-07~~	~~4.60E-07~~	~~4.00E-07~~	~~3.60E-09~~
~~ANIMAL FOR MEAT~~	~~ENE~~	~~1.22~~	~~1957~~	~~3.90E-07~~	~~3.40E-07~~	~~3.90E-07~~	~~3.40E-07~~	~~2.20E-09~~
~~ANIMAL FOR MEAT~~	~~E~~	~~2.78~~	~~4469~~	~~1.00E-07~~	~~8.40E-08~~	~~1.00E-07~~	~~8.30E-08~~	~~2.90E-10~~
~~ANIMAL FOR MEAT~~	~~ESE~~	~~3.12~~	~~5017~~	~~3.50E-07~~	~~2.70E-07~~	~~3.40E-07~~	~~2.70E-07~~	~~6.10E-10~~
~~ANIMAL FOR MEAT~~	~~SE~~	~~1.47~~	~~2373~~	~~2.40E-06~~	~~2.10E-06~~	~~2.40E-06~~	~~2.10E-06~~	~~4.50E-09~~
~~ANIMAL FOR MEAT~~	~~SSE~~	~~1.09~~	~~1749~~	~~1.90E-06~~	~~1.70E-06~~	~~1.90E-06~~	~~1.70E-06~~	~~3.80E-09~~

29. COLA Part 2, FSAR Chapter 2, Table 2.3-290 is revised as follows:

WLS COL 2.3-5

TABLE 2.3-290 (Sheet 1 of 3)
ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES
2.26 DAY DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
S	1.95E-05~~1.79E-05~~	5.74E-06~~5.27E-06~~	2.86E-06~~2.63E-06~~	1.81E-06~~1.67E-06~~	9.94E-07~~9.16E-07~~	6.57E-07~~6.06E-07~~	4.81E-07~~4.41E-07~~	3.81E-07~~3.49E-07~~	3.12E-07~~2.86E-07~~	2.63E-07~~2.41E-07~~	2.26E-07~~2.07E-07~~
SSW	1.78E-05~~1.44E-05~~	5.28E-06~~4.27E-06~~	2.65E-06~~2.14E-06~~	1.68E-06~~1.36E-06~~	9.21E-07~~7.45E-07~~	6.07E-07~~4.92E-07~~	4.44E-07~~3.57E-07~~	3.50E-07~~2.82E-07~~	2.86E-07~~2.30E-07~~	2.41E-07~~1.94E-07~~	2.06E-07~~1.66E-07~~
SW	1.45E-05~~1.47E-05~~	4.30E-06~~4.35E-06~~	2.17E-06~~2.18E-06~~	1.38E-06~~1.38E-06~~	7.62E-07~~7.60E-07~~	5.04E-07~~5.02E-07~~	3.68E-07~~3.65E-07~~	2.90E-07~~2.88E-07~~	2.36E-07~~2.35E-07~~	1.98E-07~~1.98E-07~~	1.69E-07~~1.69E-07~~
WSW	1.78E-05~~1.66E-05~~	5.26E-06~~4.87E-06~~	2.61E-06~~2.42E-06~~	1.65E-06~~1.53E-06~~	9.04E-07~~8.39E-07~~	5.97E-07~~5.55E-07~~	4.36E-07~~4.04E-07~~	3.45E-07~~3.20E-07~~	2.82E-07~~2.62E-07~~	2.37E-07~~2.21E-07~~	2.04E-07~~1.90E-07~~
W	1.83E-05~~1.87E-05~~	5.37E-06~~5.46E-06~~	2.66E-06~~2.70E-06~~	1.68E-06~~1.70E-06~~	9.24E-07~~9.36E-07~~	6.11E-07~~6.20E-07~~	4.48E-07~~4.53E-07~~	3.55E-07~~3.59E-07~~	2.92E-07~~2.96E-07~~	2.46E-07~~2.50E-07~~	2.12E-07~~2.15E-07~~
WNW	1.84E-05~~1.73E-05~~	5.38E-06~~5.06E-06~~	2.66E-06~~2.50E-06~~	1.67E-06~~1.58E-06~~	9.24E-07~~8.70E-07~~	6.13E-07~~5.78E-07~~	4.50E-07~~4.22E-07~~	3.57E-07~~3.35E-07~~	2.94E-07~~2.76E-07~~	2.48E-07~~2.33E-07~~	2.13E-07~~2.00E-07~~
NW	1.61E-05~~1.66E-05~~	4.76E-06~~4.88E-06~~	2.38E-06~~2.44E-06~~	1.51E-06~~1.54E-06~~	8.31E-07~~8.50E-07~~	5.50E-07~~5.63E-07~~	4.03E-07~~4.11E-07~~	3.19E-07~~3.25E-07~~	2.61E-07~~2.67E-07~~	2.20E-07~~2.25E-07~~	1.89E-07~~1.94E-07~~
NNW	1.18E-05~~1.12E-05~~	3.53E-06~~3.33E-06~~	1.81E-06~~1.70E-06~~	1.15E-06~~1.08E-06~~	6.41E-07~~6.01E-07~~	4.24E-07~~3.98E-07~~	3.09E-07~~2.90E-07~~	2.42E-07~~2.28E-07~~	1.97E-07~~1.85E-07~~	1.65E-07~~1.55E-07~~	1.41E-07~~1.33E-07~~
N	8.80E-06~~8.15E-06~~	2.68E-06~~2.48E-06~~	1.42E-06~~1.31E-06~~	9.17E-07~~8.49E-07~~	5.15E-07~~4.75E-07~~	3.41E-07~~3.15E-07~~	2.49E-07~~2.29E-07~~	1.93E-07~~1.78E-07~~	1.56E-07~~1.43E-07~~	1.29E-07~~1.19E-07~~	1.10E-07~~1.01E-07~~
NNE	6.56E-06~~5.52E-06~~	2.01E-06~~1.69E-06~~	1.07E-06~~9.03E-07~~	6.90E-07~~5.88E-07~~	3.83E-07~~3.28E-07~~	2.52E-07~~2.17E-07~~	1.82E-07~~1.57E-07~~	1.41E-07~~1.21E-07~~	1.13E-07~~9.69E-08~~	9.37E-08~~8.01E-08~~	7.93E-08~~6.77E-08~~
NE	5.01E-06~~5.08E-06~~	1.54E-06~~1.55E-06~~	8.19E-07~~8.26E-07~~	5.30E-07~~5.35E-07~~	2.92E-07~~2.96E-07~~	1.92E-07~~1.94E-07~~	1.38E-07~~1.40E-07~~	1.06E-07~~1.08E-07~~	8.53E-08~~8.65E-08~~	7.04E-08~~7.15E-08~~	5.95E-08~~6.04E-08~~

WLS COL 2.3-5

TABLE 2.3-290 (Sheet 1 of 3)
ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES
2.26 DAY DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
ENE	4.40E-06~~5.19E-06~~	1.34E-06~~1.56E-06~~	6.96E-07~~8.08E-07~~	4.46E-07~~5.18E-07~~	2.46E-07~~2.87E-07~~	1.62E-07~~1.90E-07~~	1.17E-07~~1.38E-07~~	9.07E-08~~1.07E-07~~	7.31E-08~~8.66E-08~~	6.06E-08~~7.20E-08~~	5.14E-08~~6.12E-08~~
E	5.84E-06~~4.53E-06~~	1.74E-06~~1.35E-06~~	8.81E-07~~6.93E-07~~	5.59E-07~~4.44E-07~~	3.09E-07~~2.46E-07~~	2.04E-07~~1.63E-07~~	1.49E-07~~1.18E-07~~	1.17E-07~~9.29E-08~~	9.57E-08~~7.56E-08~~	8.03E-08~~6.33E-08~~	6.87E-08~~5.41E-08~~
ESE	1.93E-05~~1.83E-05~~	5.63E-06~~5.34E-06~~	2.76E-06~~2.64E-06~~	1.73E-06~~1.66E-06~~	9.52E-07~~9.20E-07~~	6.30E-07~~6.12E-07~~	4.62E-07~~4.48E-07~~	3.68E-07~~3.56E-07~~	3.04E-07~~2.93E-07~~	2.57E-07~~2.48E-07~~	2.21E-07~~2.14E-07~~
SE	5.06E-05~~4.81E-05~~	1.47E-05~~1.40E-05~~	7.18E-06~~6.82E-06~~	4.49E-06~~4.27E-06~~	2.46E-06~~2.34E-06~~	1.63E-06~~1.55E-06~~	1.20E-06~~1.13E-06~~	9.56E-07~~9.05E-07~~	7.92E-07~~7.50E-07~~	6.72E-07~~6.36E-07~~	5.82E-07~~5.50E-07~~
SSE	2.58E-05~~2.38E-05~~	7.55E-06~~6.96E-06~~	3.73E-06~~3.45E-06~~	2.35E-06~~2.18E-06~~	1.29E-06~~1.20E-06~~	8.54E-07~~7.94E-07~~	6.26E-07~~5.80E-07~~	4.99E-07~~4.61E-07~~	4.11E-07~~3.80E-07~~	3.48E-07~~3.21E-07~~	3.00E-07~~2.77E-07~~

WLS COL 2.3-5

TABLE 2.3-290 (Sheet 2 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES
2.26 DAY DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	5	7.5	10	15	20	25	30	35	40	45	50
S	1.97E-07 ~~1.81E-07~~	1.16E-07 ~~1.07E-07~~	7.88E-08 ~~7.29E-08~~	4.54E-08 ~~4.23E-08~~	3.03E-08 ~~2.85E-08~~	2.19E-08 ~~2.08E-08~~	1.67E-08 ~~1.60E-08~~	1.32E-08 ~~1.27E-08~~	1.07E-08 ~~1.04E-08~~	8.88E-09 ~~8.63E-09~~	7.48E-09 ~~7.31E-09~~
SSW	1.80E-07 ~~1.45E-07~~	1.05E-07 ~~8.48E-08~~	7.14E-08 ~~5.78E-08~~	4.09E-08 ~~3.34E-08~~	2.72E-08 ~~2.24E-08~~	1.97E-08 ~~1.63E-08~~	1.50E-08 ~~1.25E-08~~	1.18E-08 ~~9.91E-09~~	9.57E-09 ~~8.08E-09~~	7.92E-09 ~~6.72E-09~~	6.66E-09 ~~5.67E-09~~
SW	1.47E-07 ~~1.48E-07~~	8.59E-08 ~~8.66E-08~~	5.83E-08 ~~5.91E-08~~	3.35E-08 ~~3.42E-08~~	2.24E-08 ~~2.30E-08~~	1.63E-08 ~~1.67E-08~~	1.25E-08 ~~1.29E-08~~	9.88E-09 ~~1.02E-08~~	8.05E-09 ~~8.34E-09~~	6.69E-09 ~~6.95E-09~~	5.65E-09 ~~5.88E-09~~
WSW	1.77E-07 ~~1.65E-07~~	1.04E-07 ~~9.75E-08~~	7.07E-08 ~~6.67E-08~~	4.05E-08 ~~3.86E-08~~	2.69E-08 ~~2.59E-08~~	1.94E-08 ~~1.89E-08~~	1.47E-08 ~~1.45E-08~~	1.16E-08 ~~1.15E-08~~	9.37E-09 ~~9.35E-09~~	7.73E-09 ~~7.77E-09~~	6.48E-09 ~~6.56E-09~~
W	1.85E-07 ~~1.88E-07~~	1.10E-07 ~~1.12E-07~~	7.50E-08 ~~7.66E-08~~	4.36E-08 ~~4.47E-08~~	2.93E-08 ~~3.01E-08~~	2.14E-08 ~~2.20E-08~~	1.64E-08 ~~1.69E-08~~	1.30E-08 ~~1.35E-08~~	1.06E-08 ~~1.10E-08~~	8.85E-09 ~~9.15E-09~~	7.48E-09 ~~7.75E-09~~
WNW	1.86E-07 ~~1.75E-07~~	1.10E-07 ~~1.04E-07~~	7.57E-08 ~~7.14E-08~~	4.40E-08 ~~4.16E-08~~	2.96E-08 ~~2.81E-08~~	2.16E-08 ~~2.06E-08~~	1.66E-08 ~~1.58E-08~~	1.32E-08 ~~1.26E-08~~	1.08E-08 ~~1.03E-08~~	8.95E-09 ~~8.63E-09~~	7.57E-09 ~~7.32E-09~~
NW	1.65E-07 ~~1.69E-07~~	9.74E-08 ~~1.00E-07~~	6.68E-08 ~~6.90E-08~~	3.90E-08 ~~4.05E-08~~	2.65E-08 ~~2.76E-08~~	1.95E-08 ~~2.03E-08~~	1.51E-08 ~~1.58E-08~~	1.21E-08 ~~1.27E-08~~	9.92E-09 ~~1.04E-08~~	8.32E-09 ~~8.76E-09~~	7.09E-09 ~~7.48E-09~~
NNW	1.22E-07 ~~1.15E-07~~	7.08E-08 ~~6.73E-08~~	4.79E-08 ~~4.58E-08~~	2.75E-08 ~~2.64E-08~~	1.84E-08 ~~1.78E-08~~	1.34E-08 ~~1.31E-08~~	1.03E-08 ~~1.01E-08~~	8.24E-09 ~~8.07E-09~~	6.75E-09 ~~6.63E-09~~	5.64E-09 ~~5.56E-09~~	4.79E-09 ~~4.74E-09~~
N	9.47E-08 ~~8.71E-08~~	5.39E-08 ~~4.96E-08~~	3.61E-08 ~~3.32E-08~~	2.04E-08 ~~1.89E-08~~	1.36E-08 ~~1.26E-08~~	9.87E-09 ~~9.16E-09~~	7.57E-09 ~~7.04E-09~~	6.04E-09 ~~5.62E-09~~	4.95E-09 ~~4.61E-09~~	4.14E-09 ~~3.87E-09~~	3.52E-09 ~~3.30E-09~~
NNE	6.83E-08 ~~5.82E-08~~	3.86E-08 ~~3.28E-08~~	2.57E-08 ~~2.18E-08~~	1.45E-08 ~~1.23E-08~~	9.60E-09 ~~8.17E-09~~	6.95E-09 ~~5.95E-09~~	5.33E-09 ~~4.58E-09~~	4.24E-09 ~~3.66E-09~~	3.47E-09 ~~3.01E-09~~	2.91E-09 ~~2.53E-09~~	2.48E-09 ~~2.17E-09~~
NE	5.12E-08 ~~5.19E-08~~	2.89E-08 ~~2.92E-08~~	1.92E-08 ~~1.95E-08~~	1.09E-08 ~~1.10E-08~~	7.25E-09 ~~7.32E-09~~	5.28E-09 ~~5.33E-09~~	4.07E-09 ~~4.11E-09~~	3.26E-09 ~~3.29E-09~~	2.68E-09 ~~2.71E-09~~	2.26E-09 ~~2.28E-09~~	1.93E-09 ~~1.95E-09~~

WLS COL 2.3-5

TABLE 2.3-290 (Sheet 2 of 3)
ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES
2.26 DAY DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	5	7.5	10	15	20	25	30	35	40	45	50
ENE	4.44E-08~~5.30E-08~~	2.54E-08~~3.04E-08~~	1.70E-08~~2.05E-08~~	9.72E-09~~1.17E-08~~	6.52E-09~~7.90E-09~~	4.77E-09~~5.78E-09~~	3.68E-09~~4.47E-09~~	2.95E-09~~3.58E-09~~	2.43E-09~~2.95E-09~~	2.04E-09~~2.48E-09~~	1.74E-09~~2.12E-09~~
E	5.98E-08~~4.70E-08~~	3.50E-08~~2.74E-08~~	2.38E-08~~1.87E-08~~	1.38E-08~~1.09E-08~~	9.31E-09~~7.36E-09~~	6.83E-09~~5.42E-09~~	5.27E-09~~4.20E-09~~	4.22E-09~~3.38E-09~~	3.47E-09~~2.79E-09~~	2.91E-09~~2.35E-09~~	2.48E-09~~2.01E-09~~
ESE	1.94E-07~~1.87E-07~~	1.16E-07~~1.12E-07~~	7.98E-08~~7.72E-08~~	4.69E-08~~4.55E-08~~	3.18E-08~~3.11E-08~~	2.34E-08~~2.30E-08~~	1.81E-08~~1.79E-08~~	1.45E-08~~1.45E-08~~	1.19E-08~~1.20E-08~~	1.00E-08~~1.01E-08~~	8.54E-09~~8.65E-09~~
SE	5.11E-07~~4.83E-07~~	3.09E-07~~2.93E-07~~	2.16E-07~~2.04E-07~~	1.29E-07~~1.22E-07~~	8.90E-08~~8.42E-08~~	6.64E-08~~6.28E-08~~	5.21E-08~~4.92E-08~~	4.22E-08~~3.99E-08~~	3.51E-08~~3.32E-08~~	2.98E-08~~2.81E-08~~	2.56E-08~~2.42E-08~~
SSE	2.62E-07~~2.42E-07~~	1.57E-07~~1.45E-07~~	1.08E-07~~9.99E-08~~	6.36E-08~~5.89E-08~~	4.32E-08~~4.02E-08~~	3.18E-08~~2.96E-08~~	2.46E-08~~2.30E-08~~	1.98E-08~~1.85E-08~~	1.62E-08~~1.52E-08~~	1.36E-08~~1.28E-08~~	1.16E-08~~1.09E-08~~

TABLE 2.3-290 (Sheet 3 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES
2.26 DAY DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.03E-06 ~~2.79E-06~~	1.02E-06 ~~9.44E-07~~	4.88E-07 ~~4.48E-07~~	3.13E-07 ~~2.87E-07~~	2.26E-07 ~~2.07E-07~~	1.17E-07 ~~1.08E-07~~	4.61E-08 ~~4.30E-08~~	2.21E-08 ~~2.09E-08~~	1.33E-08 ~~1.27E-08~~	8.91E-09 ~~8.65E-09~~
SSW	2.80E-06 ~~2.27E-06~~	9.49E-07 ~~7.68E-07~~	4.50E-07 ~~3.63E-07~~	2.87E-07 ~~2.31E-07~~	2.07E-07 ~~1.66E-07~~	1.07E-07 ~~8.61E-08~~	4.16E-08 ~~3.39E-08~~	1.98E-08 ~~1.64E-08~~	1.19E-08 ~~9.95E-09~~	7.94E-09 ~~6.73E-09~~
SW	2.29E-06 ~~2.31E-06~~	7.85E-07 ~~7.83E-07~~	3.73E-07 ~~3.71E-07~~	2.37E-07 ~~2.36E-07~~	1.70E-07 ~~1.70E-07~~	8.73E-08 ~~8.80E-08~~	3.41E-08 ~~3.47E-08~~	1.64E-08 ~~1.68E-08~~	9.92E-09 ~~1.03E-08~~	6.71E-09 ~~6.96E-09~~
WSW	2.77E-06 ~~2.57E-06~~	9.32E-07 ~~8.65E-07~~	4.42E-07 ~~4.10E-07~~	2.83E-07 ~~2.63E-07~~	2.04E-07 ~~1.90E-07~~	1.06E-07 ~~9.89E-08~~	4.12E-08 ~~3.92E-08~~	1.95E-08 ~~1.90E-08~~	1.16E-08 ~~1.15E-08~~	7.75E-09 ~~7.79E-09~~
W	2.83E-06 ~~2.87E-06~~	9.53E-07 ~~9.66E-07~~	4.54E-07 ~~4.60E-07~~	2.93E-07 ~~2.96E-07~~	2.12E-07 ~~2.15E-07~~	1.11E-07 ~~1.13E-07~~	4.42E-08 ~~4.53E-08~~	2.15E-08 ~~2.21E-08~~	1.31E-08 ~~1.35E-08~~	8.87E-09 ~~9.17E-09~~
WNW	2.82E-06 ~~2.66E-06~~	9.52E-07 ~~8.97E-07~~	4.56E-07 ~~4.29E-07~~	2.95E-07 ~~2.76E-07~~	2.14E-07 ~~2.01E-07~~	1.12E-07 ~~1.05E-07~~	4.47E-08 ~~4.22E-08~~	2.17E-08 ~~2.07E-08~~	1.32E-08 ~~1.27E-08~~	8.97E-09 ~~8.65E-09~~
NW	2.52E-06 ~~2.58E-06~~	8.57E-07 ~~8.77E-07~~	4.08E-07 ~~4.17E-07~~	2.62E-07 ~~2.68E-07~~	1.89E-07 ~~1.94E-07~~	9.88E-08 ~~1.02E-07~~	3.96E-08 ~~4.11E-08~~	1.96E-08 ~~2.04E-08~~	1.21E-08 ~~1.27E-08~~	8.34E-09 ~~8.78E-09~~
NNW	1.90E-06 ~~1.79E-06~~	6.58E-07 ~~6.18E-07~~	3.13E-07 ~~2.94E-07~~	1.98E-07 ~~1.86E-07~~	1.41E-07 ~~1.33E-07~~	7.20E-08 ~~6.84E-08~~	2.80E-08 ~~2.69E-08~~	1.35E-08 ~~1.31E-08~~	8.27E-09 ~~8.09E-09~~	5.65E-09 ~~5.57E-09~~
N	1.48E-06 ~~1.37E-06~~	5.27E-07 ~~4.87E-07~~	2.51E-07 ~~2.31E-07~~	1.56E-07 ~~1.44E-07~~	1.10E-07 ~~1.01E-07~~	5.51E-08 ~~5.07E-08~~	2.09E-08 ~~1.93E-08~~	9.94E-09 ~~9.22E-09~~	6.06E-09 ~~5.64E-09~~	4.15E-09 ~~3.88E-09~~
NNE	1.11E-06 ~~9.38E-07~~	3.93E-07 ~~3.36E-07~~	1.84E-07 ~~1.58E-07~~	1.14E-07 ~~9.73E-08~~	7.95E-08 ~~6.79E-08~~	3.95E-08 ~~3.36E-08~~	1.48E-08 ~~1.26E-08~~	7.01E-09 ~~5.99E-09~~	4.26E-09 ~~3.68E-09~~	2.92E-09 ~~2.54E-09~~
NE	8.51E-07 ~~8.58E-07~~	3.00E-07 ~~3.04E-07~~	1.40E-07 ~~1.42E-07~~	8.57E-08 ~~8.69E-08~~	5.97E-08 ~~6.05E-08~~	2.96E-08 ~~2.99E-08~~	1.11E-08 ~~1.12E-08~~	5.32E-09 ~~5.37E-09~~	3.27E-09 ~~3.30E-09~~	2.26E-09 ~~2.28E-09~~

TABLE 2.3-290 (Sheet 3 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES
2.26 DAY DECAY, UNDEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
ENE	7.28E-07~~8.46E-07~~	2.53E-07~~2.95E-07~~	1.18E-07~~1.40E-07~~	7.34E-08~~8.69E-08~~	5.16E-08~~6.14E-08~~	2.59E-08~~3.10E-08~~	9.92E-09~~1.20E-08~~	4.80E-09~~5.82E-09~~	2.96E-09~~3.60E-09~~	2.05E-09~~2.49E-09~~
E	9.29E-07~~7.29E-07~~	3.18E-07~~2.53E-07~~	1.51E-07~~1.20E-07~~	9.60E-08~~7.58E-08~~	6.88E-08~~5.42E-08~~	3.55E-08~~2.79E-08~~	1.40E-08~~1.10E-08~~	6.87E-09~~5.45E-09~~	4.23E-09~~3.39E-09~~	2.91E-09~~2.36E-09~~
ESE	2.94E-06~~2.81E-06~~	9.83E-07~~9.48E-07~~	4.69E-07~~4.55E-07~~	3.04E-07~~2.94E-07~~	2.22E-07~~2.14E-07~~	1.17E-07~~1.13E-07~~	4.75E-08~~4.62E-08~~	2.35E-08~~2.32E-08~~	1.46E-08~~1.45E-08~~	1.00E-08~~1.01E-08~~
SE	7.66E-06~~7.28E-06~~	2.54E-06~~2.42E-06~~	1.21E-06~~1.15E-06~~	7.93E-07~~7.51E-07~~	5.82E-07~~5.51E-07~~	3.13E-07~~2.96E-07~~	1.31E-07~~1.23E-07~~	6.67E-08~~6.31E-08~~	4.23E-08~~4.00E-08~~	2.98E-08~~2.82E-08~~
SSE	3.97E-06~~3.67E-06~~	1.33E-06~~1.24E-06~~	6.36E-07~~5.89E-07~~	4.12E-07~~3.81E-07~~	3.00E-07~~2.77E-07~~	1.59E-07~~1.46E-07~~	6.44E-08~~5.97E-08~~	3.20E-08~~2.98E-08~~	1.98E-08~~1.85E-08~~	1.37E-08~~1.28E-08~~

30. COLA Part 2, FSAR Chapter 2, Table 2.3-291 is revised as follows:

WLS COL 2.3-4 COL 2.3-4

TABLE 2.3-291 (Sheet 1 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES 8.00 DAY DECAY, DEPLETED (FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
S	1.85E-05 ~~1.67E-05~~	5.26E-06 ~~4.81E-06~~	2.56E-06 ~~2.36E-06~~	1.59E-06 ~~1.47E-06~~	8.54E-07 ~~7.85E-07~~	5.52E-07 ~~5.08E-07~~	3.97E-07 ~~3.63E-07~~	3.09E-07 ~~2.82E-07~~	2.50E-07 ~~2.28E-07~~	2.08E-07 ~~1.90E-07~~	1.76E-07 ~~1.61E-07~~
SSW	1.69E-05 ~~1.34E-05~~	4.84E-06 ~~3.89E-06~~	2.37E-06 ~~1.92E-06~~	1.48E-06 ~~1.20E-06~~	7.91E-07 ~~6.38E-07~~	5.10E-07 ~~4.12E-07~~	3.66E-07 ~~2.94E-07~~	2.84E-07 ~~2.28E-07~~	2.29E-07 ~~1.84E-07~~	1.90E-07 ~~1.52E-07~~	1.61E-07 ~~1.29E-07~~
SW	1.37E-05 ~~1.37E-05~~	3.94E-06 ~~3.97E-06~~	1.95E-06 ~~1.95E-06~~	1.22E-06 ~~1.22E-06~~	6.53E-07 ~~6.51E-07~~	4.22E-07 ~~4.20E-07~~	3.03E-07 ~~3.00E-07~~	2.34E-07 ~~2.33E-07~~	1.88E-07 ~~1.88E-07~~	1.56E-07 ~~1.55E-07~~	1.32E-07 ~~1.32E-07~~
WSW	1.69E-05 ~~1.55E-05~~	4.82E-06 ~~4.45E-06~~	2.34E-06 ~~2.17E-06~~	1.45E-06 ~~1.35E-06~~	7.77E-07 ~~7.20E-07~~	5.02E-07 ~~4.65E-07~~	3.60E-07 ~~3.33E-07~~	2.81E-07 ~~2.59E-07~~	2.27E-07 ~~2.09E-07~~	1.88E-07 ~~1.74E-07~~	1.60E-07 ~~1.48E-07~~
W	1.74E-05 ~~1.74E-05~~	4.92E-06 ~~4.98E-06~~	2.39E-06 ~~2.42E-06~~	1.48E-06 ~~1.50E-06~~	7.92E-07 ~~8.03E-07~~	5.13E-07 ~~5.20E-07~~	3.69E-07 ~~3.73E-07~~	2.88E-07 ~~2.91E-07~~	2.33E-07 ~~2.36E-07~~	1.94E-07 ~~1.97E-07~~	1.65E-07 ~~1.67E-07~~
WNW	1.74E-05 ~~1.61E-05~~	4.93E-06 ~~4.62E-06~~	2.38E-06 ~~2.24E-06~~	1.47E-06 ~~1.39E-06~~	7.93E-07 ~~7.46E-07~~	5.14E-07 ~~4.85E-07~~	3.71E-07 ~~3.48E-07~~	2.90E-07 ~~2.71E-07~~	2.35E-07 ~~2.20E-07~~	1.96E-07 ~~1.83E-07~~	1.66E-07 ~~1.56E-07~~
NW	1.53E-05 ~~1.55E-05~~	4.36E-06 ~~4.45E-06~~	2.13E-06 ~~2.18E-06~~	1.33E-06 ~~1.36E-06~~	7.11E-07 ~~7.27E-07~~	4.60E-07 ~~4.71E-07~~	3.30E-07 ~~3.37E-07~~	2.57E-07 ~~2.62E-07~~	2.07E-07 ~~2.12E-07~~	1.72E-07 ~~1.76E-07~~	1.46E-07 ~~1.50E-07~~
NNW	1.12E-05 ~~1.04E-05~~	3.23E-06 ~~3.04E-06~~	1.62E-06 ~~1.52E-06~~	1.02E-06 ~~9.52E-07~~	5.48E-07 ~~5.13E-07~~	3.55E-07 ~~3.33E-07~~	2.54E-07 ~~2.38E-07~~	1.95E-07 ~~1.83E-07~~	1.57E-07 ~~1.47E-07~~	1.29E-07 ~~1.21E-07~~	1.09E-07 ~~1.02E-07~~

WLS COL 2.3-5

TABLE 2.3-291 (Sheet 1 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES 8.00 DAY DECAY, DEPLETED (FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
N	8.33E-06 ~~7.60E-06~~	2.45E-06 ~~2.26E-06~~	1.27E-06 ~~1.17E-06~~	8.06E-07 ~~7.45E-07~~	4.39E-07 ~~4.05E-07~~	2.85E-07 ~~2.62E-07~~	2.03E-07 ~~1.87E-07~~	1.55E-07 ~~1.42E-07~~	1.23E-07 ~~1.13E-07~~	1.01E-07 ~~9.25E-08~~	8.44E-08 ~~7.74E-08~~
NNE	6.22E-06 ~~5.14E-06~~	1.84E-06 ~~1.54E-06~~	9.52E-07 ~~8.06E-07~~	6.06E-07 ~~5.16E-07~~	3.27E-07 ~~2.80E-07~~	2.10E-07 ~~1.80E-07~~	1.49E-07 ~~1.28E-07~~	1.13E-07 ~~9.67E-08~~	8.95E-08 ~~7.63E-08~~	7.30E-08 ~~6.21E-08~~	6.09E-08 ~~5.17E-08~~
NE	4.75E-06 ~~4.73E-06~~	1.41E-06 ~~1.42E-06~~	7.32E-07 ~~7.37E-07~~	4.65E-07 ~~4.70E-07~~	2.49E-07 ~~2.52E-07~~	1.59E-07 ~~1.62E-07~~	1.13E-07 ~~1.14E-07~~	8.52E-08 ~~8.64E-08~~	6.72E-08 ~~6.81E-08~~	5.47E-08 ~~5.54E-08~~	4.55E-08 ~~4.62E-08~~
ENE	4.17E-06 ~~4.83E-06~~	1.23E-06 ~~1.42E-06~~	6.22E-07 ~~7.22E-07~~	3.91E-07 ~~4.54E-07~~	2.10E-07 ~~2.45E-07~~	1.35E-07 ~~1.58E-07~~	9.56E-08 ~~1.13E-07~~	7.27E-08 ~~8.60E-08~~	5.77E-08 ~~6.84E-08~~	4.72E-08 ~~5.60E-08~~	3.95E-08 ~~4.70E-08~~
E	5.54E-06 ~~4.22E-06~~	1.59E-06 ~~1.23E-06~~	7.88E-07 ~~6.19E-07~~	4.92E-07 ~~3.90E-07~~	2.64E-07 ~~2.10E-07~~	1.71E-07 ~~1.36E-07~~	1.22E-07 ~~9.68E-08~~	9.45E-08 ~~7.45E-08~~	7.60E-08 ~~5.98E-08~~	6.28E-08 ~~4.93E-08~~	5.31E-08 ~~4.16E-08~~
ESE	1.83E-05 ~~1.70E-05~~	5.15E-06 ~~4.87E-06~~	2.47E-06 ~~2.36E-06~~	1.53E-06 ~~1.46E-06~~	8.16E-07 ~~7.86E-07~~	5.28E-07 ~~5.12E-07~~	3.80E-07 ~~3.67E-07~~	2.98E-07 ~~2.87E-07~~	2.42E-07 ~~2.33E-07~~	2.02E-07 ~~1.94E-07~~	1.72E-07 ~~1.65E-07~~
SE	4.80E-05 ~~4.48E-05~~	1.35E-05 ~~1.27E-05~~	6.42E-06 ~~6.10E-06~~	3.95E-06 ~~3.75E-06~~	2.10E-06 ~~2.00E-06~~	1.36E-06 ~~1.29E-06~~	9.79E-07 ~~9.27E-07~~	7.70E-07 ~~7.29E-07~~	6.28E-07 ~~5.94E-07~~	5.26E-07 ~~4.97E-07~~	4.49E-07 ~~4.24E-07~~
SSE	2.45E-05 ~~2.22E-05~~	6.92E-06 ~~6.35E-06~~	3.34E-06 ~~3.09E-06~~	2.07E-06 ~~1.92E-06~~	1.11E-06 ~~1.03E-06~~	7.15E-07 ~~6.64E-07~~	5.15E-07 ~~4.75E-07~~	4.03E-07 ~~3.72E-07~~	3.27E-07 ~~3.02E-07~~	2.73E-07 ~~2.51E-07~~	2.32E-07 ~~2.14E-07~~

WLS COL 2.3-5

TABLE 2.3-291 (Sheet 2 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES 8.00 DAY DECAY, DEPLETED (FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	5	7.5	10	15	20	25	30	35	40	45	50
S	1.52E-07~~1.39E-07~~	8.63E-08~~7.88E-08~~	5.72E-08~~5.22E-08~~	3.16E-08~~2.90E-08~~	2.06E-08~~1.89E-08~~	1.46E-08~~1.35E-08~~	1.10E-08~~1.01E-08~~	8.60E-09~~7.95E-09~~	6.93E-09~~6.42E-09~~	5.70E-09~~5.29E-09~~	4.77E-09~~4.44E-09~~
SSW	1.39E-07~~1.11E-07~~	7.84E-08~~6.26E-08~~	5.17E-08~~4.14E-08~~	2.85E-08~~2.28E-08~~	1.85E-08~~1.48E-08~~	1.31E-08~~1.06E-08~~	9.86E-09~~7.94E-09~~	7.70E-09~~6.22E-09~~	6.19E-09~~5.01E-09~~	5.09E-09~~4.13E-09~~	4.26E-09~~3.46E-09~~
SW	1.13E-07~~1.13E-07~~	6.35E-08~~6.40E-08~~	4.18E-08~~4.23E-08~~	2.29E-08~~2.33E-08~~	1.49E-08~~1.52E-08~~	1.05E-08~~1.08E-08~~	7.92E-09~~8.14E-09~~	6.19E-09~~6.38E-09~~	4.98E-09~~5.14E-09~~	4.10E-09~~4.24E-09~~	3.43E-09~~3.56E-09~~
WSW	1.38E-07~~1.28E-07~~	7.80E-08~~7.23E-08~~	5.17E-08~~4.80E-08~~	2.85E-08~~2.66E-08~~	1.85E-08~~1.73E-08~~	1.32E-08~~1.24E-08~~	9.89E-09~~9.31E-09~~	7.73E-09~~7.30E-09~~	6.21E-09~~5.89E-09~~	5.11E-09~~4.85E-09~~	4.27E-09~~4.07E-09~~
W	1.43E-07~~1.45E-07~~	8.12E-08~~8.27E-08~~	5.40E-08~~5.51E-08~~	3.00E-08~~3.07E-08~~	1.96E-08~~2.01E-08~~	1.40E-08~~1.43E-08~~	1.06E-08~~1.08E-08~~	8.28E-09~~8.50E-09~~	6.68E-09~~6.87E-09~~	5.51E-09~~5.67E-09~~	4.63E-09~~4.76E-09~~
WNW	1.44E-07~~1.35E-07~~	8.20E-08~~7.68E-08~~	5.45E-08~~5.11E-08~~	3.04E-08~~2.85E-08~~	1.98E-08~~1.86E-08~~	1.41E-08~~1.33E-08~~	1.07E-08~~1.00E-08~~	8.37E-09~~7.88E-09~~	6.76E-09~~6.37E-09~~	5.57E-09~~5.26E-09~~	4.68E-09~~4.42E-09~~
NW	1.26E-07~~1.29E-07~~	7.13E-08~~7.33E-08~~	4.72E-08~~4.87E-08~~	2.62E-08~~2.71E-08~~	1.71E-08~~1.77E-08~~	1.22E-08~~1.27E-08~~	9.23E-09~~9.59E-09~~	7.26E-09~~7.54E-09~~	5.87E-09~~6.11E-09~~	4.85E-09~~5.05E-09~~	4.08E-09~~4.26E-09~~
NNW	9.34E-08~~8.80E-08~~	5.19E-08~~4.91E-08~~	3.39E-08~~3.22E-08~~	1.85E-08~~1.76E-08~~	1.20E-08~~1.14E-08~~	8.46E-09~~8.11E-09~~	6.35E-09~~6.10E-09~~	4.96E-09~~4.77E-09~~	3.99E-09~~3.85E-09~~	3.29E-09~~3.17E-09~~	2.75E-09~~2.67E-09~~

WLS COL 2.3-5

TABLE 2.3-291 (Sheet 2 of 3)
ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES 8.00 DAY DECAY, DEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	5	7.5	10	15	20	25	30	35	40	45	50
N	7.20E-08 ~~6.60E-08~~	3.92E-08 ~~3.59E-08~~	2.52E-08 ~~2.31E-08~~	1.35E-08 ~~1.24E-08~~	8.59E-09 ~~7.88E-09~~	6.02E-09 ~~5.53E-09~~	4.49E-09 ~~4.12E-09~~	3.49E-09 ~~3.20E-09~~	2.79E-09 ~~2.57E-09~~	2.29E-09 ~~2.11E-09~~	1.91E-09 ~~1.76E-09~~
NNE	5.19E-08 ~~4.40E-08~~	2.80E-08 ~~2.35E-08~~	1.79E-08 ~~1.50E-08~~	9.53E-09 ~~7.93E-09~~	6.06E-09 ~~5.02E-09~~	4.24E-09 ~~3.51E-09~~	3.15E-09 ~~2.60E-09~~	2.44E-09 ~~2.02E-09~~	1.96E-09 ~~1.62E-09~~	1.60E-09 ~~1.33E-09~~	1.34E-09 ~~1.11E-09~~
NE	3.87E-08 ~~3.92E-08~~	2.08E-08 ~~2.10E-08~~	1.33E-08 ~~1.34E-08~~	7.04E-09 ~~7.10E-09~~	4.48E-09 ~~4.51E-09~~	3.14E-09 ~~3.16E-09~~	2.34E-09 ~~2.35E-09~~	1.82E-09 ~~1.83E-09~~	1.46E-09 ~~1.46E-09~~	1.19E-09 ~~1.20E-09~~	9.99E-10 ~~1.00E-09~~
ENE	3.37E-08 ~~4.01E-08~~	1.83E-08 ~~2.20E-08~~	1.18E-08 ~~1.42E-08~~	6.36E-09 ~~7.69E-09~~	4.08E-09 ~~4.94E-09~~	2.88E-09 ~~3.49E-09~~	2.16E-09 ~~2.62E-09~~	1.68E-09 ~~2.04E-09~~	1.35E-09 ~~1.65E-09~~	1.11E-09 ~~1.36E-09~~	9.34E-10 ~~1.14E-09~~
E	4.56E-08 ~~3.57E-08~~	2.56E-08 ~~1.99E-08~~	1.68E-08 ~~1.30E-08~~	9.24E-09 ~~7.14E-09~~	6.00E-09 ~~4.63E-09~~	4.27E-09 ~~3.29E-09~~	3.22E-09 ~~2.48E-09~~	2.52E-09 ~~1.94E-09~~	2.03E-09 ~~1.57E-09~~	1.68E-09 ~~1.30E-09~~	1.41E-09 ~~1.09E-09~~
ESE	1.49E-07 ~~1.43E-07~~	8.54E-08 ~~8.15E-08~~	5.70E-08 ~~5.43E-08~~	3.19E-08 ~~3.04E-08~~	2.10E-08 ~~1.99E-08~~	1.50E-08 ~~1.43E-08~~	1.14E-08 ~~1.08E-08~~	8.94E-09 ~~8.53E-09~~	7.24E-09 ~~6.92E-09~~	5.99E-09 ~~5.73E-09~~	5.04E-09 ~~4.83E-09~~
SE	3.90E-07 ~~3.68E-07~~	2.25E-07 ~~2.13E-07~~	1.52E-07 ~~1.43E-07~~	8.57E-08 ~~8.09E-08~~	5.67E-08 ~~5.35E-08~~	4.09E-08 ~~3.86E-08~~	3.12E-08 ~~2.94E-08~~	2.47E-08 ~~2.33E-08~~	2.01E-08 ~~1.89E-08~~	1.67E-08 ~~1.57E-08~~	1.41E-08 ~~1.33E-08~~
SSE	2.01E-07 ~~1.85E-07~~	1.15E-07 ~~1.06E-07~~	7.69E-08 ~~7.06E-08~~	4.30E-08 ~~3.95E-08~~	2.82E-08 ~~2.59E-08~~	2.02E-08 ~~1.86E-08~~	1.53E-08 ~~1.41E-08~~	1.21E-08 ~~1.11E-08~~	9.77E-09 ~~8.99E-09~~	8.09E-09 ~~7.45E-09~~	6.81E-09 ~~6.28E-09~~

WLS COL 2.3-5

TABLE 2.3-291 (Sheet 3 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES 8.00 DAY DECAY, DEPLETED
(FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	2.73E-06~~2.51E-06~~	8.84E-07~~8.13E-07~~	4.03E-07~~3.69E-07~~	2.51E-07~~2.29E-07~~	1.77E-07~~1.61E-07~~	8.80E-08~~8.04E-08~~	3.24E-08~~2.96E-08~~	1.48E-08~~1.36E-08~~	8.65E-09~~7.99E-09~~	5.72E-09~~5.31E-09~~
SSW	2.52E-06~~2.04E-06~~	8.19E-07~~6.61E-07~~	3.72E-07~~2.99E-07~~	2.30E-07~~1.84E-07~~	1.62E-07~~1.29E-07~~	8.00E-08~~6.40E-08~~	2.92E-08~~2.34E-08~~	1.33E-08~~1.07E-08~~	7.74E-09~~6.25E-09~~	5.11E-09~~4.14E-09~~
SW	2.06E-06~~2.07E-06~~	6.76E-07~~6.74E-07~~	3.07E-07~~3.05E-07~~	1.89E-07~~1.88E-07~~	1.32E-07~~1.32E-07~~	6.49E-08~~6.53E-08~~	2.35E-08~~2.39E-08~~	1.06E-08~~1.09E-08~~	6.22E-09~~6.41E-09~~	4.12E-09~~4.25E-09~~
WSW	2.50E-06~~2.31E-06~~	8.05E-07~~7.46E-07~~	3.66E-07~~3.39E-07~~	2.27E-07~~2.10E-07~~	1.60E-07~~1.48E-07~~	7.96E-08~~7.38E-08~~	2.92E-08~~2.72E-08~~	1.33E-08~~1.25E-08~~	7.77E-09~~7.34E-09~~	5.12E-09~~4.87E-09~~
W	2.55E-06~~2.58E-06~~	8.21E-07~~8.32E-07~~	3.75E-07~~3.79E-07~~	2.34E-07~~2.37E-07~~	1.65E-07~~1.68E-07~~	8.28E-08~~8.42E-08~~	3.07E-08~~3.14E-08~~	1.41E-08~~1.45E-08~~	8.32E-09~~8.55E-09~~	5.53E-09~~5.69E-09~~
WNW	2.54E-06~~2.39E-06~~	8.20E-07~~7.73E-07~~	3.77E-07~~3.54E-07~~	2.36E-07~~2.21E-07~~	1.67E-07~~1.56E-07~~	8.35E-08~~7.82E-08~~	3.11E-08~~2.91E-08~~	1.43E-08~~1.34E-08~~	8.41E-09~~7.92E-09~~	5.59E-09~~5.28E-09~~
NW	2.27E-06~~2.32E-06~~	7.36E-07~~7.53E-07~~	3.36E-07~~3.43E-07~~	2.08E-07~~2.13E-07~~	1.46E-07~~1.50E-07~~	7.28E-08~~7.48E-08~~	2.68E-08~~2.77E-08~~	1.23E-08~~1.28E-08~~	7.29E-09~~7.58E-09~~	4.87E-09~~5.07E-09~~
NNW	1.71E-06~~1.61E-06~~	5.66E-07~~5.31E-07~~	2.57E-07~~2.41E-07~~	1.57E-07~~1.48E-07~~	1.09E-07~~1.03E-07~~	5.31E-08~~5.02E-08~~	1.90E-08~~1.81E-08~~	8.54E-09~~8.19E-09~~	4.99E-09~~4.80E-09~~	3.30E-09~~3.19E-09~~

WLS COL 2.3-5

TABLE 2.3-291 (Sheet 3 of 3)

ANNUAL AVERAGE χ/Q (SEC/M^3) FOR NORMAL RELEASES 8.00 DAY DECAY, DEPLETED (FOR EACH 22.5° SECTOR AT THE DISTANCES (MILES) SHOWN AT THE TOP)

SECTOR	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	1.33E-06 ~~1.22E-06~~	4.52E-07 ~~4.17E-07~~	2.06E-07 ~~1.89E-07~~	1.24E-07 ~~1.14E-07~~	8.47E-08 ~~7.77E-08~~	4.03E-08 ~~3.69E-08~~	1.39E-08 ~~1.28E-08~~	6.09E-09 ~~5.59E-09~~	3.51E-09 ~~3.22E-09~~	2.30E-09 ~~2.12E-09~~
NNE	9.95E-07 ~~8.40E-07~~	3.37E-07 ~~2.88E-07~~	1.51E-07 ~~1.29E-07~~	8.99E-08 ~~7.67E-08~~	6.12E-08 ~~5.19E-08~~	2.88E-08 ~~2.43E-08~~	9.86E-09 ~~8.21E-09~~	4.29E-09 ~~3.55E-09~~	2.46E-09 ~~2.03E-09~~	1.61E-09 ~~1.33E-09~~
NE	7.64E-07 ~~7.69E-07~~	2.57E-07 ~~2.60E-07~~	1.14E-07 ~~1.16E-07~~	6.75E-08 ~~6.85E-08~~	4.57E-08 ~~4.63E-08~~	2.14E-08 ~~2.17E-08~~	7.29E-09 ~~7.36E-09~~	3.17E-09 ~~3.20E-09~~	1.83E-09 ~~1.84E-09~~	1.20E-09 ~~1.21E-09~~
ENE	6.53E-07 ~~7.59E-07~~	2.17E-07 ~~2.53E-07~~	9.69E-08 ~~1.14E-07~~	5.80E-08 ~~6.87E-08~~	3.96E-08 ~~4.71E-08~~	1.89E-08 ~~2.26E-08~~	6.56E-09 ~~7.92E-09~~	2.91E-09 ~~3.53E-09~~	1.69E-09 ~~2.06E-09~~	1.12E-09 ~~1.36E-09~~
E	8.36E-07 ~~6.54E-07~~	2.73E-07 ~~2.17E-07~~	1.24E-07 ~~9.83E-08~~	7.63E-08 ~~6.00E-08~~	5.32E-08 ~~4.17E-08~~	2.61E-08 ~~2.04E-08~~	9.49E-09 ~~7.33E-09~~	4.31E-09 ~~3.32E-09~~	2.53E-09 ~~1.95E-09~~	1.69E-09 ~~1.30E-09~~
ESE	2.65E-06 ~~2.52E-06~~	8.46E-07 ~~8.14E-07~~	3.87E-07 ~~3.74E-07~~	2.43E-07 ~~2.33E-07~~	1.72E-07 ~~1.65E-07~~	8.69E-08 ~~8.30E-08~~	3.26E-08 ~~3.10E-08~~	1.51E-08 ~~1.44E-08~~	8.99E-09 ~~8.57E-09~~	6.01E-09 ~~5.75E-09~~
SE	6.89E-06 ~~6.53E-06~~	2.18E-06 ~~2.08E-06~~	9.96E-07 ~~9.45E-07~~	6.30E-07 ~~5.95E-07~~	4.50E-07 ~~4.25E-07~~	2.29E-07 ~~2.17E-07~~	8.75E-08 ~~8.26E-08~~	4.12E-08 ~~3.89E-08~~	2.48E-08 ~~2.34E-08~~	1.67E-08 ~~1.58E-08~~
SSE	3.57E-06 ~~3.29E-06~~	1.15E-06 ~~1.06E-06~~	5.23E-07 ~~4.84E-07~~	3.28E-07 ~~3.02E-07~~	2.33E-07 ~~2.14E-07~~	1.17E-07 ~~1.08E-07~~	4.40E-08 ~~4.04E-08~~	2.04E-08 ~~1.87E-08~~	1.21E-08 ~~1.12E-08~~	8.11E-09 ~~7.47E-09~~

31. COLA Part 2, FSAR Chapter 2, Table 2.3-292 is revised as follows:

WLS COL 2.3-5

TABLE 2.3-292 (Sheet 1 of 3)

D/Q (M^{-2}) AT EACH 22.5° SECTOR FOR NORMAL RELEASES
(FOR EACH DISTANCE (MILES) SHOWN AT THE TOP)

SECTOR	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
S	3.38E-08 ~~3.52E-08~~	1.14E-08 ~~1.19E-08~~	5.86E-09 ~~6.12E-09~~	3.60E-09 ~~3.76E-09~~	1.80E-09 ~~1.87E-09~~	1.09E-09 ~~1.14E-09~~	7.36E-10 ~~7.68E-10~~	5.33E-10 ~~5.57E-10~~	4.06E-10 ~~4.23E-10~~	3.19E-10 ~~3.33E-10~~	2.59E-10 ~~2.70E-10~~
SSW	3.67E-08 ~~3.42E-08~~	1.24E-08 ~~1.16E-08~~	6.37E-09 ~~5.93E-09~~	3.91E-09 ~~3.64E-09~~	1.95E-09 ~~1.82E-09~~	1.18E-09 ~~1.10E-09~~	8.00E-10 ~~7.44E-10~~	5.79E-10 ~~5.39E-10~~	4.41E-10 ~~4.10E-10~~	3.47E-10 ~~3.23E-10~~	2.81E-10 ~~2.62E-10~~
SW	3.55E-08 ~~3.49E-08~~	1.20E-08 ~~1.18E-08~~	6.17E-09 ~~6.06E-09~~	3.79E-09 ~~3.72E-09~~	1.89E-09 ~~1.85E-09~~	1.15E-09 ~~1.12E-09~~	7.74E-10 ~~7.60E-10~~	5.61E-10 ~~5.51E-10~~	4.27E-10 ~~4.19E-10~~	3.36E-10 ~~3.30E-10~~	2.72E-10 ~~2.67E-10~~
WSW	3.16E-08 ~~3.00E-08~~	1.07E-08 ~~1.01E-08~~	5.49E-09 ~~5.21E-09~~	3.37E-09 ~~3.20E-09~~	1.68E-09 ~~1.59E-09~~	1.02E-09 ~~9.66E-10~~	6.89E-10 ~~6.53E-10~~	5.00E-10 ~~4.74E-10~~	3.80E-10 ~~3.60E-10~~	2.99E-10 ~~2.84E-10~~	2.42E-10 ~~2.30E-10~~
W	2.67E-08 ~~2.70E-08~~	9.02E-09 ~~9.12E-09~~	4.63E-09 ~~4.68E-09~~	2.84E-09 ~~2.87E-09~~	1.42E-09 ~~1.43E-09~~	8.60E-10 ~~8.69E-10~~	5.82E-10 ~~5.88E-10~~	4.21E-10 ~~4.26E-10~~	3.20E-10 ~~3.24E-10~~	2.52E-10 ~~2.55E-10~~	2.04E-10 ~~2.07E-10~~
WNW	2.48E-08 ~~2.51E-08~~	8.37E-09 ~~8.47E-09~~	4.30E-09 ~~4.35E-09~~	2.64E-09 ~~2.67E-09~~	1.32E-09 ~~1.33E-09~~	7.98E-10 ~~8.08E-10~~	5.40E-10 ~~5.46E-10~~	3.91E-10 ~~3.96E-10~~	2.97E-10 ~~3.01E-10~~	2.34E-10 ~~2.37E-10~~	1.90E-10 ~~1.92E-10~~
NW	3.19E-08 ~~3.16E-08~~	1.08E-08 ~~1.07E-08~~	5.54E-09 ~~5.49E-09~~	3.40E-09 ~~3.37E-09~~	1.69E-09 ~~1.68E-09~~	1.03E-09 ~~1.02E-09~~	6.95E-10 ~~6.89E-10~~	5.04E-10 ~~4.99E-10~~	3.83E-10 ~~3.80E-10~~	3.02E-10 ~~2.99E-10~~	2.44E-10 ~~2.42E-10~~
NNW	3.29E-08 ~~3.32E-08~~	1.11E-08 ~~1.12E-08~~	5.71E-09 ~~5.77E-09~~	3.51E-09 ~~3.54E-09~~	1.75E-09 ~~1.77E-09~~	1.06E-09 ~~1.07E-09~~	7.17E-10 ~~7.24E-10~~	5.20E-10 ~~5.25E-10~~	3.95E-10 ~~3.99E-10~~	3.11E-10 ~~3.14E-10~~	2.52E-10 ~~2.54E-10~~

WLS COL 2.3-5

TABLE 2.3-292 (Sheet 1 of 3)

D/Q (M^{-2}) AT EACH 22.5° SECTOR FOR NORMAL RELEASES
(FOR EACH DISTANCE (MILES) SHOWN AT THE TOP)

SECTOR	0.25	0.5	0.75	1	1.5	2	2.5	3	3.5	4	4.5
N	3.62E-08 ~~3.67E-08~~	1.22E-08 ~~1.24E-08~~	6.28E-09 ~~6.37E-09~~	3.86E-09 ~~3.91E-09~~	1.92E-09 ~~1.95E-09~~	1.17E-09 ~~1.18E-09~~	7.88E-10 ~~8.00E-10~~	5.71E-10 ~~5.80E-10~~	4.34E-10 ~~4.41E-10~~	3.42E-10 ~~3.47E-10~~	2.77E-10 ~~2.81E-10~~
NNE	4.14E-08 ~~4.01E-08~~	1.40E-08 ~~1.36E-08~~	7.18E-09 ~~6.96E-09~~	4.41E-09 ~~4.28E-09~~	2.20E-09 ~~2.13E-09~~	1.33E-09 ~~1.29E-09~~	9.02E-10 ~~8.74E-10~~	6.53E-10 ~~6.34E-10~~	4.97E-10 ~~4.82E-10~~	3.91E-10 ~~3.80E-10~~	3.17E-10 ~~3.07E-10~~
NE	3.87E-08 ~~4.11E-08~~	1.31E-08 ~~1.39E-08~~	6.71E-09 ~~7.14E-09~~	4.12E-09 ~~4.38E-09~~	2.06E-09 ~~2.19E-09~~	1.25E-09 ~~1.33E-09~~	8.43E-10 ~~8.96E-10~~	6.11E-10 ~~6.49E-10~~	4.64E-10 ~~4.94E-10~~	3.66E-10 ~~3.89E-10~~	2.96E-10 ~~3.15E-10~~
ENE	2.60E-08 ~~2.83E-08~~	8.78E-09 ~~9.56E-09~~	4.51E-09 ~~4.91E-09~~	2.77E-09 ~~3.01E-09~~	1.38E-09 ~~1.50E-09~~	8.37E-10 ~~9.11E-10~~	5.66E-10 ~~6.16E-10~~	4.10E-10 ~~4.47E-10~~	3.12E-10 ~~3.40E-10~~	2.46E-10 ~~2.68E-10~~	1.99E-10 ~~2.17E-10~~
E	1.78E-08 ~~1.59E-08~~	6.02E-09 ~~5.38E-09~~	3.09E-09 ~~2.76E-09~~	1.90E-09 ~~1.70E-09~~	9.47E-10 ~~8.45E-10~~	5.74E-10 ~~5.13E-10~~	3.88E-10 ~~3.47E-10~~	2.81E-10 ~~2.51E-10~~	2.14E-10 ~~1.91E-10~~	1.69E-10 ~~1.50E-10~~	1.36E-10 ~~1.22E-10~~
ESE	3.82E-08 ~~4.16E-08~~	1.29E-08 ~~1.41E-08~~	6.63E-09 ~~7.23E-09~~	4.07E-09 ~~4.44E-09~~	2.03E-09 ~~2.21E-09~~	1.23E-09 ~~1.34E-09~~	8.32E-10 ~~9.07E-10~~	6.03E-10 ~~6.57E-10~~	4.58E-10 ~~5.00E-10~~	3.61E-10 ~~3.94E-10~~	2.92E-10 ~~3.19E-10~~
SE	8.66E-08 ~~8.31E-08~~	2.93E-08 ~~2.81E-08~~	1.50E-08 ~~1.44E-08~~	9.23E-09 ~~8.86E-09~~	4.60E-09 ~~4.42E-09~~	2.79E-09 ~~2.68E-09~~	1.89E-09 ~~1.81E-09~~	1.37E-09 ~~1.31E-09~~	1.04E-09 ~~9.98E-10~~	8.19E-10 ~~7.86E-10~~	6.63E-10 ~~6.36E-10~~
SSE	4.05E-08 ~~4.08E-08~~	1.37E-08 ~~1.38E-08~~	7.03E-09 ~~7.09E-09~~	4.32E-09 ~~4.35E-09~~	2.15E-09 ~~2.17E-09~~	1.31E-09 ~~1.32E-09~~	8.83E-10 ~~8.90E-10~~	6.40E-10 ~~6.45E-10~~	4.87E-10 ~~4.90E-10~~	3.83E-10 ~~3.86E-10~~	3.10E-10 ~~3.13E-10~~

WLS COL 2.3-5

TABLE 2.3-292 (Sheet 2 of 3)

D/Q (M^{-2}) AT EACH 22.5° SECTOR FOR NORMAL RELEASES (FOR EACH DISTANCE (MILES) SHOWN AT THE TOP)

SECTOR	5	7.5	10	15	20	25	30	35	40	45	50
S	2.14E-10 ~~2.23E-10~~	1.05E-10 ~~1.09E-10~~	6.58E-11 ~~6.86E-11~~	3.33E-11 ~~3.47E-11~~	2.01E-11 ~~2.10E-11~~	1.35E-11 ~~1.41E-11~~	9.67E-12 ~~1.01E-11~~	7.26E-12 ~~7.58E-12~~	5.64E-12 ~~5.89E-12~~	4.51E-12 ~~4.71E-12~~	3.68E-12 ~~3.84E-12~~
SSW	2.32E-10 ~~2.16E-10~~	1.14E-10 ~~1.06E-10~~	7.15E-11 ~~6.65E-11~~	3.61E-11 ~~3.36E-11~~	2.19E-11 ~~2.04E-11~~	1.47E-11 ~~1.37E-11~~	1.05E-11 ~~9.78E-12~~	7.89E-12 ~~7.34E-12~~	6.13E-12 ~~5.71E-12~~	4.90E-12 ~~4.56E-12~~	4.00E-12 ~~3.72E-12~~
SW	2.25E-10 ~~2.21E-10~~	1.10E-10 ~~1.08E-10~~	6.92E-11 ~~6.80E-11~~	3.50E-11 ~~3.44E-11~~	2.12E-11 ~~2.08E-11~~	1.42E-11 ~~1.39E-11~~	1.02E-11 ~~9.99E-12~~	7.64E-12 ~~7.50E-12~~	5.94E-12 ~~5.83E-12~~	4.74E-12 ~~4.66E-12~~	3.87E-12 ~~3.80E-12~~
WSW	2.00E-10 ~~1.90E-10~~	9.82E-11 ~~9.31E-11~~	6.16E-11 ~~5.84E-11~~	3.11E-11 ~~2.95E-11~~	1.89E-11 ~~1.79E-11~~	1.26E-11 ~~1.20E-11~~	9.06E-12 ~~8.58E-12~~	6.80E-12 ~~6.45E-12~~	5.29E-12 ~~5.01E-12~~	4.22E-12 ~~4.00E-12~~	3.45E-12 ~~3.27E-12~~
W	1.69E-10 ~~1.71E-10~~	8.28E-11 ~~8.37E-11~~	5.20E-11 ~~5.25E-11~~	2.63E-11 ~~2.66E-11~~	1.59E-11 ~~1.61E-11~~	1.07E-11 ~~1.08E-11~~	7.64E-12 ~~7.72E-12~~	5.74E-12 ~~5.80E-12~~	4.46E-12 ~~4.51E-12~~	3.56E-12 ~~3.60E-12~~	2.91E-12 ~~2.94E-12~~
WNW	1.57E-10 ~~1.59E-10~~	7.69E-11 ~~7.78E-11~~	4.82E-11 ~~4.88E-11~~	2.44E-11 ~~2.47E-11~~	1.48E-11 ~~1.49E-11~~	9.89E-12 ~~1.00E-11~~	7.09E-12 ~~7.18E-12~~	5.32E-12 ~~5.39E-12~~	4.14E-12 ~~4.19E-12~~	3.31E-12 ~~3.35E-12~~	2.70E-12 ~~2.73E-12~~
NW	2.02E-10 ~~2.00E-10~~	9.90E-11 ~~9.82E-11~~	6.21E-11 ~~6.16E-11~~	3.14E-11 ~~3.11E-11~~	1.90E-11 ~~1.88E-11~~	1.27E-11 ~~1.26E-11~~	9.13E-12 ~~9.05E-12~~	6.85E-12 ~~6.80E-12~~	5.33E-12 ~~5.29E-12~~	4.26E-12 ~~4.22E-12~~	3.48E-12 ~~3.45E-12~~
NNW	2.08E-10 ~~2.10E-10~~	1.02E-10 ~~1.03E-10~~	6.41E-11 ~~6.47E-11~~	3.24E-11 ~~3.27E-11~~	1.96E-11 ~~1.98E-11~~	1.31E-11 ~~1.33E-11~~	9.42E-12 ~~9.51E-12~~	7.07E-12 ~~7.14E-12~~	5.50E-12 ~~5.55E-12~~	4.39E-12 ~~4.44E-12~~	3.59E-12 ~~3.62E-12~~

WLS COL 2.3-5

TABLE 2.3-292 (Sheet 2 of 3)

D/Q (M^{-2}) AT EACH 22.5° SECTOR FOR NORMAL RELEASES
(FOR EACH DISTANCE (MILES) SHOWN AT THE TOP)

SECTOR	5	7.5	10	15	20	25	30	35	40	45	50
N	2.29E-10~~2.33E-10~~	1.12E-10~~1.14E-10~~	7.05E-11~~7.15E-11~~	3.56E-11~~3.61E-11~~	2.16E-11~~2.19E-11~~	1.45E-11~~1.47E-11~~	1.04E-11~~1.05E-11~~	7.78E-12~~7.89E-12~~	6.05E-12~~6.14E-12~~	4.83E-12~~4.90E-12~~	3.94E-12~~4.00E-12~~
NNE	2.62E-10~~2.54E-10~~	1.29E-10~~1.25E-10~~	8.06E-11~~7.81E-11~~	4.07E-11~~3.95E-11~~	2.47E-11~~2.39E-11~~	1.65E-11~~1.60E-11~~	1.19E-11~~1.15E-11~~	8.90E-12~~8.62E-12~~	6.92E-12~~6.71E-12~~	5.53E-12~~5.36E-12~~	4.51E-12~~4.37E-12~~
NE	2.45E-10~~2.60E-10~~	1.20E-10~~1.28E-10~~	7.53E-11~~8.01E-11~~	3.81E-11~~4.05E-11~~	2.30E-11~~2.45E-11~~	1.55E-11~~1.64E-11~~	1.11E-11~~1.18E-11~~	8.31E-12~~8.84E-12~~	6.46E-12~~6.87E-12~~	5.16E-12~~5.49E-12~~	4.21E-12~~4.48E-12~~
ENE	1.65E-10~~1.79E-10~~	8.06E-11~~8.78E-11~~	5.06E-11~~5.51E-11~~	2.56E-11~~2.78E-11~~	1.55E-11~~1.69E-11~~	1.04E-11~~1.13E-11~~	7.44E-12~~8.09E-12~~	5.58E-12~~6.08E-12~~	4.34E-12~~4.73E-12~~	3.47E-12~~3.78E-12~~	2.83E-12~~3.08E-12~~
E	1.13E-10~~1.01E-10~~	5.53E-11~~4.94E-11~~	3.47E-11~~3.10E-11~~	1.75E-11~~1.57E-11~~	1.06E-11~~9.47E-12~~	7.12E-12~~6.35E-12~~	5.10E-12~~4.55E-12~~	3.83E-12~~3.42E-12~~	2.98E-12~~2.66E-12~~	2.38E-12~~2.12E-12~~	1.94E-12~~1.73E-12~~
ESE	2.42E-10~~2.64E-10~~	1.19E-10~~1.29E-10~~	7.44E-11~~8.11E-11~~	3.76E-11~~4.10E-11~~	2.28E-11~~2.48E-11~~	1.53E-11~~1.66E-11~~	1.09E-11~~1.19E-11~~	8.21E-12~~8.95E-12~~	6.38E-12~~6.96E-12~~	5.10E-12~~5.56E-12~~	4.16E-12~~4.54E-12~~
SE	5.48E-10~~5.26E-10~~	2.69E-10~~2.58E-10~~	1.69E-10~~1.62E-10~~	8.52E-11~~8.18E-11~~	5.16E-11~~4.95E-11~~	3.46E-11~~3.32E-11~~	2.48E-11~~2.38E-11~~	1.86E-11~~1.79E-11~~	1.45E-11~~1.39E-11~~	1.16E-11~~1.11E-11~~	9.43E-12~~9.06E-12~~
SSE	2.57E-10~~2.59E-10~~	1.26E-10~~1.27E-10~~	7.89E-11~~7.95E-11~~	3.99E-11~~4.02E-11~~	2.41E-11~~2.43E-11~~	1.62E-11~~1.63E-11~~	1.16E-11~~1.17E-11~~	8.71E-12~~8.78E-12~~	6.77E-12~~6.82E-12~~	5.41E-12~~5.45E-12~~	4.42E-12~~4.45E-12~~

TABLE 2.3-292 (Sheet 3 of 3)

D/Q (M^{-2}) AT EACH 22.5° SECTOR FOR NORMAL RELEASES
(FOR EACH DISTANCE (MILES) SHOWN AT THE TOP)

SECTOR	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	6.09E-09~~6.36E-09~~	1.88E-09~~1.96E-09~~	7.49E-10~~7.81E-10~~	4.09E-10~~4.27E-10~~	2.60E-10~~2.71E-10~~	1.12E-10~~1.17E-10~~	3.46E-11~~3.62E-11~~	1.37E-11~~1.43E-11~~	7.33E-12~~7.65E-12~~	4.54E-12~~4.74E-12~~
SSW	6.62E-09~~6.16E-09~~	2.05E-09~~1.90E-09~~	8.14E-10~~7.57E-10~~	4.45E-10~~4.14E-10~~	2.83E-10~~2.63E-10~~	1.21E-10~~1.13E-10~~	3.76E-11~~3.50E-11~~	1.49E-11~~1.39E-11~~	7.97E-12~~7.42E-12~~	4.93E-12~~4.59E-12~~
SW	6.41E-09~~6.29E-09~~	1.98E-09~~1.94E-09~~	7.88E-10~~7.74E-10~~	4.31E-10~~4.23E-10~~	2.74E-10~~2.69E-10~~	1.18E-10~~1.15E-10~~	3.65E-11~~3.58E-11~~	1.45E-11~~1.42E-11~~	7.71E-12~~7.57E-12~~	4.78E-12~~4.69E-12~~
WSW	5.71E-09~~5.41E-09~~	1.76E-09~~1.67E-09~~	7.02E-10~~6.65E-10~~	3.83E-10~~3.63E-10~~	2.44E-10~~2.31E-10~~	1.05E-10~~9.92E-11~~	3.25E-11~~3.08E-11~~	1.29E-11~~1.22E-11~~	6.87E-12~~6.51E-12~~	4.25E-12~~4.03E-12~~
W	4.81E-09~~4.86E-09~~	1.49E-09~~1.50E-09~~	5.92E-10~~5.98E-10~~	3.23E-10~~3.27E-10~~	2.06E-10~~2.08E-10~~	8.83E-11~~8.92E-11~~	2.74E-11~~2.77E-11~~	1.09E-11~~1.10E-11~~	5.79E-12~~5.86E-12~~	3.59E-12~~3.62E-12~~
WNW	4.47E-09~~4.52E-09~~	1.38E-09~~1.40E-09~~	5.49E-10~~5.56E-10~~	3.00E-10~~3.04E-10~~	1.91E-10~~1.93E-10~~	8.19E-11~~8.29E-11~~	2.54E-11~~2.57E-11~~	1.01E-11~~1.02E-11~~	5.38E-12~~5.44E-12~~	3.33E-12~~3.37E-12~~
NW	5.75E-09~~5.70E-09~~	1.78E-09~~1.76E-09~~	7.07E-10~~7.01E-10~~	3.86E-10~~3.83E-10~~	2.46E-10~~2.44E-10~~	1.06E-10~~1.05E-10~~	3.27E-11~~3.24E-11~~	1.30E-11~~1.29E-11~~	6.92E-12~~6.87E-12~~	4.29E-12~~4.25E-12~~
NNW	5.93E-09~~5.99E-09~~	1.83E-09~~1.85E-09~~	7.30E-10~~7.37E-10~~	3.99E-10~~4.03E-10~~	2.53E-10~~2.56E-10~~	1.09E-10~~1.10E-10~~	3.38E-11~~3.41E-11~~	1.34E-11~~1.35E-11~~	7.14E-12~~7.21E-12~~	4.42E-12~~4.46E-12~~

WLS COL 2.3-5

TABLE 2.3-292 (Sheet 3 of 3)
D/Q (M^{-2}) AT EACH 22.5° SECTOR FOR NORMAL RELEASES (FOR EACH DISTANCE (MILES) SHOWN AT THE TOP)

SECTOR	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	6.52E-09 ~~6.62E-09~~	2.02E-09 ~~2.05E-09~~	8.02E-10 ~~8.14E-10~~	4.38E-10 ~~4.45E-10~~	2.79E-10 ~~2.83E-10~~	1.20E-10 ~~1.21E-10~~	3.71E-11 ~~3.77E-11~~	1.47E-11 ~~1.49E-11~~	7.85E-12 ~~7.97E-12~~	4.86E-12 ~~4.93E-12~~
NNE	7.46E-09 ~~7.24E-09~~	2.31E-09 ~~2.24E-09~~	9.18E-10 ~~8.90E-10~~	5.01E-10 ~~4.86E-10~~	3.19E-10 ~~3.09E-10~~	1.37E-10 ~~1.33E-10~~	4.25E-11 ~~4.12E-11~~	1.68E-11 ~~1.63E-11~~	8.99E-12 ~~8.71E-12~~	5.56E-12 ~~5.39E-12~~
NE	6.97E-09 ~~7.42E-09~~	2.16E-09 ~~2.29E-09~~	8.57E-10 ~~9.12E-10~~	4.69E-10 ~~4.98E-10~~	2.98E-10 ~~3.17E-10~~	1.28E-10 ~~1.36E-10~~	3.97E-11 ~~4.22E-11~~	1.57E-11 ~~1.67E-11~~	8.40E-12 ~~8.93E-12~~	5.20E-12 ~~5.53E-12~~
ENE	4.69E-09 ~~5.10E-09~~	1.45E-09 ~~1.58E-09~~	5.76E-10 ~~6.27E-10~~	3.15E-10 ~~3.43E-10~~	2.00E-10 ~~2.18E-10~~	8.59E-11 ~~9.35E-11~~	2.66E-11 ~~2.90E-11~~	1.06E-11 ~~1.15E-11~~	5.64E-12 ~~6.14E-12~~	3.49E-12 ~~3.80E-12~~
E	3.21E-09 ~~2.87E-09~~	9.93E-10 ~~8.86E-10~~	3.95E-10 ~~3.53E-10~~	2.16E-10 ~~1.93E-10~~	1.37E-10 ~~1.23E-10~~	5.89E-11 ~~5.26E-11~~	1.83E-11 ~~1.63E-11~~	7.24E-12 ~~6.47E-12~~	3.87E-12 ~~3.45E-12~~	2.39E-12 ~~2.14E-12~~
ESE	6.89E-09 ~~7.51E-09~~	2.13E-09 ~~2.32E-09~~	8.46E-10 ~~9.23E-10~~	4.63E-10 ~~5.04E-10~~	2.94E-10 ~~3.21E-10~~	1.26E-10 ~~1.38E-10~~	3.92E-11 ~~4.27E-11~~	1.55E-11 ~~1.69E-11~~	8.29E-12 ~~9.04E-12~~	5.13E-12 ~~5.59E-12~~
SE	1.56E-08 ~~1.50E-08~~	4.82E-09 ~~4.63E-09~~	1.92E-09 ~~1.84E-09~~	1.05E-09 ~~1.01E-09~~	6.67E-10 ~~6.40E-10~~	2.86E-10 ~~2.75E-10~~	8.88E-11 ~~8.52E-11~~	3.52E-11 ~~3.38E-11~~	1.88E-11 ~~1.80E-11~~	1.16E-11 ~~1.12E-11~~
SSE	7.31E-09 ~~7.36E-09~~	2.26E-09 ~~2.28E-09~~	8.98E-10 ~~9.05E-10~~	4.91E-10 ~~4.95E-10~~	3.12E-10 ~~3.14E-10~~	1.34E-10 ~~1.35E-10~~	4.16E-11 ~~4.19E-11~~	1.65E-11 ~~1.66E-11~~	8.80E-12 ~~8.86E-12~~	5.45E-12 ~~5.49E-12~~

32. COLA Part 2, FSAR Chapter 2, Table 2.3-294 is revised as follows:

TABLE 2.3-294
LEE NUCLEAR STATION TSC HVAC DISTANCES AND DIRECTIONS

WLS COL 2.3-4

Release Point	Distance (m)	Direction to Source from receptor (°)
Unit 1 Containment Shell	214.6~~196~~	~~330~~341
Unit 2 Containment Shell	~~213~~249.6	~~16~~18

NOTES:

1. Distances and directions based on the nearest point on the Maintenance Support Building from each unit's containment shell.
2. Directions are relative to true North.

33. COLA Part 2, FSAR Chapter 2, Table 2.3-295 is revised as follows:

TABLE 2.3-295
TSC ATMOSPHERIC DISPERSION FACTORS (χ/Q) FOR ACCIDENT DOSE ANALYSIS (S/M^3)

WLS COL 2.3-4

Time Interval	Unit 1 Containment Shell Release	Unit 2 Containment Shell Release
0 – 2 hours	1.31~~51~~E-04	1.07~~34~~E-04
2 – 8 hours	9.58~~1.03~~E-~~04~~05	~~1.13~~8.89E-~~04~~05
8 – 24 hours	3.~~93E~~44E-05	3~~4.71~~.77E-05
1 – 4 days	2.~~90E~~78E-05	3.~~90E~~16E-05
4 – 30 days	2.~~15E~~13E-05	2.~~71E~~16E-05

34. COLA Part 2, FSAR Chapter 2, Appendix 2CC is revised as follows:

~~APPENDIX 2CC~~

~~Evaluation of Meteorological Data~~

~~WLS COL 2.3-1~~ ~~This Appendix provides an evaluation of the second year of Lee Nuclear Station meteorological data and a comparison with the first year of meteorological data. In addition, comparison of the site data with data covering a longer period of record from the nearest local National Weather Service station demonstrates how well the site data represents the long-term conditions at the Lee Nuclear Station site. Because the one-year and two-year data sets are consistent and representative of the long-term conditions, there is no need to update the meteorological data and values currently provided in FSAR Section 2.3.~~

~~This Appendix also provides an evaluation of the use of a two year meteorological data set on atmospheric dispersion factors.~~

APPENDIX 2CC
EVALUATION OF METEOROLOGICAL DATA

2CC.1 Purpose

WLS COL 2.3-1 This Appendix demonstrates the consistency of the Lee meteorological data between years. In addition,~~provides an evaluation of the second year of Lee Nuclear Station meteorological data and a comparison with the first year of meteorological data. In addition,~~ comparisons are provided between the onsite data and the ~~of the site data with data covering a longer period of record from the nearest local~~ National Weather Service station (Greenville-Spartanburg (GSP)) for selected data.~~demonstrates how well the site data represents the long-term conditions at the Lee Nuclear Station site~~.

2CC.2 Data Evaluation

~~The second year of meteorological data was used to demonstrate how representative the first year of data (12/1/2005 - 11/30/2006) is of conditions at the site.~~ The complete two-year site data set (12/1/2005 - 11/30/2007) was used in these evaluations. Additional long-term meteorological data was obtained from the ~~Greenville-Spartanburg (~~GSP~~)~~ Local Climatic Data (LCD) Summary (Reference 2CC-201). The 30-year normals provided in the GSP LCD are based on data from 1971-2000. The meteorological parameters evaluated consist of temperature, relative humidity~~,~~ and precipitation.~~,~~ A comparison of the stability class, wind speed frequency~~,~~ and wind direction frequency is provided for the two years of site data. ~~Joint frequency distributions of wind speed, wind direction, and atmospheric stability for both the first year of Lee Nuclear Station site data and the complete two-year data set are also provided.~~

Temperature and Moisture

The first parameter considered is the site temperature. Table 2CC-201 compares temperatures from the Greenville-Spartanburg (GSP) Local Climatic Data Summary with the first year of Lee Nuclear Station data and the complete two-year Lee Nuclear Station data set. A comparison of the monthly mean dry bulb temperatures is also given in Figure 2CC-201. As seen, the annual mean daily maximum temperature is slightly higher for the two-year Lee Nuclear Station data set than for either the GSP weather station data or the Lee Nuclear Station one-year data set. Likewise, the annual mean daily minimum temperature is slightly lower for the two-year data set. It appears that Lee Nuclear Station is potentially warmer than GSP in January, early spring (March/April), and August, but cooler than GSP in May-July. The mean monthly dry bulb temperature is in good agreement between the three data sets. The annual dry bulb mean temperature is within a one-half degree (° F) temperature range for the three data sets.

Moisture content of the air can be characterized with measurements of wet bulb temperature, dew point temperature, and relative humidity. The annual wet bulb temperatures are also in good agreement. The comparison of the average wet bulb temperature for the three data sets is given in Figure 2CC-202. Table 2CC-201 shows that the annual average wet bulb temperature for GSP is within one degree (° F) of the Lee Nuclear Station wet bulb temperatures. The dew point temperatures are also in good agreement with the annual average Lee Nuclear Station dew point temperatures, being within one degree (° F) of the GSP annual average dew point temperature. Dew point temperatures are compared graphically in Figure 2CC-203. The Lee Nuclear Station wet-bulb and dew point temperatures indicate higher air moisture content at Lee Nuclear Station than at GSP potentially during the months of January, March, April, and August. These are the same months as when Lee Nuclear Station temperatures appear to trend warmer than GSP, and thus can achieve a higher capacity to hold water vapor. The Lee Nuclear Station relative humidity was calculated from the measured 10 m dry bulb temperature and dew point temperature. The comparison of the relative humidity for the three data sets is given in Figure 2CC-204. Relative humidity is not the best indicator of moisture content in the air, as can be seen by the slightly larger spread between the data sets. However, the annual average relative humidity is consistent among the three data sets as shown in Table 2CC-201, and the data sets exhibit similar annual trends. Based on these results, it is concluded that the dry bulb temperatures, wet bulb temperatures, dew point temperatures, and relative humidity values from the Lee Nuclear Station first year data, presented in FSAR Section 2.3, are consistent with the two-year Lee Nuclear Station data set. In addition, the comparison with longer-term data from GSP demonstrates that either Lee Nuclear Station data set is sufficiently representative of long term conditions that would be expected at the Lee Nuclear Station site, allowing for typical annual variability.

Stability Class

The frequency of occurrence for each stability class was determined for the first year of Lee Nuclear Station meteorological data (12/1/2005 - 11/30/2006) and the complete two-year data set (12/1/2005 - 11/30/2007). The comparison between these data sets is shown on Figure 2CC-205. This figure shows that the percentage frequency of unstable conditions (stability classes A, B, and C) for the first year data set was around 24% and the percentage frequency for the two year data set decreased to about 22%. The percentage frequency of neutral conditions (stability class D) increased from 24.6% for the first year of data to 26.1% for the two year data set. The percentage frequency of stable conditions (stability classes E, F, and G) increased only slightly from 51.3% for the first year of data to 51.6% for the two-year data set. In summary, the complete two-year data set had slightly fewer unstable conditions and more neutral conditions than are present in the first year data set. Stable conditions are similarly represented with either the one-year or two-year data sets. The effect of these variabilities relative to atmospheric dispersion and depositions would be relatively minor.

Precipitation Comparison

The comparison of the monthly and annual precipitation totals are as expected considering the drought conditions during the 2005-2007 time period (Reference 2CC-202). As seen in Table 2CC-202, the long term annual precipitation total is 50.2 inches for GSP and the recent precipitation totals at the Lee Nuclear Station site are much less (39.7 inches for the first year data and 32.7 inches for the two-year data set). To some extent, geographical influences on the spatial distribution of precipitation may also be a factor, as GSP is located in the western side of the Carolinas piedmont region and closer to the foothills than is the Lee Nuclear Station site.

Wind Speed Frequency

~~The joint frequency distributions of wind speed, wind direction, and atmospheric stability for the first year of Lee Nuclear Station meteorological data set measured at the 10-m level are provided in Table 2CC-203. Table 2CC-204 provides the joint frequency distribution for all stability classes combined at the 10-m level based on the first year of Lee Nuclear Station data. The annual average wind speed based on Table 2CC-204 is 2.2 m/sec (4.9 mph).~~

~~Joint frequency distributions of wind speed, wind direction, and atmospheric stability for the complete two-year Lee Nuclear Station data set at the 10-m level are provided in Table 2CC-205. The joint frequency distribution for all stability classes combined at the 10-m level based on the two-year Lee Nuclear Station data set is given in Table 2CC-206. The annual average wind speed based on Table 2CC-206 is 2.2 m/sec (4.9 mph).~~

The comparison of the wind speed percentage frequency at the lower (10-m) measurement level for the first year and the two-year data set is given in Figure 2CC-206. This comparison shows that the data sets agreed very well and there is no significant difference in the wind speed percentage frequency for either period. The most common wind speed is in the 1.5 through 5.4 mph range.

~~The joint frequency distributions of wind speed, wind direction, and atmospheric stability for the first year of Lee Nuclear Station meteorological data set measured at the 60-m level are provided in Table 2CC-207. Table 2CC-208 provides the joint frequency distribution for all stability classes combined at the 60-m level based on the first year of Lee Nuclear Station data.~~

~~Joint frequency distributions of wind speed, wind direction, and atmospheric stability for the complete two-year Lee Nuclear Station data set at the 60-m level are provided in Table 2CC-209. The joint frequency distribution for all stability classes combined at the 60-m level based on the two-year Lee Nuclear Station data set is given in Table 2CC-210.~~

The wind speed percentage frequency at the upper (60-m) measurement level is also consistent between the two Lee Nuclear Station data sets. Figure 2CC-207 provides the comparison between the data sets. Comparing the first year data set with the two-year data set shows that both data sets display very similar frequencies of wind speed classes. As expected, the 60-m wind speed frequency distribution is shifted toward the higher wind speeds than are the 10-m level winds.

Wind Direction Frequency

The wind direction frequency distribution at the lower (10-m) level is given in Figure 2CC-208. This figure shows that the wind direction frequency is consistent between the two data sets. This figure also shows that there is the same prevalent NW wind direction at 10-m, and a secondary max from the SSW - SW sectors. ~~This is also shown in the joint frequency distribution presented in Tables 2CC-204 and 2CC-206.~~

The wind direction frequency distribution at the upper level (60-m) is given in Figure 2CC-209. This figure shows that the wind direction is consistent between the data sets and that the prevailing wind directions at this elevation are in the SSW – SW and the NE - NNE directions. ~~This is also shown in the joint frequency distribution presented in Tables 2CC-208 and 2CC-210.~~

2CC.3 Conclusion

Based on the information presented in this Appendix, it is concluded that the two-year meteorological data set is consistent with the first year data set and the nearby historic data set. The atmospheric stability class percentage frequency, wind speed frequency, and the wind direction frequency are consistent for the two data sets.

These comparisons demonstrate that the first year of data is consistent with the complete two-year Lee Nuclear Station data set and is representative of longer-term conditions at the site. No anomalous behavior was observed between the first year and second year of data, or comparison to the normal conditions observed at the NWS office at Greer, SC (GSP). No changes are needed to FSAR Section 2.3 based on the collection of the second year of meteorological data.

~~2CC.4 Atmospheric Dispersion and Deposition~~

~~Atmospheric dispersion and deposition (X/Q and D/Q, respectively) values are developed using the combined two-year data set for both accident and normal conditions, as appropriate. For accident conditions, the Exclusion Area Boundary (EAB), Low Population Zone (LPZ), and control room X/Q values are determined using the same models and input data as in the evaluations presented in Subsection 2.3.4. The only change in the analyses is the use of the full two-year data set instead of the first year data set. This insures that changes in results can~~

~~be attributable to the meteorological data alone. For normal releases, X/Q and D/Q values for the maximum individual and population within 50 miles of the Lee Nuclear Station are developed. The intent of this effort is to show that the two-year data set is compatible (e.g., there are no substantial differences in atmospheric dispersion and deposition values) with the first year data set and that any differences are the result of normal variability in the meteorological data.~~

~~The offsite accident atmospheric dispersion values are given in Table 2CC-211 for the one-year and two-year data sets. The EAB values show that the X/Q values based on the one-year data set are higher than the values based on the two-year data set. Because the offsite doses are directly proportional to the X/Q values, EAB doses are lower using the full two-year data set. Therefore, the X/Q values presented in FSAR Subsection 2.3.4, which are based on the one-year data set, are bounding. The LPZ accident atmospheric dispersion values are also given in Table 2CC-211. The X/Q values for the one-year data set and the two-year data set are compared with the DCD X/Q values instead of with each other because the impact on margin is the important consideration. The change in margin to the DCD values becomes the figure of merit in determining if the two data sets are comparable. Examination of these results shows that for all post-accident radionuclide release periods, the largest change in margin is a 3.9% decrease for the 0-8 hour time interval. The X/Q values at the LPZ for all time intervals are well below the limits provided in Table 2.0-1 of Revision 17 of the AP1000 DCD, with the highest ratio of the site-specific X/Q to the AP1000 DCD value being 36.4%.~~

~~Atmospheric dispersion coefficients for the control room are presented in Table 2CC-212. These control room atmospheric dispersion values are more difficult to compare because of the large number of release point and receptor pairs. One of the issues with this comparison is the lack of precision in the DCD site parameters. Because the DCD values are given to only two significant figures, the Lee Nuclear Station values were necessarily rounded to two significant figures. The X/Q values for the one-year data set and the two-year data set are compared with the DCD X/Q values instead of with each other because the impact on margin is the important consideration. The change in margin to the DCD values becomes the figure of merit in determining if the two data sets are comparable. An additional complication in comparing the results is the variation in the change in margin for the time periods evaluated. The consequence of a reduction in margin (or increase in the X/Q value) at later time intervals is less significant if the majority of the radionuclide releases are earlier in the accident sequence. Review of the comparisons presented in Table 2CC-212 shows that the change in margin ranges from an increase in margin of 2.0% to a reduction in margin by 10%. Both of these extremes were for the Control Room HVAC Intake receptor location. For a loss of coolant accident, this location is not significant because the Control Room is pressurized with bottled air. The maximum increase in margin (2.0%) was for a Condenser Air Removal Stack release point and the maximum decrease in margin (10%) was for a Passive Containment Cooling System (PCS) Air Diffuser release. It should be noted that even with the 10% decrease in margin for the PCS Air Diffuser release, the X/Q value for this time interval is still only 66.3% of the DCD X/Q value. The X/Q value for a Plant Vent release to the Control Room HVAC Intake receptor resulted in the smallest margin to the DCD value at 66.7% during the 0-2 hour time interval. In this case, the one-year data set and two-year data set produced identical results.~~

~~The design-basis accident X/Q values generated from the two-year meteorological data bound the one-year X/Q values; therefore, the accident meteorological dispersion parameters presented in FSAR Section 2.3.4 are based on the two-year data.~~

~~The final category of X/Q and D/Q values to be compared are for normal releases. This category includes X/Q and D/Q values for the maximum individual and the 50 mi. population. The maximum individual and population X/Q and D/Q values were calculated using essentially the same data, assumptions, and parameters as used in the original calculations using one year of data. However, the discrete receptor locations used in the maximum individual dose comparisons were updated using the 2008 land use information.~~

~~The doses for the one-year data set and the two-year data set are compared with the 10 CFR 50 Appendix I limits instead of with each other because the impact on margin is the important consideration. The greatest decrease in margin is 1.6% for the maximum individual total body dose limit of 5 mrem/yr. The comparison of the population doses within 50 miles of the site are given in Table 2CC-221. These results show that the whole body and thyroid population doses increase by 3.8% and 2.5%, respectively. The maximum increase for any organ is 5.1% to the bone. None of these increases are considered significant. Therefore, the site-specific long-term X/Q and D/Q values provided in FSAR Section 2.3.5 are based on the first year of data only.~~

~~2CC.5 Conclusion~~

~~Based on the information presented in Subsection 2CC.4, it is concluded that the atmospheric dispersion and deposition (X/Q and D/Q) values based on the two-year meteorological data set are consistent with the corresponding values based on the first year data set. The atmospheric dispersion (X/Q) values for the EAB, LPZ, and control room are consistent for the two data sets. The offsite doses due to normal gaseous effluent releases used to compare the normal atmospheric dispersion and deposition (X/Q and D/Q) values are also consistent for the two data sets. These comparisons demonstrate that the first year of data is consistent with the complete two-year Lee Nuclear Station data set and is representative of longer-term conditions at the site. No anomalous behavior was observed between the first year and second year of data. The accident meteorological dispersion parameters presented in FSAR Section 2.3.4 are based on the two-year data. The site-specific long-term X/Q and D/Q values provided in FSAR Section 2.3.5 are based on the first year of data only.~~

References:

2CC-201 National Climatic Data Center (NCDC) Local Climatic Data Annual Summary with Comparative Data, Greenville–Spartanburg (Greer), South Carolina (Station ID GSP), 2007.

2CC-202 South Carolina State Climatology Office, Regional Drought Monitor, https://www.dnr.sc.gov/drought/, accessed 10/22/2008.

TABLE 2CC-201
TEMPERATURE AND HUMIDITY COMPARISON

Temperature (°F)	POR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean Daily Maximum (GSP LCD)	45.0	51.1	54.7	63.6	72.3	79.3	85.5	88.6	87.3	81.3	71.9	62.5	53.5	71.0
Mean Daily Maximum (Lee 1-yr)		57.7	53.6	62.7	76.0	77.1	84.6	87.9	87.4	78.1	68.8	62.9	51.5	70.7
Mean Daily Maximum (Lee 2-yr)		55.6	52.7	65.7	73.2	77.7	83.9	86.6	91.0	81.4	72.2	62.8	55.1	71.5
Mean Daily Minimum (GSP LCD)	45.0	31.2	33.1	40.3	48.0	56.5	64.4	68.7	67.8	61.4	49.6	40.5	33.7	49.6
Mean Daily Minimum (Lee 1-yr)		37.3	33.5	41.1	51.9	54.9	63.7	68.7	69.8	61.6	47.9	39.9	30.7	50.1
Mean Daily Minimum (Lee 2-yr)		36.0	30.4	44.4	46.1	53.2	58.3	61.2	71.7	62.2	54.1	37.1	34.9	49.1
Mean Dry Bulb (GSP LCD)	45.0	41.1	43.9	52.0	60.1	67.9	75.1	78.7	77.6	71.4	60.7	51.5	43.6	60.3
Mean Dry Bulb (Lee 1-yr)		47.1	43.6	52.2	64.0	65.8	73.6	77.7	77.5	69.1	57.7	50.8	40.5	60.0
Mean Dry Bulb (Lee 2-yr)		45.7	42.3	54.5	61.4	66.2	72.7	75.9	79.8	71.2	61.1	50.1	43.4	60.4
Mean Wet Bulb (GSP LCD)	24.0	36.5	38.7	44.7	51.6	60.2	67.3	70.8	70.2	64.2	54.6	45.8	38.3	53.6
Mean Wet Bulb (Lee 1-yr)		43.6	38.8	45.7	56.2	59.5	67.0	71.5	72.2	64.4	53.1	46.1	37.0	54.6
Mean Wet Bulb (Lee 2-yr)		41.9	37.3	47.7	53.7	59.3	66.2	69.4	72.6	64.9	56.1	45.0	39.5	54.5
Mean Dew Point (GSP LCD)	24.0	30.3	32.4	38.1	45.8	56.3	64.2	68.2	67.8	61.3	50.7	41.1	32.7	49.1
Mean Dew Point (Lee 1-yr)		37.4	29.1	35.7	48.4	54.6	63.3	68.6	69.9	61.7	48.3	40.0	30.4	48.9
Mean Dew Point (Lee 2-yr)		34.9	25.9	37.8	44.7	53.8	62.6	66.2	69.2	61.0	51.6	37.7	32.5	48.1
Humidity (%)														
Normal Humidity (GSP LCD)	30.0	67.0	64.0	63.0	62.0	69.0	72.0	73.0	76.0	75.0	71.0	70.0	68.0	69.0
Average Humidity (Lee 1-yr)		71.9	61.8	58.4	62.6	71.2	74.0	76.7	79.9	79.6	74.9	70.6	71.5	71.1
Average Humidity (Lee 2-yr)		70.3	58.0	58.2	60.1	69.0	74.3	75.0	73.9	73.7	74.8	67.0	70.1	68.7

NOTE: POR is the period of record for the GSP data set.

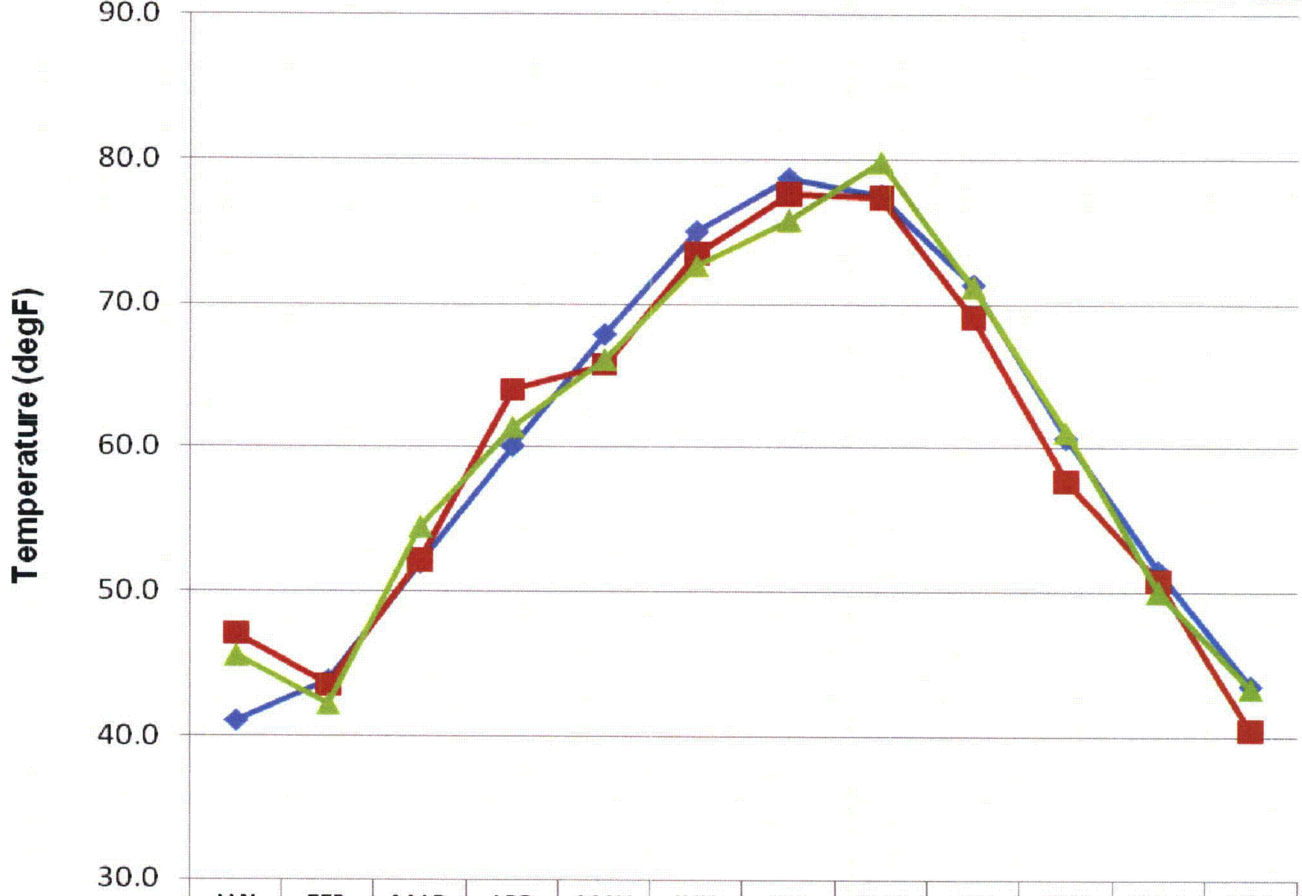
TABLE 2CC-202
PRECIPITATION COMPARISON

		Precipitation (in)												
	POR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Normal (GSP LCD)	30	4.41	4.24	5.31	3.54	4.59	3.92	4.65	4.08	3.97	3.88	3.79	3.86	50.2
Lee (1-yr)		3.71	1.05	1.09	2.34	2.67	4.89	3.69	4.3	2.89	3.47	4.63	4.99	39.7
Lee (2-yr)		3.59	1.94	2.59	3.21	1.88	3.75	2.2	2.6	1.83	2.76	2.64	3.8	32.7

TABLE 2CC-203 through TABLE 2CC-221

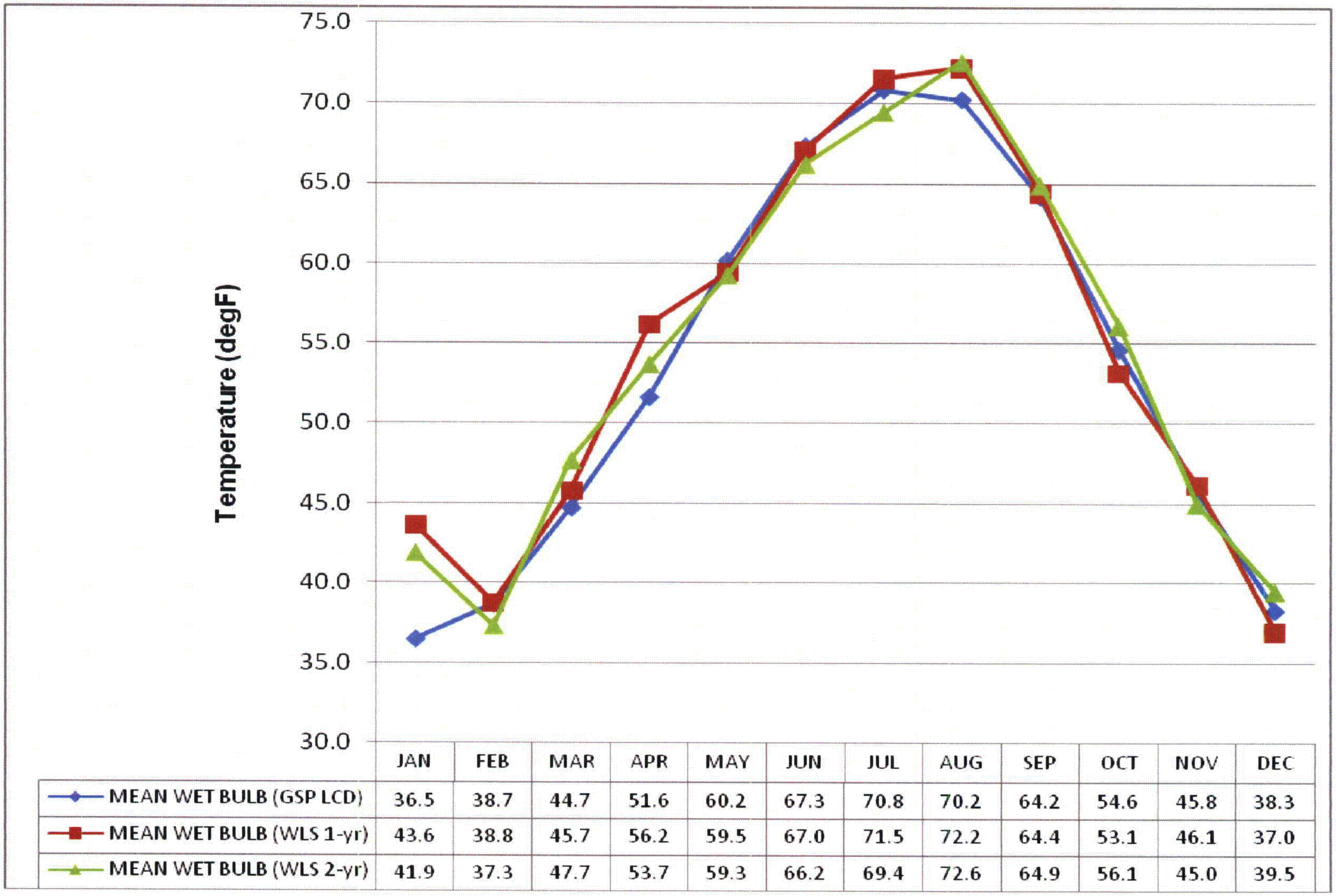
DELETED

FIGURE 2CC-201
DRY BULB TEMPERATURE COMPARISON



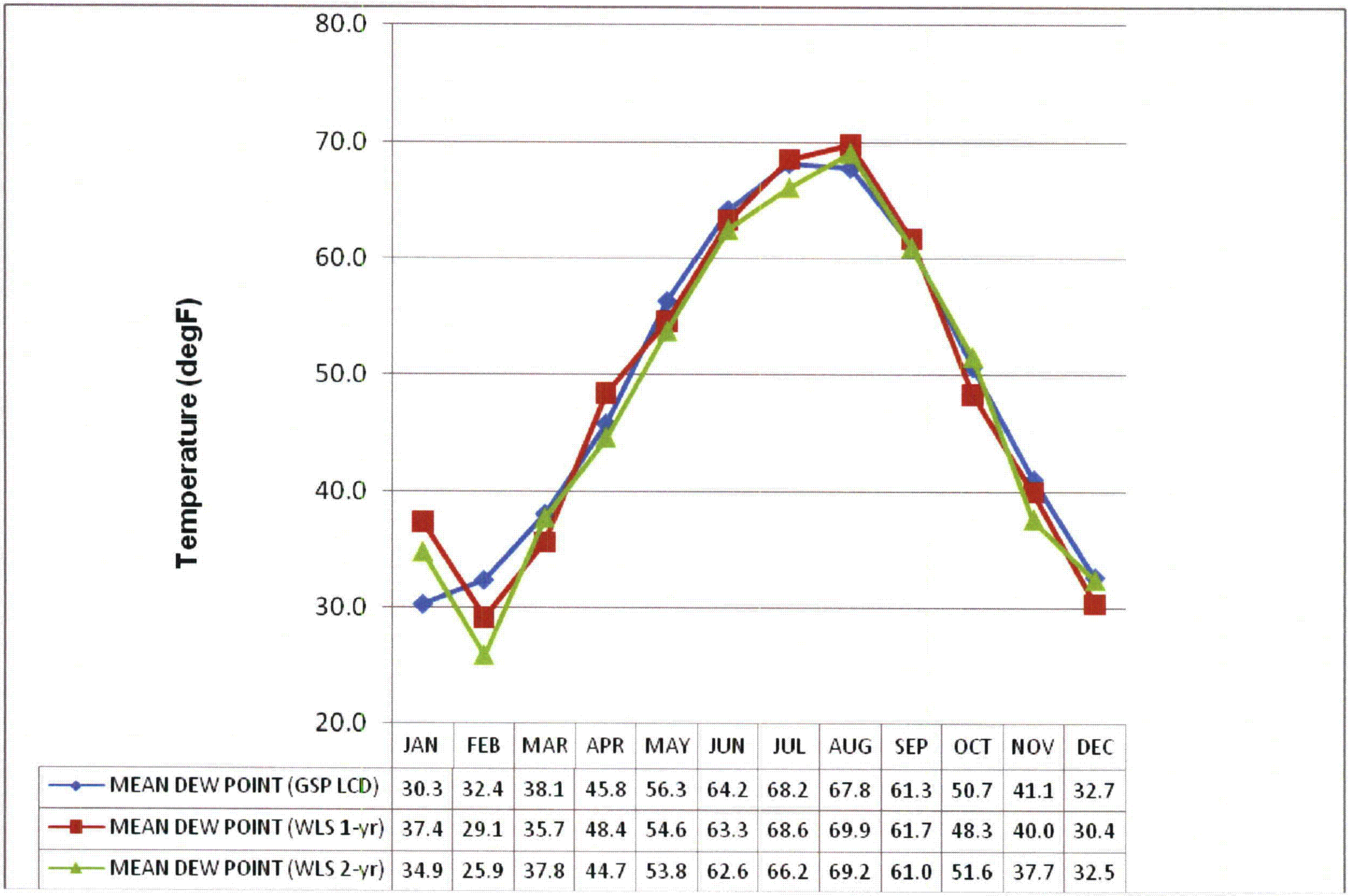
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MEAN DRY BULB (GSP LCD)	41.1	43.9	52.0	60.1	67.9	75.1	78.7	77.6	71.4	60.7	51.5	43.6
MEAN DRY BULB (WLS 1-yr)	47.1	43.6	52.2	64.0	65.8	73.6	77.7	77.5	69.1	57.7	50.8	40.5
MEAN DRY BULB (WLS 2-yr)	45.7	42.3	54.5	61.4	66.2	72.7	75.9	79.8	71.2	61.1	50.1	43.4

FIGURE 2CC-202
WET BULB TEMPERATURE COMPARISON



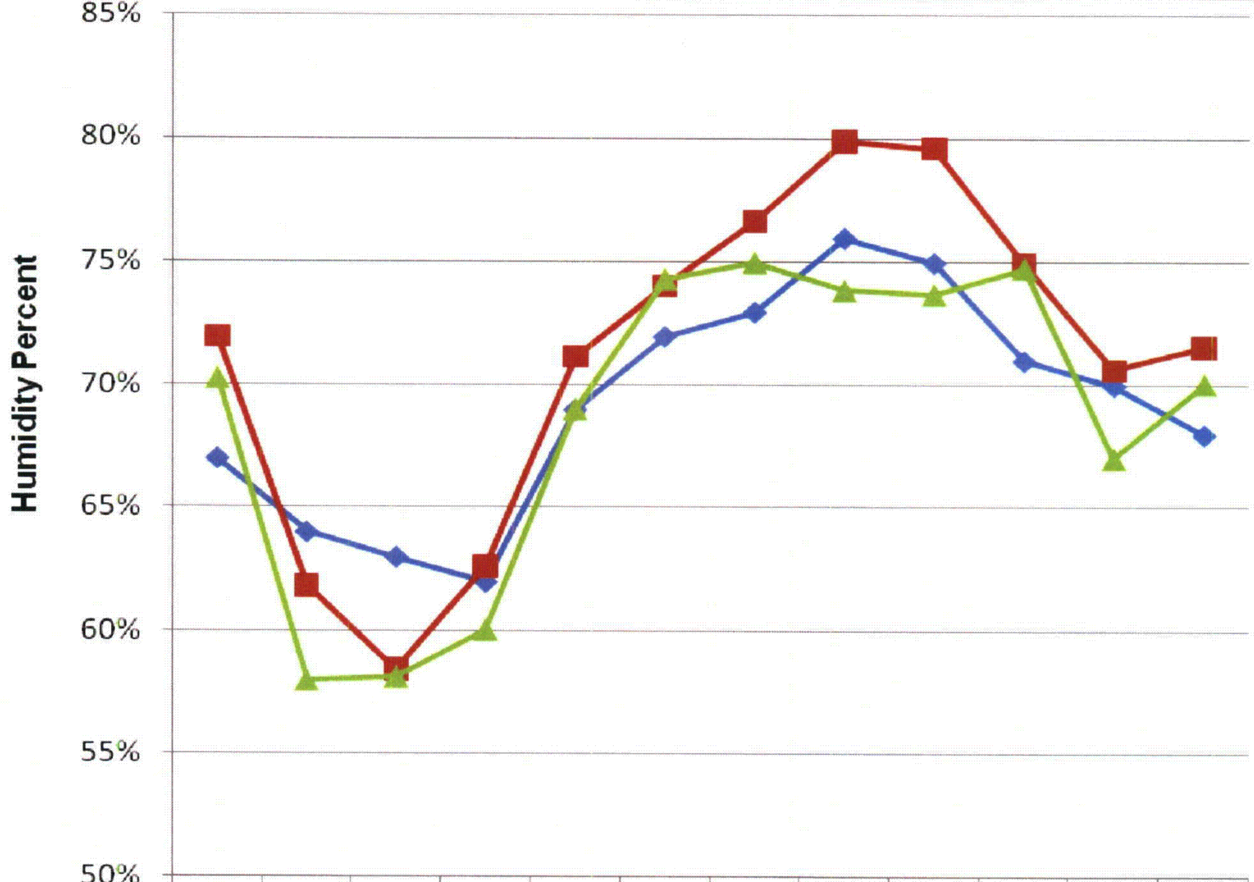
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
◆ MEAN WET BULB (GSP LCD)	36.5	38.7	44.7	51.6	60.2	67.3	70.8	70.2	64.2	54.6	45.8	38.3
■ MEAN WET BULB (WLS 1-yr)	43.6	38.8	45.7	56.2	59.5	67.0	71.5	72.2	64.4	53.1	46.1	37.0
▲ MEAN WET BULB (WLS 2-yr)	41.9	37.3	47.7	53.7	59.3	66.2	69.4	72.6	64.9	56.1	45.0	39.5

FIGURE 2CC-203
DEW POINT TEMPERATURE COMPARISON



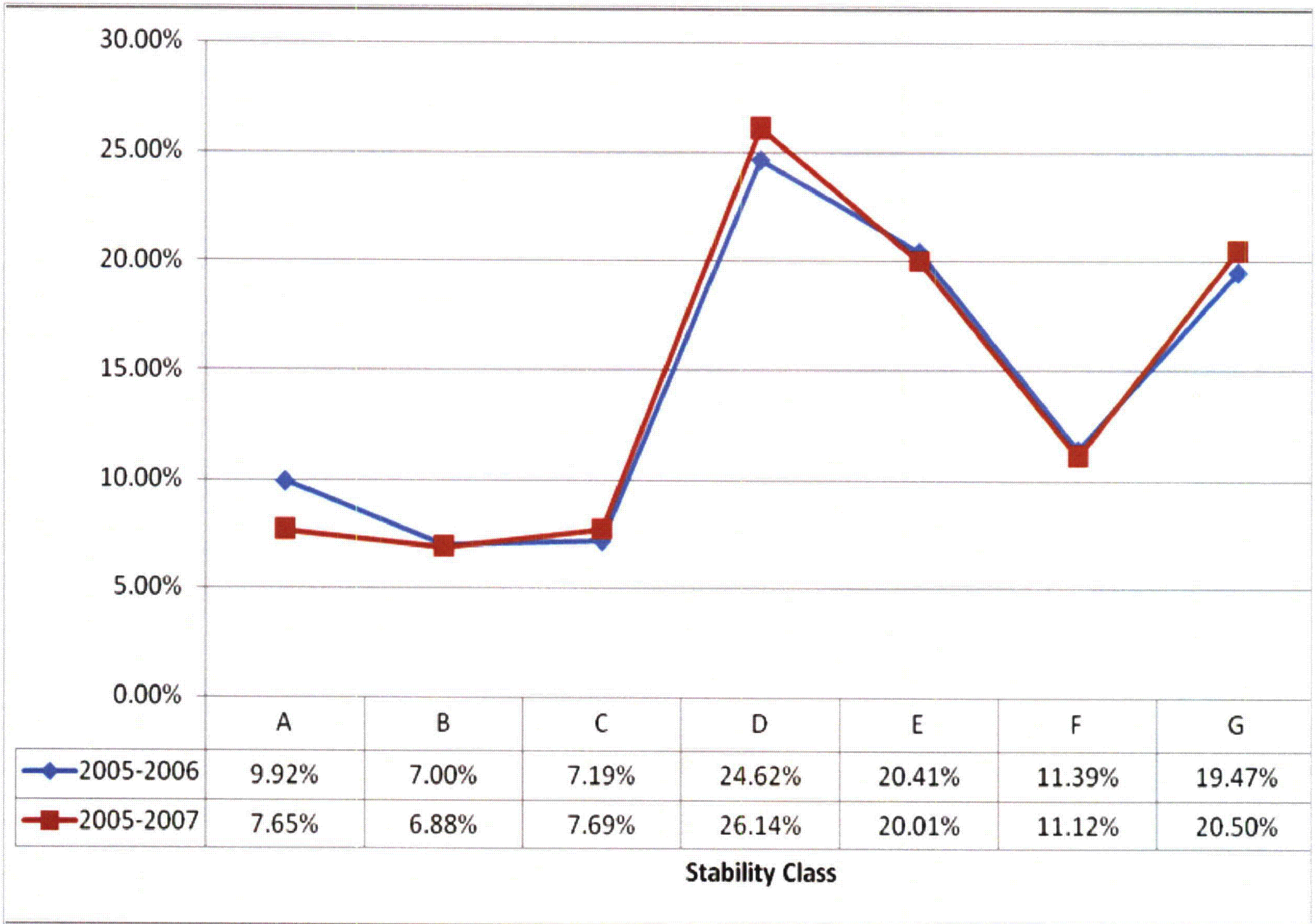
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
◆ MEAN DEW POINT (GSP LCD)	30.3	32.4	38.1	45.8	56.3	64.2	68.2	67.8	61.3	50.7	41.1	32.7
■ MEAN DEW POINT (WLS 1-yr)	37.4	29.1	35.7	48.4	54.6	63.3	68.6	69.9	61.7	48.3	40.0	30.4
▲ MEAN DEW POINT (WLS 2-yr)	34.9	25.9	37.8	44.7	53.8	62.6	66.2	69.2	61.0	51.6	37.7	32.5

FIGURE 2CC-204
RELATIVE HUMIDITY COMPARISON



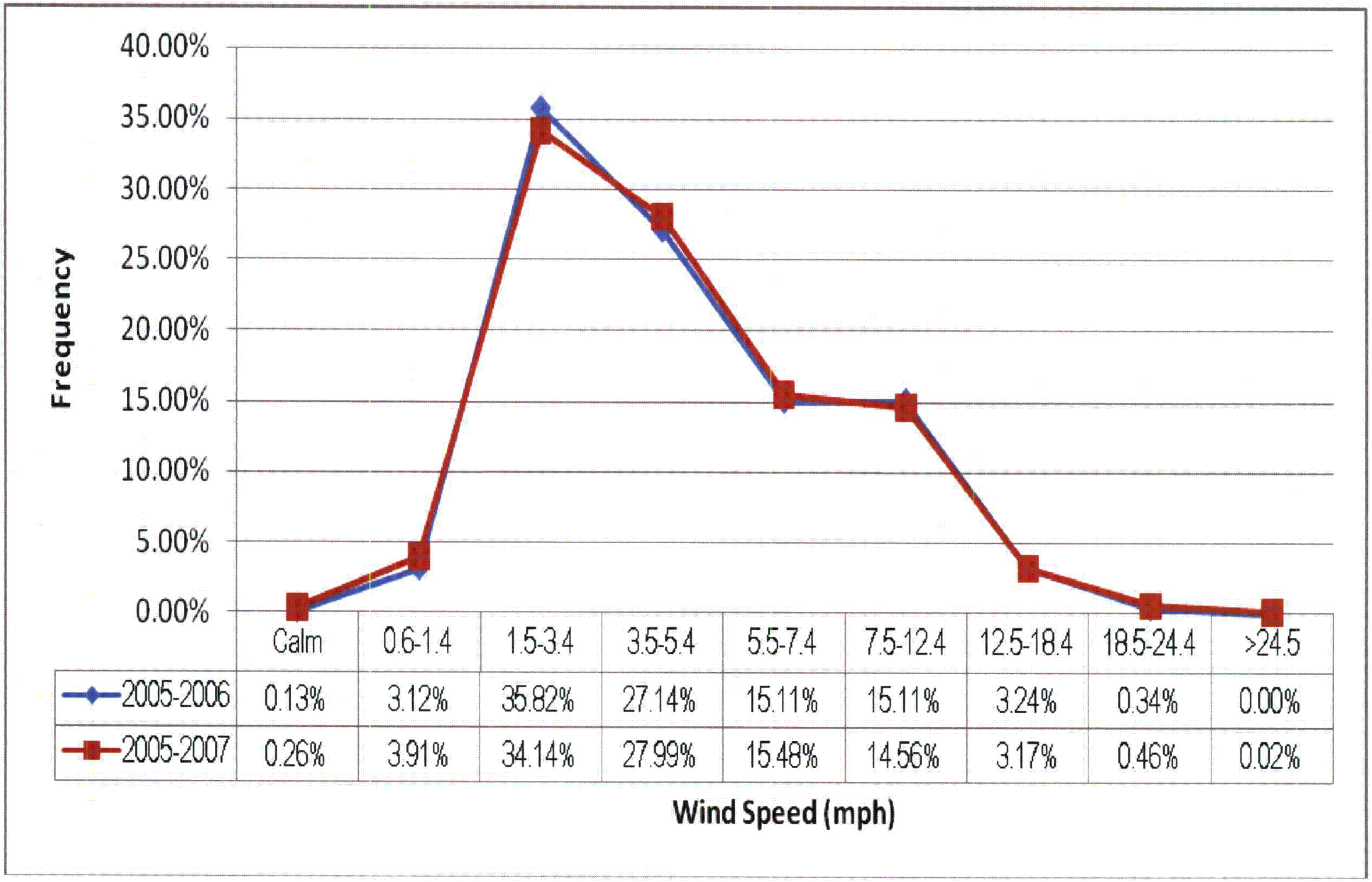
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
—◆— NORMAL HUMIDITY (GSP LCD)	67.0%	64.0%	63.0%	62.0%	69.0%	72.0%	73.0%	76.0%	75.0%	71.0%	70.0%	68.0%
—■— AVERAGE HUMIDITY (WLS 1-yr)	71.9%	61.8%	58.4%	62.6%	71.2%	74.0%	76.7%	79.9%	79.6%	74.9%	70.6%	71.5%
—▲— AVERAGE HUMIDITY (WLS 2-yr)	70.3%	58.0%	58.2%	60.1%	69.0%	74.3%	75.0%	73.9%	73.7%	74.8%	67.0%	70.1%

FIGURE 2CC-205
LEE NUCLEAR STATION STABILITY CLASS COMPARISON



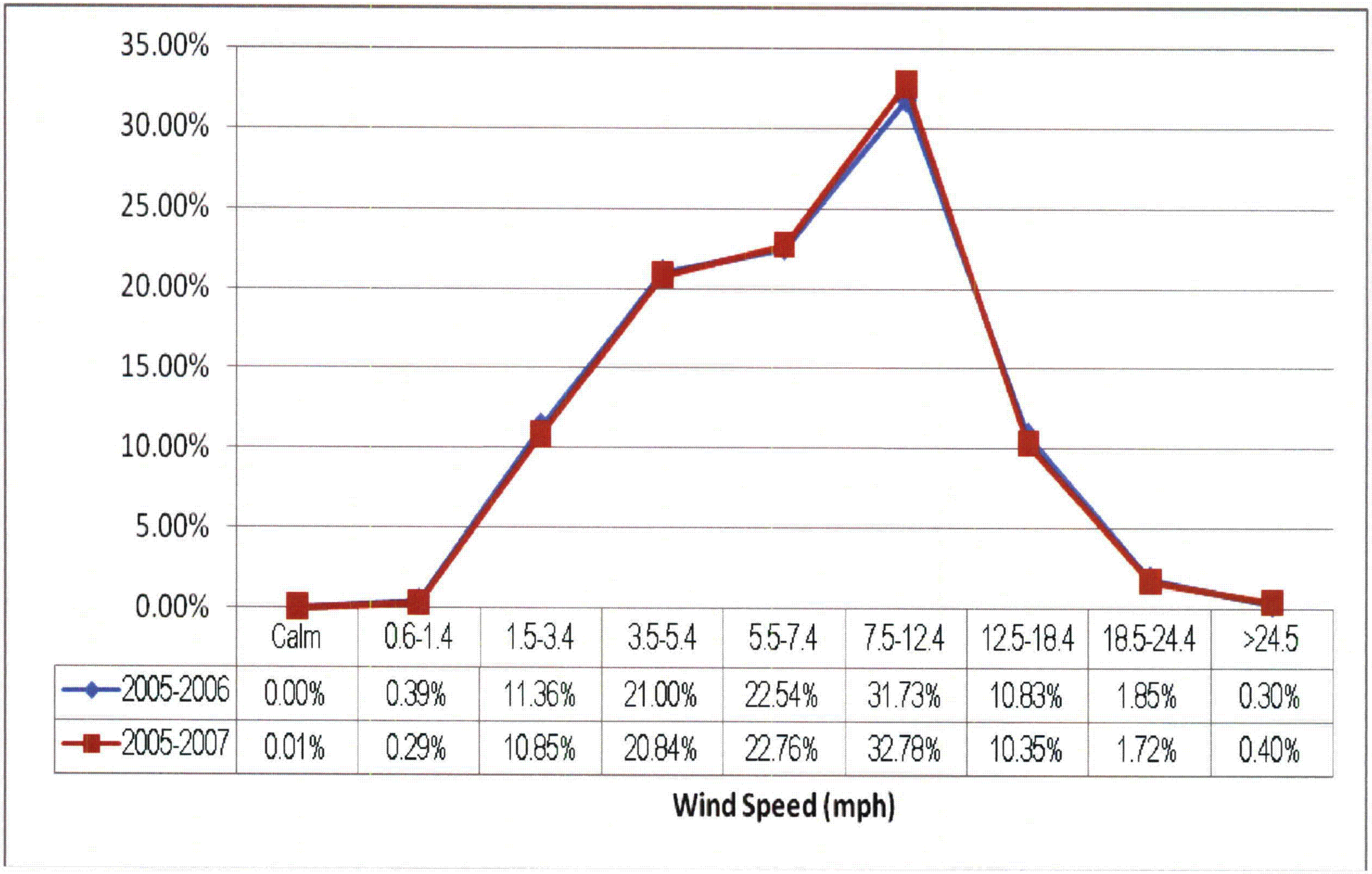
	A	B	C	D	E	F	G
◆ 2005-2006	9.92%	7.00%	7.19%	24.62%	20.41%	11.39%	19.47%
■ 2005-2007	7.65%	6.88%	7.69%	26.14%	20.01%	11.12%	20.50%

FIGURE 2CC-206
WIND SPEED FREQUENCY
(10 M LEVEL)



	Calm	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.5
◆ 2005-2006	0.13%	3.12%	35.82%	27.14%	15.11%	15.11%	3.24%	0.34%	0.00%
■ 2005-2007	0.26%	3.91%	34.14%	27.99%	15.48%	14.56%	3.17%	0.46%	0.02%

FIGURE 2CC-207
WIND SPEED FREQUENCY
(60 M LEVEL)



	Calm	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>24.5
2005-2006	0.00%	0.39%	11.36%	21.00%	22.54%	31.73%	10.83%	1.85%	0.30%
2005-2007	0.01%	0.29%	10.85%	20.84%	22.76%	32.78%	10.35%	1.72%	0.40%

FIGURE 2CC-208
WIND DIRECTION FREQUENCY
(10 M LEVEL)

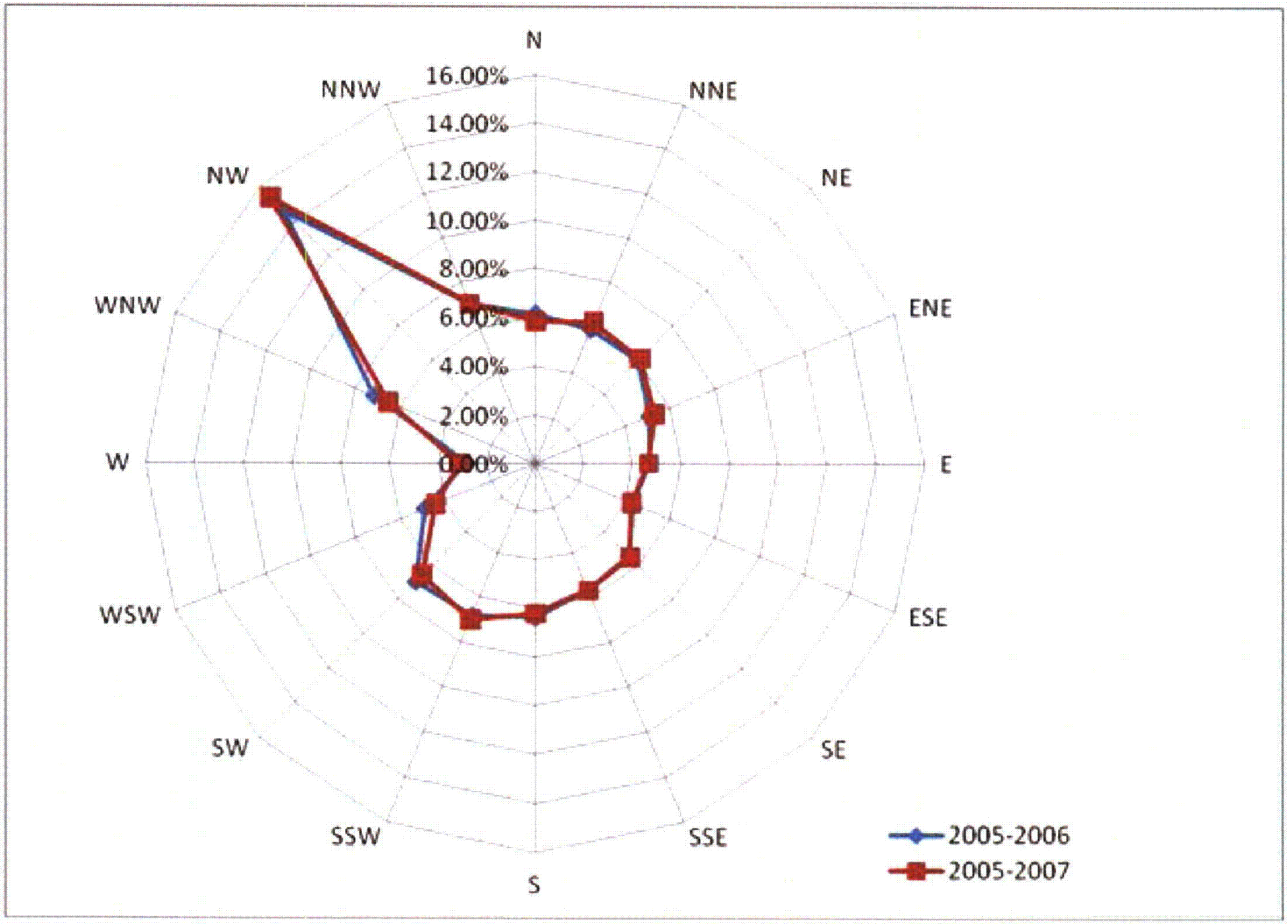
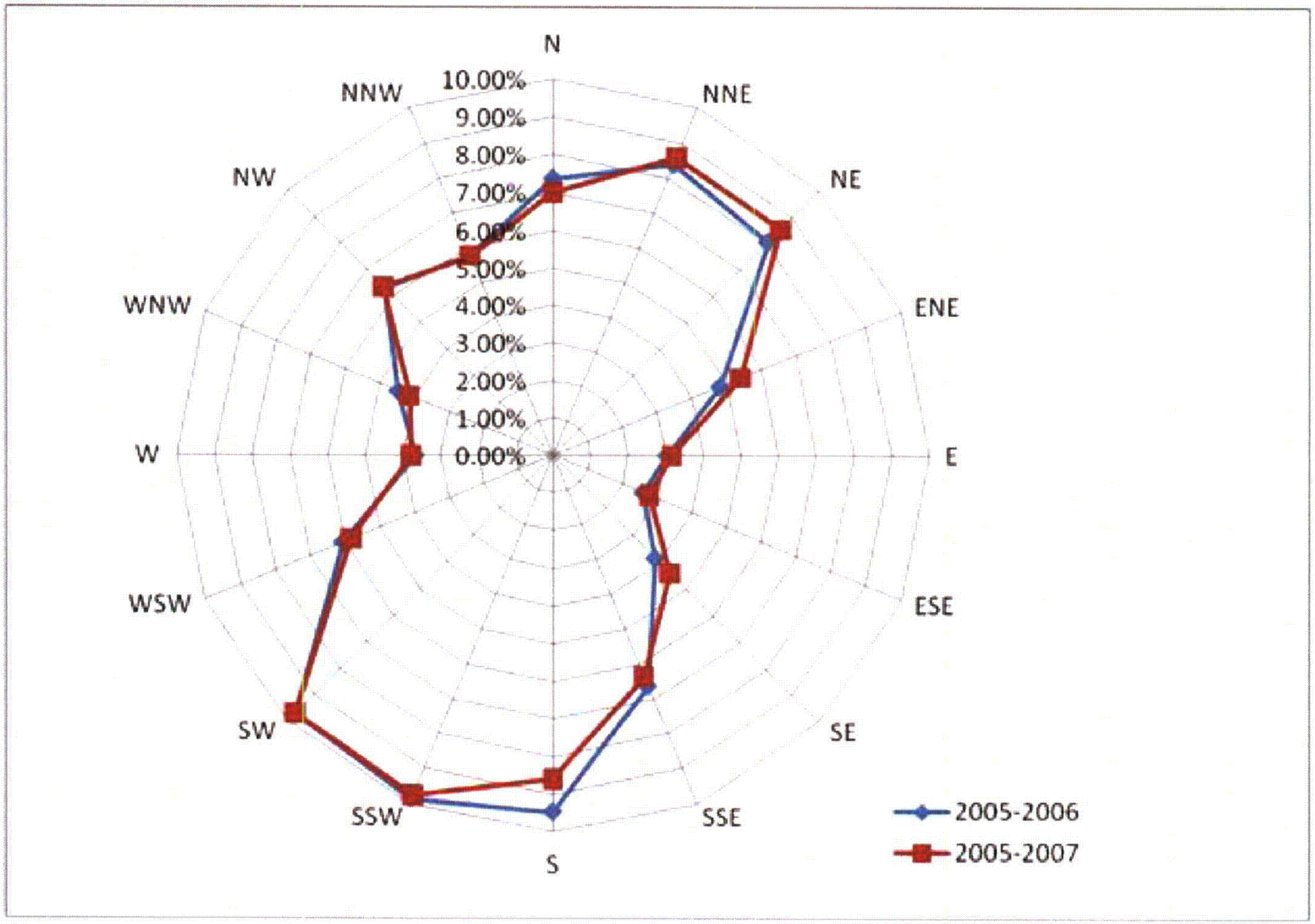


FIGURE 2CC-209
WIND DIRECTION FREQUENCY
(60 M LEVEL)



35. COLA Part 2, FSAR Chapter 2, Appendix 2DD, Subsection 2DD.2, first paragraph is revised as follows:

The weather station at the Charlotte-Douglas Airport (CLT) is located approximately 35 miles northeast of the site. The ground elevation of the CLT airport is approximately 740 feet above mean sea level (msl). The weather station at the Greenville-Spartanburg Airport (Greer, GSP) is located approximately 40miles southwest of the site. The ground elevation of the GSP airport is approximately 940 feet above mean sea level (msl). The plant elevation is approximately ~~590~~ 593 feet msl with the circular mechanical draft cooling towers being located at a grade elevation of approximately ~~586~~ 588 feet msl and the top of the towers at approximately ~~671~~ 673 feet msl. The onsite meteorological tower (i.e., Tower 2) is located at a base elevation of approximately 611 feet msl with instrumentation levels of 644 ft msl and 808 ft msl. Because the CLT weather station is in reasonable proximity to the site and is located at fairly similar elevations above sea level, the data from CLT are judged to be representative of the site. The following comparison of CLT and Lee Nuclear Station meteorological data supports this conclusion.

Attachment 5

Revisions to FSAR Chapter 2, Section 2.4

Subsection 2.4
Table 2.4.1-201
Table 2.4.2-204
Table 2.4.3-208
Table 2.4.3-209
Table 2.4.13-203
Table 2.4.13-204
Figure 2.4.1-201
Figure 2.4.1-214
Figure 2.4.2-202
Figure 2.4.2-204
Figure 2.4.3-201
Figure 2.4.3-223
Figure 2.4.3-225
Figure 2.4.3-227
Figure 2.4.3-228
Figure 2.4.3-230
Figure 2.4.3-231
Figure 2.4.3-233
Figure 2.4.3-234
Figure 2.4.3-237
Figure 2.4.3-239
Figure 2.4.3-246
Figure 2.4.3-247
Figure 2.4.3-248
Figure 2.4.4-201
Figure 2.4.4-202
Figure 2.4.4-203
Figure 2.4.4-205
Figure 2.4.5-201
Figure 2.4.5-202
Figure 2.4.12-204 Sheet 8
Figure 2.4.12-205 Sheet 1
Figure 2.4.12-205 Sheet 3
Figure 2.4.12-206
Figure 2.4.12-208
Figure 2.4.12-209
Figure 2.4.12-210
Figure 2.4.12-211

1. COLA Part 2, FSAR Chapter 2, Subsection 2.4.1.1.3 is revised, second paragraph as follows:

The DCD reference floor elevation of 100 ft. corresponds to the nuclear island finished floor elevation set at ~~590~~ 593 ft. above msl. Therefore, the nuclear island basemat elevation is ~~550.5~~553.5 ft. above msl. Yard grade elevation is ~~589.5~~592 ft. above msl, which keeps water from pooling in areas of safety related structures (Subsection 2.4.2.3). An extensive site stormwater drainage system is planned and is slated for implementation before the construction commences on Units 1 and 2. The elevations of safety-related components are presented on Table 2.4.1-201.

2. COLA Part 2, FSAR Chapter 2, Subsection 2.4.1.2.2.6, third paragraph under the sub-heading Make-Up Pond B is revised to read:

Make-Up Pond B dam crest elevation is 590 ft. ~~with a low elevation west of the spillway bridge at about 588 ft. above msl.~~ Make-Up Pond B has a normal full pond elevation of 570 ft. above msl (spillway elevation) and occupies approximately 11 percent of the total drainage area of McKowns Creek. Bathymetry exhibited a maximum depth of 59.3 ft., a mean depth of 31.4 ft., total storage capacity of approximately 4000 ac.-ft. and the surface area at full pond is approximately 150 ac. (Figure 2.4.1-209, Sheet 2). The useable storage is approximately 3200 ac.-ft.

3. COLA Part 2, FSAR Chapter 2, Subsection 2.4.1.2.2.6 following the fourth paragraph under the sub-heading Make-Up Pond B is revised to read:

Make-Up Pond B includes an adequately sized outlet structure and is not located on a sizeable river or stream. Therefore, the potential for significant debris to be picked up by a rise in the water level and then transported to the outlet structure where it could collect as an obstruction is minimal which eliminates the need for clear cutting around the perimeter of the pond. Floating debris has not been a problem historically and no clogging of the overflow spillway has been recorded.

To ensure no debris blockage of the spillway, a~~A~~ shoreline management program is established along the banks of Make-Up Pond B. The shoreline management program consists of annually inspecting the shoreline around Make-Up Pond B and removing any trees that show distress of falling into the pond and removing any trees that may be down on the ground. In addition, Duke Energy will inspect the spillway after any rain event greater than 3 inches per hour to ensure that the spillway remains clear of any debris.

~~removing all the trees from the water's edge at elevation 570 ft. msl to 50 ft. beyond the contour elevation 586 ft. msl around the perimeter of Make-Up Pond B. The shoreline management program also consists of removing all trees from the water's edge at elevation 575 ft. msl to 50 ft. beyond the contour elevation 592 ft. msl around the perimeter of the Upper Arm of Make-Up Pond B. These areas are paved, grassed, or other suitable alternative where appropriate, and are maintained in this manner throughout the operational life of the plant. Annual inspections of these areas will be conducted to ensure that these areas are maintained in this manner. Any tree saplings or other unwanted vegetation identified in the annual inspection will be removed~~

~~and cut flush with the ground in a manner that minimizes land disturbance.~~ Even though the shoreline management program is considered to be adequate for preventing debris blockage of the spillway, as a secondary measure a debris barrier system will be installed approximately 350 feet away from the spillway as shown on Figure 2.4.1-214. The debris barrier is designed to rise and fall with fluctuations in the pond water level. The debris barrier system is considered non-safety related.

4. COLA Part 2, FSAR Chapter 2, Subsection 2.4.1.2.2.6, sixth paragraph under the sub-heading Make-Up Pond B is revised to read:

The maximum flood level of surface water features at the Lee Nuclear Station is elevation ~~585.8~~589.10 ft. msl. This elevation would result from a Probable Maximum Flood (PMF) event on Make-Up Pond B watershed with the added effects of coincident wind wave activity as described in Subsection 2.4.4. The Lee Nuclear Station safety-related structures have a grade elevation of ~~590~~ 593 ft. msl.

5. COLA Part 2, FSAR Chapter 2, Subsection 2.4.2.2, last paragraph is revised as follows:

The maximum flood level at the Lee Nuclear Station is established as the maximum of calculated results from flooding events analyzed in Section 2.4. That maximum flood level is elevation ~~589.59~~592.56 ft. msl. This elevation would result from a PMP event on the Lee Nuclear Station site (local intense precipitation) as described in Subsection 2.4.2.3. The Lee Nuclear Station safety-related plant elevation is ~~590~~ 593 ft. msl. This maximum flood level is identified as a site characteristic in Table 2.0-201.

6. COLA Part 2, FSAR Chapter 2, Subsection 2.4.2.3 is revised as follows:

The Lee Nuclear Station drainage system was evaluated for a storm producing the PMP on the local area. For the purpose of the evaluation all subsurface drainage features (i.e., culverts, inlets, etc.) including the vehicle barrier system trench are assumed non-functional and all precipitation is assumed to be transformed to runoff.

~~Portions of the site are relatively flat; however~~The site is generally defined by wide flat areas. However, the site is graded such that runoff will drain away from safety-related structures either to Make-Up Pond B, Make-Up Pond A, or directly to the Broad River ~~through five grass covered drainage channels. These channels, illustrated in Figure 2.4.2-202, are assumed to be the only flow paths for runoff from the site and establish the downstream boundary conditions for site runoff for modeling purposes~~. Runoff from a specific power block area flows through four graded channels per unit as described in the discussion below and then ~~through the five site discharge channels~~flows across the site to the receiving water body. Computed water surface elevations in the vicinity of safety-related structures are below plant elevation ~~590~~ 593 ft. The site grading and drainage plan is shown in Figure 2.4.2-202.

The site is graded to drain runoff away from the power blocks. The finished floor elevation of the safety related structures for each unit is ~~590~~ 593 ft. The areas immediately adjacent to the power blocks range in elevation from ~~589~~ 592 ft. to ~~587~~ 590 ft. The adjacent area is generally bounded by a roadway surrounding the power blocks. The power block area bounded by the roadway is either paved or gravel surfaced. Areas beyond the roadway are generally maintained grass surfaces. Further from the power blocks, the site ~~gently slopes away~~is flat from the roadway to the plant side of the vehicle barrier system at elevation ~~586.5~~590 ft. The opposite bank of the vehicle barrier system is at elevation 588 ft. Beyond the vehicle barrier system, the site ~~continues to gently slope away to a general~~is generally flat at elevation ~~ranging from 586 ft. to 585~~588 ft. before encountering the steeper slopes into the adjacent, downstream water bodies.

The effects of local intense precipitation are analyzed using a series of models, each establishing boundary conditions for additional modeling. ~~Because the slopes across the site are generally very shallow, the~~The overall site, generally described by the flat areas at elevation 588 ft., is idealized as a dry reservoir and modeled using level-pool storage routing with U.S. Army Corps of Engineers HEC-HMS 3.5 computer software (Reference 302) for the site drainage area shown in Figure 2.4.2-202. The area of the site upstream of the vehicle barrier system, generally described by the flat areas at elevation 590 ft. are also idealized as a dry reservoir and modeled using level-pool storage routing with HEC-HMS 3.5 computer software.

The idealized reservoir for the overall site is defined by an elevation-discharge-storage relationship. ~~An elevation storage~~Storage is based on an elevation-area relationship and is developed ~~based on~~using the available storage areas across the site within the drainage area. Storage routing does not incorporate the entire area of the power block ~~within the 588 ft. contour that loops around the two units~~ bounded by the vehicle barrier system and a sloped area that transitions from elevation 590 ft. to 588 ft., located north of Unit 2. In addition, all other site structures and the switchyard area are assumed to provide no storage.

The discharge relationship for this idealized reservoir is determined ~~by steady state, open channel flow, backwater analysis, modeled using HEC-RAS version 4.1.0 computer software (Reference 303) developed by the U.S. Army Corps of Engineers. HEC-RAS steady state modeling is used with a standard step method to iteratively solve the energy equation to determine water surface profiles at each cross section of the five discharge channels~~using broad crested weir flow. The 588 ft. contour along the banks of the steeper slopes into adjacent, downstream water bodies is used to develop the length of the weir. The total length was reduced to account for ineffective areas where adjacent slopes may not be as steep as areas where structures could obstruct flow discharging from the site. The ~~boundary conditions for the evaluation of these discharge channels are based on the adjacent,~~ downstream water bodies are used to establish boundary conditions and determine any tailwater effects. Although tailwater effects are not determined to affect weir flow, a conservative estimate of 2.0 is used for the weir flow coefficient.

~~The five defined discharge channels (i.e., West, Southwest, North, East, and Southeast) for the idealized reservoir direct runoff either west or southwest to Make-Up Pond B, north or east to the Broad River, or southeast to Make-Up Pond A. The five discharge channels are modeled using standard-step, backwater analysis with HEC-RAS 4.1.0 software to establish the elevation-discharge relationship for overall site modeling of the idealized reservoir. The~~

~~downstream boundary conditions for the West and Southwest discharge channels are based on the peak PMF water surface elevations for the receiving water body, Make-Up Pond B. The downstream boundary conditions for the North and East discharge channels are based on the peak PMF water surface elevation with dam failure and wind/wave run-up for the receiving water body, the Broad River. The downstream boundary condition for the Southeast discharge channel is also based on the Broad River instead of Make-Up Pond A since the Broad river inundates Make-Up Pond A during the dam failure event.~~

~~Cross sections for each of the five discharge channels are determined based on the site grading and drainage plan (Figure 2.4.2-202). Site structures are modeled to obstruct flow and are assumed to provide no storage. A Manning's roughness coefficient of n = 0.050 is used for all cross sections in the reservoir model, which bounds the ground cover used for site conditions (i.e., grass lined channels and/or paved-gravel areas). HEC-RAS modeling was performed using steady state analysis to establish an elevation-discharge relationship at the upstream cross section. The results for the five discharge channels are combined with the elevation-storage relationship to establish a complete elevation-discharge-storage relationship for the idealized reservoir.~~

The local intense PMP is defined by Hydrometeorological Report (HMR) Nos. 51 and 52. PMP values for durations from 6-hr. to 72-hr. are determined using the procedures as described in HMR No. 51 for areas of 10-sq. mi. (Reference 255). Using the Lee Nuclear Station location, the rainfall depth is read from the HMR No. 51 PMP charts for each duration.

The 1-sq. mi. PMP values for durations of 1-hour and less are determined using the procedures as described in HMR No. 52 (Reference 225). Using the Lee Nuclear Station location, the rainfall depth is read from the HMR No. 52 PMP charts for each duration. A smooth curve is fitted to the points. The derived PMP curve is detailed in Table 2.4.2-203. The corresponding PMP depth duration curve is shown in Figure 2.4.2-203.

HMR 52 guidance indicates that PMP rates for 10-sq. mi. areas are the same as point rainfall. Also indicated in HMR 52, the 1-sq. mi. PMP rates may also be considered the point rainfall for areas less than 1-sq. mi. Therefore, intensities for any drainage areas with durations longer than 1-hr. are derived from the PMP rates for 10-sq. mi. areas. Intensities for drainage areas with durations equal to or less than 1-hr. are derived from the PMP rates for 1-sq. mi. areas.

The AP1000 plant design is based on a PMP of 20.7 in/hr as provided in DCD Table 2-1. As shown in Figure 2.4.2-203, the site is within the plant design limits for PMP. The PMP is identified as a precipitation site characteristic in Table 2.0-201. Roofs are sloped to preclude ponding of water.

Two storms are modeled on the basis of the PMP curve detailed in Table 2.4.2-203 and Figure 2.4.2-203. A 72-hr. duration storm with a 1-hr. precipitation interval is examined along with a 6-hr. duration storm with a 5-min. precipitation interval to capture the effect of the short-term, high intensity on the peak flow. The local intense PMP is converted to runoff at each increment by multiplying the drainage area by the intensity of each increment and converting the units to cubic feet per second. This approach is essentially equivalent to the Rational Method

(Reference 201) using a runoff coefficient of one. Therefore, all rainfall is converted to runoff instantaneously and no runoff losses are included.

Runoff is applied to the site reservoir model in HEC-HMS and level-pool storage routing is used to determine the resulting water surface elevation. Several time distributions are examined for both modeled storm events. For the 72-hr. duration storm, ~~a tail end peaking storm event is found to result in~~several temporal distributions produce the highest water surface elevation for the site. ~~The corresponding~~For reference the tail end peaking hyetograph is provided in Figure 2.4.3-236.

As a conservative approach, the results from the 72-hr. duration storm are used to establish the starting elevation for the 6-hr. duration storm. For the 6-hr. duration storm, a tail end peaking storm event is ~~also~~ found to result in the highest water surface elevation for the site. The corresponding hyetograph is provided in Figure 2.4.3-235. Based on a combination of the two storms the maximum water surface elevation determined using HEC-HMS is ~~587.72~~588.82 ft. This elevation is applied to the overall site and used as the downstream boundary condition for the analysis of the ~~power block areas immediately adjacent to the units~~area upstream of the vehicle barrier system.

Similar to the previous discussion, the idealized reservoir for the area upstream of the vehicle barrier system is defined by an elevation-discharge-storage relationship. Storage is based on an elevation-area relationship and is developed using the available storage areas within the drainage area. Storage routing does not incorporate the entire area of the power block bounded by the elevation 590 ft. contour adjacent to the road looping around the power block. In addition, all other structures in the area are assumed to provide no storage.

The discharge relationship for this idealized reservoir is determined using broad crested weir flow. The upstream, higher side of the vehicle barrier system 590 ft. contour is used to develop the length of the weir. The total length does not include the sloped transition area north of Unit 2 and was reduced to account for ineffective areas where structures could obstruct flow discharging from the area. The result for the downstream area is less than the bank elevation of 590 ft. Therefore, there are no tailwater effects. As a conservative estimate, a weir flow coefficient of 2.0 is used.

Two storms are modeled as previously identified for the downstream area. The local intense PMP is converted to runoff instantaneously and no runoff losses are included. Runoff is applied to the idealized reservoir model in HEC-HMS and level-pool storage routing is used to determine the resulting water surface elevation. Several time distributions are examined for both modeled storm events. For the 72-hr. duration storm, all temporal distributions produce the same water surface elevation for the area.

As a conservative approach, the results from the 72-hr. duration storm are used to establish the starting elevation for the 6-hr. duration storm. For the 6-hr. duration storm, several temporal distributions produce the highest water surface elevation for the area. Based on a combination of the two storms the maximum water surface elevation determined using HEC-HMS is 590.56

ft. This elevation is applied to the area upstream of the vehicle barrier system and used as the downstream boundary condition for the analysis of the power block area.

As shown in Figure 2.4.2-204, runoff is directed away from the power block units to lower lying areas via four discharge channels. Under the assumption that all subsurface drainage features are non-functional, runoff would flow over roadways or other topographical features as the flow exits the areas immediately adjacent to the power block units.

For each power block area shown in Figure 2.4.2-204, the peak runoff is determined using the maximum PMP intensity of 6.2 in/5 min from Table 2.4.2-203. The peak runoff is determined by multiplying the drainage area by the intensity and converting the units to cubic feet per second. This approach is essentially equivalent to the Rational Method using a runoff coefficient of one. Therefore, all rainfall is converted to runoff instantaneously and no runoff losses are included.

The power block drainage areas, shown in Figure 2.4.2-204, are evaluated using the maximum water surface elevation for the idealized reservoir as the downstream boundary condition. Therefore, the HEC-HMS modeling for the idealized reservoir becomes the downstream boundary condition for the power block areas' channel flow evaluation. The four discharge channels for the Unit 1 power block area and the four discharge channels for the Unit 2 power block area are evaluated by steady state, open channel flow, backwater analysis, modeled using HEC-RAS version 4.1.0 software.

Cross sections for each of the four discharge channels (A1, B1, C1, and D1), which discharge from the Unit 1 power block area, are determined based on the grading and drainage plan. Cross sections for each of the four Unit 2 related discharge channels (A2, B2, C2, and D2), are determined in the same manner. Site structures are modeled to obstruct flow and are assumed to provide no storage. A Manning's roughness coefficient of n = 0.026 is used for all of the power block cross sections, which bounds the ground cover used for site conditions (i.e., gravel lined channels). HEC-RAS modeling was performed using steady state analysis to establish a maximum water surface elevation at the upstream cross section.

The resulting water surface elevations are provided in Table 2.4.2-204. The maximum water surface elevation determined is ~~589.59~~592.56 ft. and occurs at drainage area B1 of the Unit 1 power block area and at drainage area B2 of the Unit 2 power block area. These drainage areas, B1 and B2, are located on the west side of each, respective, power block area between the Annex Building, north storage tanks and ramp, and the Transformer Area. All Lee Nuclear Station safety-related structures are located above the effects of local intense precipitation at plant elevation ~~590~~ 593 ft.

Due to the temperate climate and relatively light snowfall, significant icing is not expected. Based on the site layout and grading, any potential ice accumulation on site facilities is not expected to affect flooding conditions or damage safety-related facilities. Ice effects are discussed in Subsection 2.4.7.

7. COLA Part 2, FSAR Chapter 2, Subsection 2.4.3 is revised under the sub-headings McKowns Creek/Make-Up Pond B and Intermittent Stream/Make-Up Pond A as follows:

McKowns Creek/Make-Up Pond B

The PMF for McKowns Creek and Make-Up Pond B is determined from the PMP for the ~~2.233~~2.190-sq. mi. drainage basin of Make-Up Pond B and the ~~0.283~~0.294-sq. mi drainage basin of the Upper Arm. The Make-Up Pond B drainage basin, including the Upper Arm, is shown in Figure 2.4.3-201.

Intermittent Stream/Make-Up Pond A

The PMF for the intermittent stream and Make-Up Pond A are determined from the PMP for the ~~0.60~~0.619-sq. mi. drainage basin of Make-Up Pond A. Make-Up Pond A drainage basin is shown in Figure 2.4.3-201.

8. COLA Part 2, FSAR Chapter 2, Subsection 2.4.3.1 is revised under the subheadings McKowns Creek/Make-Up Pond B, last paragraph and Intermittent Stream/Make-Up Pond A, last paragraph as follows:

McKowns Creek /Make-Up Pond B

For the Upper Arm to Make-Up Pond B, for a 72-hr. storm, a tail end peaking storm event was found to provide the greatest runoff and the peak water surface elevation. For the 6-hr. storm, the one-third, two-thirds and center peaking storms ~~was~~ were found to provide the greatest runoff. However, ~~though~~ the tail-end peaking storm provides the peak water surface elevation. The 6-hr and 72-hr. storm events are discussed in Subsection 2.4.3.5. Hyetographs are provided in Figure 2.4.3-204 and Figure 2.4.3-205 for the two-thirds peaking storm events. Hyetographs are provided in Figure 2.4.3-235 and Figure 2.4.3-236 for the tail end peaking storm events.

Intermittent Stream/Make-Up Pond A

Several time distributions were examined for both modeled events. For the 72-hr. storm, a tail end peaking storm event was found to provide the greatest runoff and peak water surface elevation. The corresponding hyetograph is provided in Figure 2.4.3-236. For the 6-hr. storm, multiple peaking distributions, including the two-thirds peaking distribution provided the maximum runoff and peak water surface elevation. For reference, the two-thirds peaking hyetograph is provided in Figure 2.4.3-204. ~~For each storm, a two-thirds peaking storm event was found to provide the greatest runoff. Hyetographs are provided in Figures 2.4.3-204 and 2.4.3-205.~~

9. COLA Part 2, FSAR Chapter 2, Subsection 2.4.3.3 is revised under the sub-heading McKowns Creek/Make-Up Pond B, third paragraph through the end of the sub-section as follows:

The best calibration of the modified SCS unit hydrograph with the initial SCS unit hydrograph was found using a 10-min. computational time step in Make-Up Pond B in the HEC-HMS modeling software. Therefore, the time step used to define the ordinates of the modified SCS unit hydrograph is also 10 min. The Make-Up Pond B subbasin has a lag time of ~~77~~ 76.8 min. The initial SCS unit hydrograph and modified unit hydrograph to account for the effects of nonlinear basin response are provided in Figure 2.4.3-237. The modified SCS unit hydrograph is tabulated in Table 2.4.3-208.

The best calibration of the modified SCS unit hydrograph with the initial SCS unit hydrograph was found using a 2-min. computational time step in the Upper Arm watershed in the HEC-HMS modeling software. Therefore, the time step used to define the ordinates of the modified SCS unit hydrograph is also 2 min. The Upper Arm subbasin has a lag time of ~~16~~ 16.2 min. The initial SCS unit hydrograph and modified unit hydrograph to account for the effects of nonlinear basin response are provided in Figure 2.4.3-246. The modified SCS unit hydrograph is tabulated in Table 2.4.3-209.

The drainage area, length of watercourse, and average slope of the Make-Up Pond B and Upper Arm watershed was determined from aerial topography created for the area. The lag time was determined using the standard SCS curve number regression equation:

$$T_{lag} = (L^{0.8} * (S+1)^{0.7}) / (1900 * Y^{0.5})$$

where

T_{lag} = lag time (hr.)

L = hydraulic length of the watershed (ft.)

S = maximum potential storage of the watershed (in.);

where S = 1000/CN -10 and CN = average curve number for the watershed

Y = average watershed land slope (percent)

The resulting characteristic parameters for the Make-Up Pond B watershed are as follows:

Drainage Area (sq. mi.)	L (ft.)	CN	S (in.)	Y (%)	T_{lag} (hr.)
~~2.223~~2.190	10,320	87	1.49	1.60	1.28

The resulting characteristic parameters for the Upper Arm watershed are as follows:

Drainage Area (sq. mi.)	L (ft.)	CN	S (in.)	Y (%)	T_{lag} (hr.)
~~0.283~~0.294	~~3138~~3194	~~85~~86	~~1.76~~1.63	~~6.04~~6.03	0.27

The curve number is used to determine the lag time only. During rainfall routing, the model does not use the curve number loss method, under the conservative assumption that precipitation losses do not occur. The curve number was developed using the NRCS Web Soil Survey (Reference 278) to determine the soil types in the watershed. About 95 percent of the soil belongs to Hydrologic Soil Group B, and the remaining 5 percent to Hydrologic Soil Group C. The land use is predominately wooded. Make-Up Pond B and the Upper Arm watersheds are modeled as impervious cover. Wet antecedent moisture conditions (AMC III) were also assumed.

Base flow was determined using the minimum average monthly flow of the Gaffney and Ninety-Nine Island gauges (USGS No. 02153500 and 02153551). The flow was then corrected on the basis of a ratio of drainage basin areas. Base flow was estimated to be ~~1.81~~1.77 cfs for the Make-Up Pond B watershed and ~~0.23~~0.24 cfs for the Upper Arm watershed. Baseflow is applied to the model as a constant rate.

Make-Up Pond B outflow structure rating curve was developed using standard weir and orifice flow equations with coefficients of 3.5 and 0.8 respectively. The structure is a 35 ft. wide concrete ogee spillway with a crest elevation of 570 ft. The road along Make-Up Pond B crest restricts the opening of the structure to a height of 13.5 ft. The outlet empties into backwaters of the Broad River. The Make-Up Pond B rating curve is provided in Figure 2.4.3-222. Available storage was determined based on aerial topography. Figure 2.4.3-223 provides the storage capacity curve. Full pond elevation of 570 ft. was assumed for antecedent conditions.

The Upper Arm Dam outlet structures consist of a 54 in. steel pipe with headwalls at both the upstream and downstream inverts. The upstream invert within the Upper Arm Dam is placed at an elevation of 575.0 ft., which is the normal full pond elevation. The downstream invert emptying into Make-Up Pond B is placed at an elevation of 570.0 ft. Figure 2.4.3-249 shows a schematic of the Upper Arm culvert structure. The Upper Arm culvert is evaluated considering full flow capacity and also no flow.

The access road separating the Upper Arm Dam from Make-Up Pond B is at elevation 590.0 ft. and acts as a broad-crested weir with a crest length of ~~375~~ 390 ft. with a crest breadth of 8 ft. The maximum height of the dam is 15 ft. from the normal full pond elevation of 575 ft. up to the crest embankment. Water volume below 575 ft. is not considered due to nearly equivalent hydrostatic forces on both sides of the dam embankment during the PMF event. Overtopping of the Upper Arm dam crest is evaluated using the standard weir flow equation with a coefficient of ~~2.65~~2.6. The Upper Arm Dam overtopping discharge rating curve is provided in Figure 2.4.3-247 ~~and is presented as a combination of culvert flow and weir flow~~. Available storage was determined based on aerial topography. Figure 2.4.3-248 provides the storage capacity curve.

Antecedent conditions for the normal full pond elevation were assumed to be ~~575.4~~575 ft. based on historical observation.

10. COLA Part 2, FSAR Chapter 2, Subsection 2.4.3.3 is revised under the sub-heading Intermittent Stream/Make-Up Pond A, second through the fourth paragraphs as follows:

The SCS unit hydrograph method was used to transform rainfall to runoff. The drainage area, length of watercourse, and average slope of the watershed were determined from aerial topography created for the area. The lag time was determined using the standard SCS curve number regression equation:

$$T_{lag} = (L^{0.8} * (S+1)^{0.7}) / (1900 * Y^{0.5})$$

where

T_{lag} = lag time (hr.)

L = hydraulic length of the watershed (ft.)

S = maximum potential storage of the watershed (in.);

where $S = 1000/CN - 10$ and CN = average curve number for the watershed

Y = average watershed land slope (percent)

The resulting characteristic parameters for the watershed are as follows:

Drainage Area (sq. mi.)	L (ft.)	CN	S (in.)	Y (%)	T_{lag} (hr.)
~~0.60~~0.619	3340	92	0.87	3.48	0.29

The curve number is used to determine the lag time only. During rainfall routing, the model does not use the curve number loss method, under the conservative assumption that precipitation losses do not occur. The curve number was developed using the NRCS Web Soil Survey (Reference 278) to determine the soil types in the watershed. About 95 percent of the soil belongs to Hydrologic Soil Group B, and the remaining 5 percent to Hydrologic Soil Group C. The land use is predominately industrial. Make-Up Pond A is modeled as impervious cover. Wet antecedent moisture conditions (AMC III) were also assumed.

Base flow was determined using the minimum average monthly flow of the Gaffney and Ninety-Nine Island gauges (USGS No. 02153500 and 02153551). The flow was then corrected on the basis of a ratio of drainage basin areas. Base flow was estimated to be ~~0.49~~0.50 cfs and applied to the model as a constant rate.

11. COLA Part 2, FSAR Chapter 2, Subsection 2.4.3.4 is revised under the sub-headings McKowns Creek/Make-Up Pond B and Intermittent Stream/Make-Up Pond A as follows:

McKowns Creek/Make-Up Pond B

~~Applying the~~The precipitation, described in Subsection 2.4.3.1, with no precipitation losses, described in Subsection 2.4.3.2 is applied ~~without considering Upper Arm Dam failure,~~ to the runoff model, described in Subsection 2.4.3.3. Assuming the Upper Arm Dam culvert is not functional produces the maximum conditions.~~, the~~ The McKowns Creek and Make-Up Pond B peak PMF runoff was determined to be ~~19,993~~20,039 cfs resulting from the 6-hr. two-thirds peaking storm event. The routed peak discharge is ~~6404~~ 6471cfs.

However, the 72-hr. tail end peaking storm event resulting in a peak PMF runoff of ~~18,813~~18,937 cfs and a routed discharge of ~~8219~~8386 cfs provided the controlling water surface elevation. The peak runoff in the Upper Arm Dam during the 72-hr. tail end peaking storm event will be ~~3446~~ 3577 cfs with a peak discharge of ~~3381~~ 3549 cfs. The resulting Make-Up Pond B flow hydrograph for the 72-hr. tail end peaking storm event is shown in Figure 2.4.3-227. Temporal distribution of the PMP is discussed in Subsection 2.4.3.1.

Because the Make-Up Pond B and Upper Arm Dam watersheds are small, the position of the PMP is considered point rainfall affecting the entire watershed equally. ~~There~~ With the exception of the Upper Arm Dam, there are no upstream structures. Failure of the Upper Arm Dam is discussed in Subsection 2.4.4. No credit is taken for the lowering of flood levels at the site due to downstream dam failure.

Intermittent Stream/Make-Up Pond A

Applying the precipitation, described in Subsection 2.4.3.1, with no precipitation losses, described in Subsection 2.4.3.2, to the runoff model, described in Subsection 2.4.3.3, the intermittent stream and Make-Up Pond A peak PMF runoff was determined to be ~~10,721~~11,644 cfs resulting from the 6-hr. storm event. The routed peak discharge is ~~9108~~ 9847 cfs. The resulting flow hydrograph is shown in Figure 2.4.3-228. Temporal distribution of the PMP is discussed in Subsection 2.4.3.1. Because the watershed is small, the position of the PMP is considered point rainfall affecting the entire watershed equally. There are no upstream structures. No credit is taken for the lowering of flood levels at the site due to downstream dam failure.

12. COLA Part 2, FSAR Chapter 2, Subsection 2.4.3.5 is revised under the sub-heading Broad River, last sentence as follows:

The maximum flood elevation is well below the station's safety-related plant elevation of ~~590~~ 593 ft.

13. COLA Part 2, FSAR Chapter 2, Subsection 2.4.3.5 is revised under the sub-heading McKowns Creek/Make-Up Pond B, as follows:

Subsection 2.4.4.3 addresses coincident wind wave activity for Make-Up Pond B. The maximum water surface elevation of Make-Up Pond B without considering Upper Arm Dam failure, resulting from the 6-hr. two-thirds peaking storm event modeled with a ~~5~~1-min. time step, was found to be ~~583.27~~583.29 ft. The elevation hydrograph is provided in Figure 2.4.3-230. The maximum water surface elevation of Make-Up Pond B resulting from the 72-hr. tail end peaking storm event modeled with a ~~10~~1-min. time step was found to be ~~584.09~~584.40 ft.~~, including discharge from the Upper Arm.~~ The maximum is produced by the condition that the Upper Arm Dam culvert is not functional, but does include overtopping flows. The peak water surface elevation in the Upper Arm Dam for the 72-hr. tail end, peaking storm will be ~~592.13~~592.28 ft. The ridge on the east side of the Upper Arm Dam separates the Upper Arm and the site, as illustrated in Figure 2.4.3-201. At elevations above 590.0 ft., discharge across the dam embankment flows directly into Make-Up Pond B. Nevertheless, peak water surface elevations for the Upper Arm are below the station's safety-related plant elevation of 593 ft. ~~Therefore, water surface elevations for the Upper Arm will not encroach upon site SSC's.~~ The elevation hydrograph for Make-Up Pond B is provided in Figure 2.4.3-231.

Make-Up Pond B includes an adequately sized outlet structure and is not located on a sizeable river or stream. Therefore, the potential for significant debris to be picked up by a rise in the water level and then transported to the outlet structure where it could collect as an obstruction is minimal. Blockage of the outlet structure was not considered in the analysis and debris blockage of the outlet structure is not considered to be a credible event due to Duke Energy's shoreline management program and debris barrier system discussed in Subsection 2.4.1.2.2.6.

14. COLA Part 2, FSAR Chapter 2, Subsection 2.4.3.5 is revised under the sub-heading Intermittent Stream/Make-Up Pond A as follows:

Subsection 2.4.4.3 addresses coincident wind wave activity for Make-Up Pond A. The maximum water surface elevation of Make-Up Pond A, resulting from the 6-hr. storm, two-thirds peaking distribution, modeled with a ~~5~~1-min. time step, was found to be ~~558.06~~558.15 ft. The elevation hydrograph is provided in Figure 2.4.3-233. Subsection 2.4.3.3 describes the models used to translate the PMP discharge to elevation.

15. COLA Part 2, FSAR Chapter 2, Subsection 2.4.4.1 is revised under the sub-heading McKowns Creek/Make-Up Pond B, second paragraph as follows:

The maximum peak PMF runoff from Make-Up Pond B, considering Upper Arm Dam failure, resulting from the 6-hr. ~~two-thirds~~tail end peaking storm event modeled with a ~~5-min~~1-minute. time step, was found to be ~~21,889~~23,726 cfs. However, the controlling water surface elevation resulted from the 72-hr. tail end peaking storm event modeled with a ~~10~~1-minute time step. The peak elevation is produced by the condition that the Upper Arm Dam culvert is not functional. The ~~maximum~~ peak PMF runoff from the 72-hr. tail end peaking storm into Make-Up Pond B was found to be ~~21,163~~23,515 cfs. The peak runoff hydrograph is provided in Figure 2.4.4-203. The peak runoff in the Upper Arm Dam resulting from the 72-hr. tail end peaking storm is ~~3446~~ 3577 cfs with a dam failure peak discharge of ~~4309~~ 6785 cfs.

16. COLA Part 2, FSAR Chapter 2, Subsection 2.4.4.3, second paragraph through the sub-heading McKowns Creek/Make-Up Pond B is revised as follows:

The resulting water surface elevation at the Lee Nuclear Station is 576.50 ft. The maximum flood elevation is well below the station's safety-related plant elevation of ~~590~~ 593 ft. The resulting water surface elevation of the dam failure analysis using HEC-HMS and HEC-RAS was compared with the resulting water surface elevations of the PMF analysis using HEC-HMS and HEC-RAS. The comparison is provided in Table 2.4.4-201. Given the significant freeboard remaining at the site, a full unsteady-flow analysis to determine dam breach flows and resulting water surface elevations with greater precision was determined to be unnecessary.

McKowns Creek/Make-Up Pond B

Using the HEC-HMS model, the ~~maximum water surface elevation of Make-Up Pond B, considering Upper Arm Dam failure, resulting from the 6-hr. two-thirds peaking storm event modeled with a 5-min. time step, was found to be 583.67 ft. The elevation hydrograph is provided in Figure 2.4.4-204. The~~ maximum water surface elevation of Make-Up Pond B, considering Upper Arm Dam failure, resulting from the 72-hr. tail end peaking storm event modeled with a ~~10~~1-min. time step was found to be ~~584.58~~585.06 ft. The maximum is produced by the condition that the Upper Arm Dam culvert is not functional. The elevation hydrograph is provided in Figure 2.4.4-205. The peak water surface in the Upper Arm Dam resulting from the 72-hr. tail end peaking storm is ~~592.13~~592.28 ft. The ridge on the east side of the Upper Arm separates the Upper Arm and the site, as illustrated in Figure 2.4.3-201. At elevations above 590.0 ft., discharge across the dam embankment flows directly into Make-Up Pond B. Nevertheless, peak water surface elevations for the Upper Arm are below the station's safety-related plant elevation of 593 ft.~~Therefore, water surface elevations for the Upper Arm will not encroach upon site SSC's.~~

17. COLA Part 2, FSAR Chapter 2, Subsection 2.4.4.3, under the sub-heading Broad River is revised as follows:

Broad River

Wind wave activity on the Broad River is evaluated coincident with the maximum water surface elevation of the PMF including the effects of dam failures as discussed above. The determined fetch length of 2.77 mi., shown in Figure 2.4.4-201, has a runup slope of 40 percent. The PMF including effects of dam failures and the coincident wind wave activity results in a flood elevation of 584.79 ft. msl. The Lee Nuclear Station safety-related plant elevation is ~~590~~ 593 ft. msl and is unaffected by flood conditions and coincident wind wave activity. A more critical wind wave activity result was determined considering a fetch length through Make-Up Pond A, which becomes inundated by backwaters of the Broad River during severe flooding events. Therefore, the critical wind wave activity for the Broad River is equal to the wind wave activity for Make-Up Pond A, as discussed below.

18. COLA Part 2, FSAR Chapter 2, Subsection 2.4.4.3, under the sub-heading Intermittent Stream/Make-Up Pond A, last two paragraphs are revised as follows:

Significant wave height (average height of the maximum 33-1/3 percent of waves) is estimated to be 2.76 ft., crest to trough. The maximum wave height (average height of the maximum 1 percent of waves) is estimated to be 4.59 ft., crest to trough. The corresponding wave period is ~~2.7~~2.6 sec.

The 47 percent slopes along the banks of Make-Up Pond A adjacent to the site are used to determine the wave setup and runup. The maximum runup, including wave setup, is estimated to be ~~9.06~~8.79 ft. The maximum wind setup is estimated to be ~~0.08~~0.07 ft. Therefore, the total wind wave activity is estimated to be ~~9.14~~8.86 ft. The PMF including effects of dam failures and the coincident wind wave activity results in a flood elevation of ~~585.64~~585.36 ft. msl for Make-Up Pond A and the Broad River. The Lee Nuclear Station safety-related plant elevation is ~~590~~ 593 ft. msl and is unaffected by flood conditions and coincident wind wave activity.

19. COLA Part 2, FSAR Chapter 2, Subsection 2.4.4.3, under the second sub-heading McKowns Creek/Make-Up Pond B is revised as follows:

McKowns Creek/Make-Up Pond B

Wind wave activity on Make-Up Pond B is evaluated coincident with the maximum water surface elevation of the PMF including the effects of dam failure, as discussed above. The determined critical fetch length of ~~1.47~~1.39 mi. is shown in Figure 2.4.3-234. The 2-year annual extreme mile wind speed is adjusted based on the factors of fetch length, level overland or over water, critical duration, and stability. The critical duration is approximately 35 min. The adjusted wind speed is 50.33 mph.

Significant wave height (average height of the maximum one-third of waves) is estimated to be ~~2.07~~2.00 ft., crest to trough. The maximum wave height (average height of the maximum 1 percent of waves) is estimated to be ~~3.44~~3.35 ft., crest to trough. The corresponding wave period is ~~2.2~~2.1 sec.

The slopes approaching the units are not constant. The slopes above the PMF elevation are steep up to elevation ~~585.5~~588 ft., then level out to ~~an average of 0.40 percent~~a flat area. To represent a conservative approach, runup is calculated assuming the runup slope continues above elevation 588 ft. A conservative estimate of 25 percent is determined for the runup slope based on finished grade contours. ~~using the higher base elevation of 585.5 ft. instead of the PMF elevation. The 0.40 percent slopes along the banks of Make-Up Pond B adjacent to the site are used to determine the wave setup and runup.~~ The maximum runup, including wave setup, is estimated to be ~~0.20~~3.97 ft. The maximum wind setup is estimated to be ~~0.08~~0.07 ft. Therefore, the total wind wave activity is estimated to be ~~0.28~~4.04 ft. The PMF and the coincident wind wave activity results in a flood elevation of ~~585.8~~589.10 ft. msl. The Lee Nuclear Station safety-related plant elevation is ~~590~~ 593 ft. msl and is unaffected by flood conditions and coincident wind wave activity.

20. COLA Part 2, FSAR Chapter 2, Subsection 2.4.5, third paragraph is revised as follows:

Regulatory guidance prescribed by Regulatory Guide 1.59 indicates consideration of a PMH for areas within 200 miles of coastal areas. The Lee Nuclear Station is located approximately 175 miles inland from the Atlantic Coast. The safety-related plant elevation is ~~590~~ 593 ft. The normal maximum water surface elevation of the Broad River is 511.1 ft., the spillway flashboard elevation at Ninety-Nine Islands Dam (Reference 217).

21. COLA Part 2, FSAR Chapter 2, Subsection 2.4.5, sixth and seventh paragraphs are revised as follows:

Regulatory Guide 1.59 only contains surge data up to 1975. The maximum storm surge along the Atlantic Coast after 1975 occurred as a result of hurricane Hugo. Storm surge from hurricane Hugo inundated the South Carolina coast from Charleston to Myrtle Beach in 1989. Maximum storm tides of 20 ft. were observed. Although the site is within 200 miles of the coastline, surge due to a PMH event would not cause flooding at the site. Transposition of the probable maximum surge, without any type of reduction for distance or instream structures, is nearly three times less than the ~~78.9~~81.9-ft. difference in elevation between the station and the adjacent river.

There are no known documented surge or seiche occurrences on the Broad River near the Lee Nuclear Station. Seismically induced seiche are discussed in Subsection 2.4.6. Based on data provided above, and site location and elevation characteristics, the station's safety-related facilities are not considered at risk from surge and seiche flooding. Resonance wave phenomena including oscillations of waves at natural periodicity, lake reflection, and harbor resonance are traditionally characteristics of harbors, estuaries, and large lakes and not associated with river settings. Any effects on the Broad River produced by similar phenomena would not affect the Lee Nuclear site. Coincident wind-generated wave activity is discussed in Subsection 2.4.3.6. Additionally, there are no safety-related facilities that could be affected by water supply blockages due to sediment deposition or erosion during storm surge or seiching.

22. COLA Part 2, FSAR Chapter 2, Subsection 2.4.5 is revised under the sub-headings Make-Up Pond A and Make-Up Pond B as follows:

Make-Up Pond A

Make-Up Pond A surge flooding is evaluated coincident with the 100-yr. water surface elevation of ~~556.07~~556.08 ft. The critical fetch length is ~~0.36~~0.39 mi. as shown in Figure 2.4.5-201. The wind speed is adjusted based on the factors of fetch length, level overland or over water, critical duration, and stability using U.S. Army Corps of Engineers guidance (Reference 295). The critical duration is ~~10~~ 11 min. The adjusted wind speed is ~~97.4~~92.7 mph.

Significant wave height (average height of the maximum 33-1/3 percent of waves) is estimated to be ~~2.33~~2.30 ft., crest to trough. The maximum wave height (average height of the maximum 1 percent of waves) is estimated to be ~~3.90~~3.84 ft., crest to trough. The corresponding wave period is 1.8 sec.

The slopes along the banks of Make-Up Pond A adjacent to the site area are approximately ~~67~~ 42 percent at most and are used to determine the wave setup and runup. The maximum runup, including wave setup, is estimated to be ~~7.35~~5.48 ft. The maximum wind setup is estimated to be ~~0.08~~0.12 ft. Therefore, the total water surface elevation increase due to high speed wind wave activity is estimated to be ~~7.43~~5.60 ft. The resulting flood elevation is ~~563.50~~561.68 ft. The Lee Nuclear Station safety-related plant elevation is ~~590~~ 593 ft. and is unaffected by high speed wind wave activity flooding conditions.

Make-Up Pond B

Make-Up Pond B surge flooding is evaluated coincident with the 100-yr. water surface elevation of ~~576.22~~576.18 ft. The critical fetch length is ~~1.30~~1.38 mi. as shown in Figure 2.4.5-202. The wind speed is adjusted based on the factors of fetch length, level overland or over water, critical duration, and stability using U.S. Army Corps of Engineers guidance (Reference 295). The critical duration is ~~26~~ 28 min. The adjusted wind speed is ~~90.1~~89.9 mph.

Significant wave height (average height of the maximum 33-1/3 percent of waves) is estimated to be ~~3.97~~4.10 ft., crest to trough. The maximum wave height (average height of the maximum 1 percent of waves) is estimated to be ~~6.63~~6.86 ft., crest to trough. The corresponding wave period is ~~2.6~~2.7 sec.

The slopes along the banks of Make-Up Pond B adjacent to the site area are approximately ~~5~~ 25 percent and are used to determine the wave setup and runup. The maximum runup, including wave setup, is estimated to be ~~2.13~~7.48 ft. The maximum wind setup is estimated to be ~~0.25~~0.28 ft. Therefore, the total water surface elevation increase due to high speed wind wave activity is estimated to be ~~2.38~~7.76 ft. The resulting flood elevation is ~~578.60~~583.94 ft. The Lee Nuclear Station safety-related plant elevation is ~~590~~ 593 ft. and is unaffected by high speed wind wave flooding conditions.

Seiche evaluation is based on the natural fundamental period for Make-Up Pond A and Make-Up Pond B. The natural fundamental period of both water bodies is determined using Merian's formula (Reference 295).

$$T = 2 * L / (g * h)^{0.5}$$

where;

T = natural oscillation period at the fundamental mode (sec.)

L = fetch length (ft.)

g = gravitational acceleration (ft/sec^2)

h = depth of water (ft.)

Based on bathymetry mapping, an average depth of ~~29.81~~20.10 ft. is determined for Make-Up Pond A and used as the depth of water. The resulting natural fundamental period is ~~2.0~~2.7 min.

The Make-Up Pond B average depth is ~~30.44~~28.59 ft. The resulting natural fundamental period is ~~7.3~~8.0 min. The wave periods determined above (1.8 sec. and ~~2.6~~2.7 sec.) are much shorter than the natural fundamental period for both water bodies (~~2.0~~2.7 min. and ~~7.3~~8.0 min.). Furthermore, natural fundamental periods are significantly shorter than meteorologically induced wave periods (e.g., synoptic storm pattern frequency and dramatic reversals in steady wind direction necessary for wind setup). Since the natural periods of Make-Up Pond A and Make-Up Pond B are significantly different than the period of the excitations, they are not susceptible to meteorologically induced seiche waves. Seismically induced waves are discussed in Subsection 2.4.6.

23. COLA Part 2, FSAR Chapter 2, Subsection 2.4.6, third paragraph is revised as follows:

The Lee Nuclear Station is located approximately 175 mi. inland from the Atlantic Coast. The safety-related plant elevation is ~~590~~ 593 ft. Based on data provided above, and site location and elevation characteristics, the station's safety-related facilities are not considered at risk from tsunami flooding.

24. COLA Part 2, FSAR Chapter 2, Subsection 2.4.6, sixth and seventh paragraphs are revised as follows:

Seismic induced waves resulting from surface fault rupture in the site vicinity are also not plausible. As discussed in Subsection 2.5.3, there are no capable tectonic sources within the Lee Nuclear Site vicinity (25 mi. radius), and there is negligible potential for tectonic fault rupture at the site and within the site vicinity. The only identified occurrence of a seismic induced seiche on the Broad River was measured approximately 64 miles downstream of the Lee Nuclear Station. A 0.08 ft. seiche was induced by the Alaska earthquake of 1964. Any seismic event that could occur would generate potential waves that would be insignificant compared to the available freeboard of the on-site make-up ponds or the Broad River.

As shown in Figure 2.4.1-209, Make-Up Pond A and Make-Up Pond B have normal pool elevations of 547 ft. msl and 570 ft. msl, respectively. Safety-related facilities are located at an elevation of ~~590~~ 593 ft. Therefore, Make-Up Pond A has an available freeboard of ~~43~~ 46 ft. and Make-Up Pond B has an available freeboard ~~20~~ 23 ft. The geology and seismology and geotechnical engineering characteristics of the Lee Nuclear Station are presented in Section 2.5.

25. COLA Part 2, FSAR Chapter 2, Subsection 2.4.7, sixth paragraph, first sentence is revised as follows:

The Lee Nuclear Station's safety-related plant elevation is ~~590~~ 593 ft.

26. COLA Part 2, FSAR Chapter 2, Subsection 2.4.10 is revised as follows:

All safety-related facilities are located at an elevation above the maximum flood levels resulting
WLS COL 2.4-2 from all types of flooding as described in Subsection 2.4.2. The critical flooding event is
identified and discussed in detail in Subsection 2.4.2 ~~and discussed in detail in Subsection~~

~~2.4.3~~. Based on the design information provided above, flood protection measures and emergency procedures to address flood protection are not required.

27. COLA Part 2, FSAR Chapter 2, Subsection 2.4.12.2.3.1, last paragraph in subsection is revised as follows:

The analysis concluded that the maximum post-construction groundwater elevation remained below 584 ft. msl; therefore, satisfying the DCD site parameter for maximum groundwater elevation of less than ~~588~~ 591 ft. msl (Table 2.0-201).

28. COLA Part 2, FSAR Chapter 2, Subsection 2.4.12.3.1, the second paragraph in subsection is revised as follows:

The projected groundwater movement in the vicinity of the Lee Nuclear Station power block was assessed to evaluate contaminant migration for the postulated release scenario (Subsection 2.4.13). For the release scenario, radwaste contaminant sources include the Units 1 and 2 radwaste storage tanks, located ~~33.5 ft.~~ below plant grade at~~(~~elevation ~~556.5~~559.5 ft. ~~above~~ msl~~)~~. This elevation is 32.5 ft. below plant grade. For the assessment of alternative pathways, ~~five~~four locations were assumed to be plausible points of exposure (i.e. locations at which groundwater would be discharged to the surface to allow human contact or to facilitate transport). The pathways evaluated are:

- Pathway 1: Unit 2 to Hold-Up Pond A
- Pathway 2: Unit 2 to the Broad River
- Pathway 3: Unit 2 to Make-Up Pond A

~~•~~ Pathway 4: ~~Unit 1 to the non-jurisdictional wetland located northwest of Unit 1~~

- ~~Pathway 5:~~ Unit 1 to Make-Up Pond B

29. COLA Part 2, FSAR Chapter 2, Subsection 2.4.12.3.2, starting with the third paragraph in subsection is revised as follows:

Travel distances for contaminants from postulated release points at the reactors to downgradient receptors were estimated from site information for each of ~~five~~four possible flow paths. Although the aquifer is comprised principally of saprolite and PWR, the more conservative PWR values for hydraulic conductivity and effective porosity were used in the analysis of groundwater velocities. Estimated travel times for the ~~five~~four groundwater flow paths are as follows:

- Pathway 1: Groundwater travels from Unit 2 to Hold-Up Pond A in approximately ~~1.5~~1.6 years.
- Pathway 2: From Unit 2 to the Broad River in approximately ~~2.5~~2.6 years.
- Pathway 3: From Unit 2 to Make-Up Pond A in approximately ~~4.2~~4.0 years.

~~•~~ Pathway 4: ~~From Unit 1 to the non-jurisdictional wetland area in approximately 4.7 years.~~

- ~~Pathway 5:~~ From Unit 1 to Make-Up Pond B in approximately 5.5 years.

30. COLA Part 2, FSAR Chapter 2, Subsection 2.4.12.5 is revised and retains the left margin annotation, WLS COL 2.4-4 as follows:

According to the AP1000 Design Control Document (DCD), the design maximum groundwater elevation is 2 ft. below plant elevation. The Lee Nuclear Station plant elevation is ~~590.0~~593 ft. above msl and the yard grade is ~~589.5~~592 ft. above msl; therefore, the design maximum groundwater elevation for the Lee Site is ~~588.0~~591 ft above msl. A maximum groundwater elevation, considering the most severe historically recorded natural phenomena for the Lee site is estimated to be approximately 584 ft. msl, as discussed in Subsection 2.4.12.2.3.1. The hydrostatic loading is not expected to exceed design criteria. An unsaturated zone of at least ~~6~~8 ft. below plant grade elevation will be maintained during operations. The installation and operation of a permanent dewatering system is not a facility design requirement.

31. COLA Part 2, FSAR Chapter 2, Subsection 2.4.13.2, seventh paragraph is revised as follows:

The effluent holdup tanks are located in an unlined room on the lowest level of the auxiliary building. This level is ~~33~~ 32 feet 6 inches below the existing surface grade elevation of the plant. Each unit has two effluent holdup tanks, one of which is postulated to fail.

32. COLA Part 2, FSAR Chapter 2, Subsection 2.4.13.3, fifth paragraph is revised as follows:

The conceptual model of radionuclide transport through groundwater, from Unit 2 to Hold-Up Pond A, is shown in Figure 2.4.12-205 (Sheet 3). As stated in Subsection 2.4.13.1, a direct conveyance between Hold-Up Pond A and the Broad River is assumed. With the failure of the effluent holdup tank and subsequent liquid release to the environment, radionuclides enter the subgrade soils at an elevation of ~~33~~ 32 feet 6 inches below the surrounding grade. The contaminated zone is, therefore, a volume of contaminated soil for which the effective porosity is saturated with contaminated water released from the liquid effluent holdup tank. The contaminated zone soil is assumed to exhibit PWR characteristics. Because RESRAD-OFFSITE considers soil at the source of the contamination, the liquid initial source term concentrations were converted to an equivalent concentration on a soil mass basis.

33. COLA Part 2, FSAR Chapter 2, Subsection 2.4.13.4, last paragraph is revised as follows:

The saturated zone dispersion values are set to mimic infusion, rather than injection, of the contaminated liquid into the groundwater flow by assigning a value to the longitudinal dispersivity equal to one ~~tenth~~ hundredth of the length of the transport distance (contaminated zone.) ~~Horizontal~~ The horizontal ~~lateral and vertical lateral~~ dispersivity ~~values are set at~~ is one-tenth of the longitudinal dispersivity distance and the vertical dispersivity is one hundredth of the longitudinal dispersivity. FSAR Table 2.4.13-203 indicates the values used in the analysis for these parameters. These settings allow the contamination to move with the natural groundwater flow rather than be pushed through the groundwater and arrive over a longer time frame in a more dilute state.

34. COLA Part 2, FSAR Chapter 2, Subsection 2.4.13.5, first bullet following the first paragraph is revised as follows:

- Hydraulic gradient of the saturated zone (varied by a factor of ~~1.5~~2);

35. COLA Part 2, FSAR Chapter 2, Subsection 2.4.14, first paragraph is revised and retains the left margin annotation WLS COL 2.4-6 as follows:

The maximum flood level at the Lee Nuclear Station is established as the maximum of calculated results from flooding events analyzed in Section 2.4. That maximum flood level is elevation ~~589.59~~592.56 ft. msl. This elevation would result from a PMP event on the Lee Nuclear Station site (local intense precipitation) as described in Subsection 2.4.2.3. The Lee Nuclear Station safety-related structures have a plant elevation of ~~590~~ 593 ft. msl. This maximum flood level is identified as a site characteristic in Table 2.0-201. Also, Subsection 2.4.12.5 describes plant elevation relative to the maximum anticipated groundwater level. The hydrostatic loading is not expected to exceed design criteria.

36. COLA Part 2, FSAR Chapter 2, Table 2.4.1-201 is revised as follows:

TABLE 2.4.1-201 (Sheet 1 of 2)
SITE FEATURES AND ELEVATIONS

WLS COL 2.4-1

Site Feature	Elevation (ft. msl)
Nuclear Island	~~590~~593
Railcar Bay/Filter Storage Area door	~~590~~593
Bottom of Basemat (Units 1 and 2)	~~550.5~~553.5
Annex Building	~~590~~593
Temporary Electric Power Supply Room door	~~590~~593
Door to SO3 Stairs	~~590~~593
Door to SO4 Stairs	~~590~~593
Men's Change Room door	~~590~~593
Corridor 40321 door	~~590~~593
Corridor door 40311	~~590~~593
Access Area 40300 doors	~~590~~593
Containment Access Corridor Hatch and Door	~~597.1~~600.1
Diesel Generator Building	~~590~~593
Diesel Generator Room A doors	~~590~~593
Diesel Generator Room B doors	~~590~~593
Combustion Air Cleaner Area A plenum	~~590~~593
Combustion Air Cleaner Area B plenum	~~590~~593
Radwaste Building	~~590~~593
Mobile Systems Facility doors	~~590~~593
HVAC Equipment Room door	~~590~~593
Electrical/Mechanical Equipment Room door	~~590~~593
Turbine Building	~~590~~593
Mobile Systems Facility doors	~~590~~593
Door to SO2 Stairs	~~590~~593
Aux Boiler Room door	~~590~~593
Motor Driven Fire Pump Room door	~~590~~593
Door to SO1 Stairs	~~590~~593
Turbine Building Grade Deck Room 20300	~~590~~593

Source: Westinghouse AP1000 DCD Rev 19; Tier 2, Chapter 1.2.

WLS COL 2.4-1

TABLE 2.4.1-201 (Sheet 2 of 2)
SITE FEATURES AND ELEVATIONS

Site Feature	Elevation (ft. msl)
Other Features	
Heavy Haul Road	~~587~~590
Raw Water Intake Pumping Station (base)	497.3
Raw Water Intake Pumping Station (entry)	508
~~Lampson Crane~~Heavy Lift Derrick - Crane	~~589~~589.5
LLW Storage Area	588
Wastewater Treatment Area	588
Ninety-Nine Islands Dam Crest	511
Broad River above Ninety-Nine Islands Dam	511
Broad River below Ninety-Nine Islands Dam	440
Make-Up Pond A	547
Make-Up Pond B	570
Hold-Up Pond A	536
Make-Up Pond C	650
Cooling Tower	~~586~~588

ft. - feet

msl - mean sea level

37. COLA Part 2, FSAR Chapter 2, Table 2.4.2-204 is revised as follows:

TABLE 2.4.2-204
SITE DRAINAGE AREAS DETAILS

WLS COL 2.4-2

Drainage Area	Area Acres (ac)	Flow Rate (cfs)	Maximum Velocity (fps)	Maximum Depth of Flow (ft.)	Maximum Water Surface Elevation (ft.)
A1	~~1.26~~1.62	~~94.27~~121	~~3.02~~3.51	~~1.06~~0.43	~~589.21~~592.43
B1	~~4.99~~5.19	~~374.53~~389	~~2.80~~3.44	~~0.80~~0.76	~~589.59~~592.56
C1	2.01	~~150.88~~151	~~2.88~~1.39	~~1.70~~0.53	~~588.70~~592.03
D1	~~7.38~~7.93	~~553.81~~595	~~2.82~~2.05	~~1.98~~0.35	~~588.98~~592.35
A2	~~1.26~~1.62	~~94.27~~121	~~3.02~~3.51	~~1.06~~0.43	~~589.21~~592.43
B2	~~4.99~~5.19	~~374.53~~389	~~2.80~~3.44	~~0.80~~0.76	~~589.59~~592.56
C2	2.01	~~150.88~~151	~~2.88~~1.39	~~1.70~~0.53	~~588.70~~592.03
D2	~~6.63~~7.44	~~497.36~~558	~~2.62~~1.97	~~1.95~~0.32	~~588.95~~592.32

38. COLA Part 2, FSAR Chapter 2, Table 2.4.3-208 is revised as follows:

TABLE 2.4.3-208
MAKE-UP POND B SUBBASIN UNIT HYDROGRAPH

Time (min.)	Discharge (cfs)	Time (min.)	Discharge (cfs)	Time (min.)	Discharge (cfs)
10	~~71~~71.40	150	~~198~~185.95	290	~~12~~10.68
20	~~219~~219.10	160	~~162~~151.78	300	~~10~~8.75
30	~~486~~486.11	170	~~133~~126.44	310	~~8~~7.03
40	~~849~~814.45	180	~~110~~103.97	320	~~7~~5.88
50	~~947~~935.26	190	~~90~~85.35	330	~~6~~4.90
60	~~896~~915.00	200	~~73~~69.31	340	~~5~~4.21
70	~~804~~820.00	210	~~60~~56.89	350	~~4~~3.52
80	~~713~~715.00	220	~~50~~46.90	360	~~3~~2.36
90	~~625~~616.17	230	~~40~~37.97	370	~~3~~1.82
100	~~543~~533.18	240	~~33~~31.14	380	~~2~~1.34
110	~~465~~448.23	250	~~27~~23.48	390	~~1~~0.86
120	~~386~~370.44	260	~~22~~19.19	400	~~1~~0.38
130	~~308~~296.71	270	~~18~~15.91	410	~~0~~0.00
140	~~242~~234.48	280	~~15~~12.97	~~420~~	~~0~~

39. COLA Part 2, FSAR Chapter 2, Table 2.4.3-209 is revised as follows:

TABLE 2.4.3-209
UPPER ARM SUBBASIN UNIT HYDROGRAPH

Time (min.)	Discharge (cfs)	Time (min.)	Discharge (cfs)	Time (min.)	Discharge (cfs)
2	~~38~~36.65	32	~~106~~120.53	62	~~6~~7.39
4	~~126~~115.29	34	~~87~~99.59	64	~~5~~6.13
6	~~259~~221.30	36	~~73~~83.78	66	~~4~~5.00
8	~~522~~368.06	38	~~61~~69.99	68	~~4~~4.22
10	~~554~~555.70	40	~~51~~58.29	70	~~3~~3.52
12	~~557~~588.82	42	~~42~~47.42	72	~~3~~3.08
14	~~538~~570.00	44	~~35~~39.87	74	~~2~~2.62
16	~~492~~520.00	46	~~29~~33.02	76	~~2~~2.16
18	~~420~~456.33	48	~~24~~27.36	78	~~2~~1.71
20	~~354~~395.86	50	~~20~~22.66	80	~~1~~1.32
22	~~293~~334.32	52	~~16~~18.49	82	~~1~~0.94
24	~~241~~277.50	54	~~14~~15.53	84	~~1~~0.57
26	~~198~~228.85	56	~~11~~12.82	86	~~0~~0.19
28	~~158~~183.74	58	~~9~~10.74	88	~~0~~0.00
30	~~128~~147.85	60	~~8~~8.90		

40. COLA Part 2, FSAR Chapter 2, Table 2.4.13-203, Sheets 4 and 5 are revised and retain the left margin annotation WLS COL 2.4-5 as follows:

TABLE 2.4.13-203(Sheet 4 of 6)
LISTING OF LEE NUCLEAR STATION DATA AND MODELING PARAMETERS SUPPORTING THE EFFLUENT HOLDUP TANK FAILURE

Soil Parameter	Parameter Description	Parameter Value [(a)] [(b)]	Parameter Justification
Contaminated zone total porosity (unitless) WLS COL 2.4-5	Total porosity of the contaminated sample, which is the ratio of the soil pore volume to the total volume	2.7E-01	On-site data collected at Lee. A value representative of partially weathered rock is used for conservatism.
Density of contaminated zone (g/cm^3)	Density of the contaminated soil impacted by the liquid tank failure	1.8E+00	On-site data collected at Lee. A value representative of partially weathered rock is used for conservatism.
Contaminated zone hydraulic conductivity (meters per year)	Flow velocity of groundwater through the contaminated zone under a hydraulic gradient	~4.42E+02	The hydraulic conductivity was calculated from on-site data collected at Lee. Based on a value representative of 1.40E-03 cm/s for partially weathered rock is used for conservatism, converted to m/y.
Density of saturated zone (g/cm^3)	Density of the saturated zone soil that transmits groundwater	1.98E+00	On-site data was collected at Lee. A value representative of partially weathered rock is used for conservatism.
Saturated zone total porosity (unitless)	Total porosity of the saturated zone soil, which is the ratio of the pore volume to the total volume	2.7E-01	On-site data was collected at Lee. A value representative of partially weathered rock is used for conservatism.
Saturated zone effective porosity (unitless)	Ratio of the part of the pore volume where water can circulate to the total volume of a representative sample	8.0E-02	On-site data was collected at Lee. A value representative of partially weathered rock is used for conservatism.
Saturated zone hydraulic gradient to surface water body (unitless)	Change in groundwater elevation per unit of distance in the direction of groundwater flow to a surface water body	4.7E-02~~4.0E-02~~	The site-specific hydraulic gradient, representative of partially weathered rock, for the pathway having shortest (i.e., most rapid) travel time to the nearest off-site surface water body. Assumed to be nearest on-site surface water body (Hold-Up Pond A) for conservatism.

TABLE 2.4.13-203 (Sheet 5 of 6)
LISTING OF LEE NUCLEAR STATION DATA AND MODELING PARAMETERS SUPPORTING THE EFFLUENT HOLDUP TANK FAILURE

Soil Parameter	Parameter Description	Parameter Value [(a)] [(b)]	Parameter Justification
Longitudinal dispersivity to surface water body (meters)	Describes the ratio between the longitudinal dispersion coefficient and the pore water velocity, The parameter depends on the length of the saturated zone	3.77E+00~~3.71E+00~~	Follows recommendations in the RESRAD-OFFSITE User Manual.
Lateral (horizontal) dispersivity to surface water body (meters)	Describes the ratio between the horizontal lateral dispersion coefficient and the pore water velocity	3.77E-01~~3.71E-01~~	Follows recommendations in the RESRAD-OFFSITE User Manual.
Lateral (vertical) dispersivity to the surface water body (meters)	Describes the vertical dispersion. The user may either model (a) vertical dispersion in the saturated zone and ignore the effects of clean infiltration along the length of the saturated zone or (b) ignore vertical dispersion in the saturated and model the effects of clean infiltration along the length of the saturated zone.	3.77E-02~~3.71E-02~~	Follows recommendations in the RESRAD-OFFSITE User Manual.
Distance to the nearest surface water body (meters)	Distance to the nearest off-site surface water body that contributes to a potable drinking water source	376.9~~370.8~~	Site-specific value corresponding to the distance from the Unit 2 auxiliary building to the "hypothetical" well location, i.e., the nearest edge of Hold-Up Pond A minus the length of the contaminated zone.
Volume of the surface water body (m^3)	Describes the size of the surface water body	856,036	Site-specific value corresponding to the volume of the Broad River reservoir from the postulated release point downstream to the Ninety-Nine Islands Dam.

41. COLA Part 2, FSAR Chapter 2, Table 2.4.13-204 is revised as follows:

WLS COL 2.4-5

TABLE 2.4.13-204
RADIONUCLIDE CONCENTRATION AT NEAREST DRINKING WATER SOURCE IN AN UNRESTRICTED AREA DUE TO EFFLUENT HOLDUP TANK FAILURE

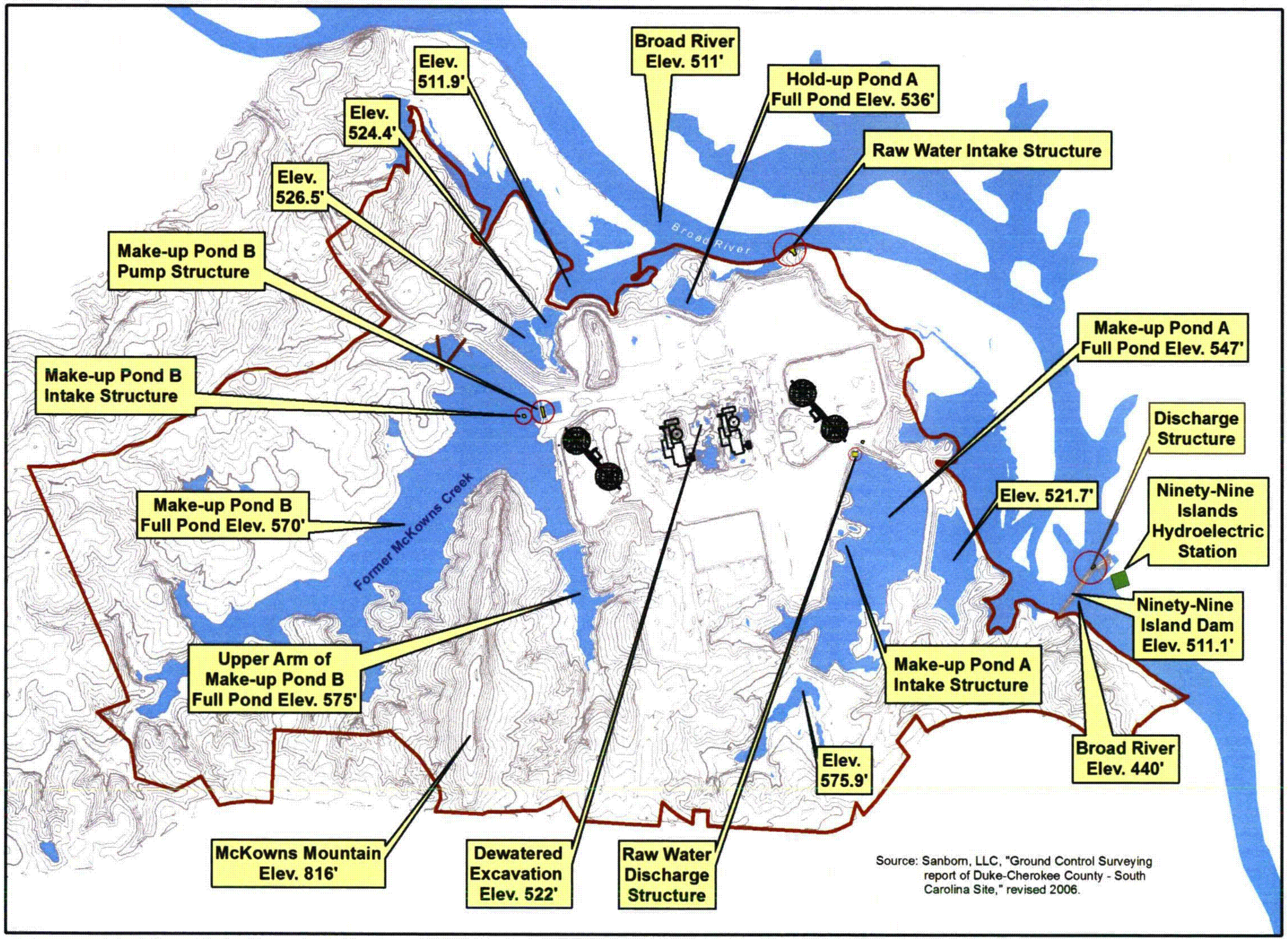
Detected Radionuclide	Radionuclide Concentration microcuries/ml	10 CFR 20 Appendix B Table 2 Column 2 microcuries/ml	Sum of Fractions Contribution(a)
H-3	3.47E-08~~3.35E-08~~	1.00E-03	3.47E-05~~3.35E-05~~
			Sum of Fractions(b)
			3.50E-05~~3.38E-05~~

---

a. Those radionuclides with Sum of Fractions Contribution less than 1.0E-5 are negligible and not included in the table.

b. Total for all detected radionuclides.

42. COLA Part 2, FSAR Chapter 2, Figure 2.4.1-201 is revised as follows:



Source: Sanborn, LLC, "Ground Control Surveying report of Duke-Cherokee County - South Carolina Site," revised 2006.

Legend

- Site Boundary
- Permanent Structures
- Debris Barrier
- Intake and Outfall
- Water Bodies

Locations of permanent structures are approximate. Structures are intended to depict an approximate spatial relationship with surrounding features or conditions.

Elevations are in feet (ft.) above mean sea level (msl).

GCS North American 1983
NAD 1983, UTM Zone 17N

N
W E
S

WLS COL 2.4-1

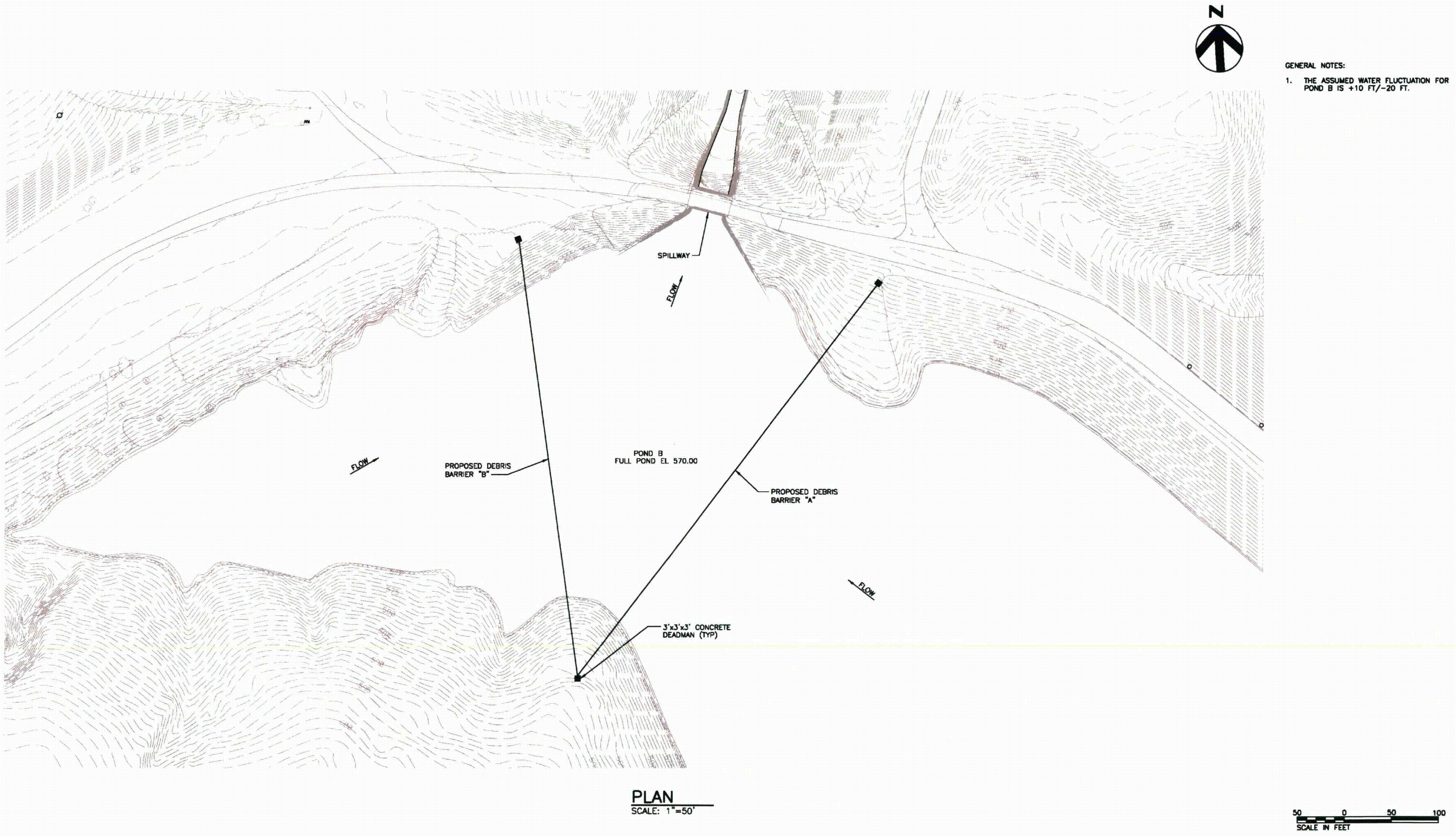
Datum: South Carolina State Plane Coordinate System
NAD 83, NAVD 88, UTM Zone 17N

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Site Surface Water Features

FIGURE 2.4.1-201

43. COLA Part 2, FSAR Chapter 2, Figure 2.4.1-214 is revised as follows:



GENERAL NOTES:

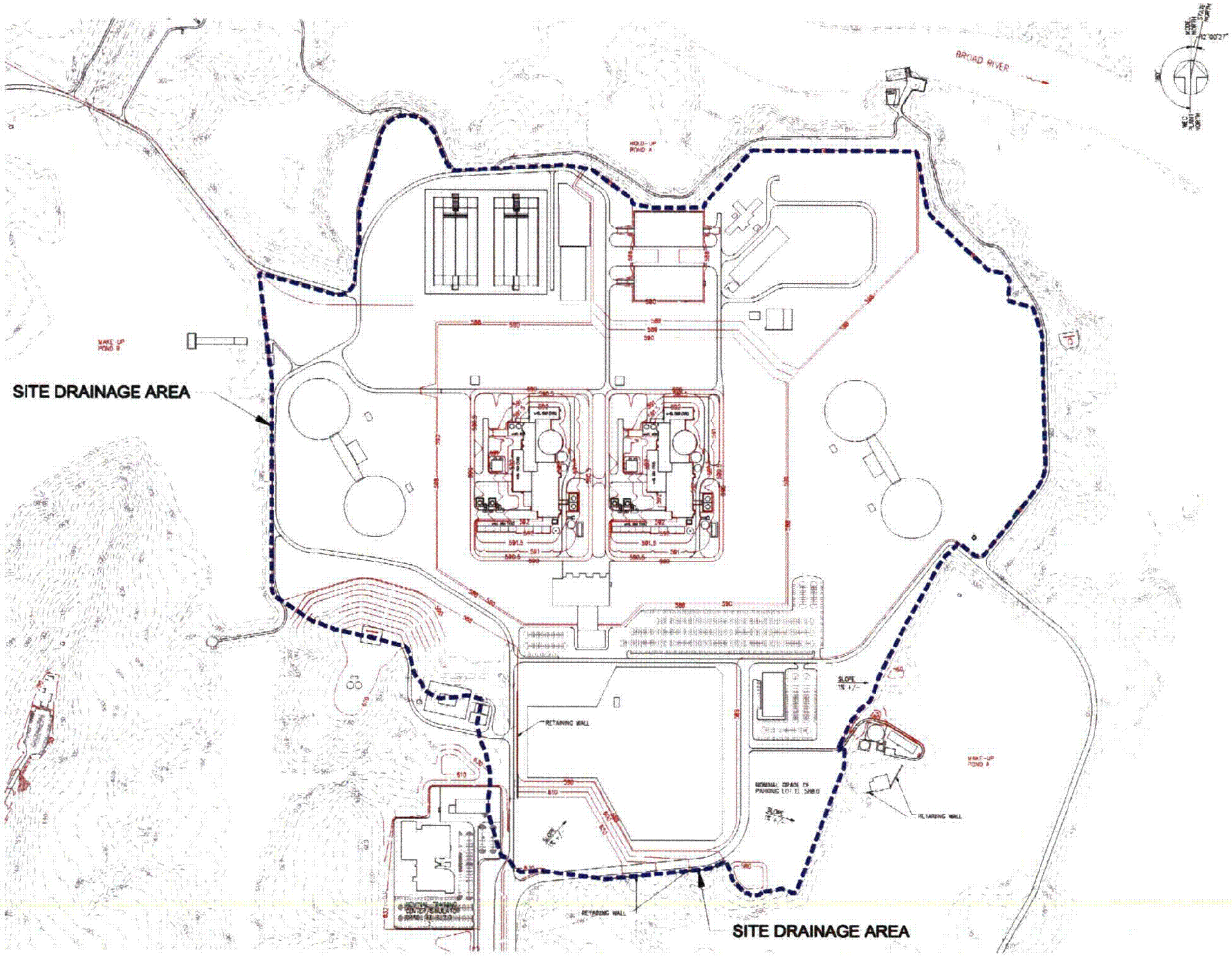
1. THE ASSUMED WATER FLUCTUATION FOR POND B IS +10 FT/-20 FT.

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Pond B Conceptual
Debris Barrier

FIGURE 2.4.1-214

44. COLA Part 2, FSAR Chapter 2, Figure 2.4.2-202 is revised as follows:



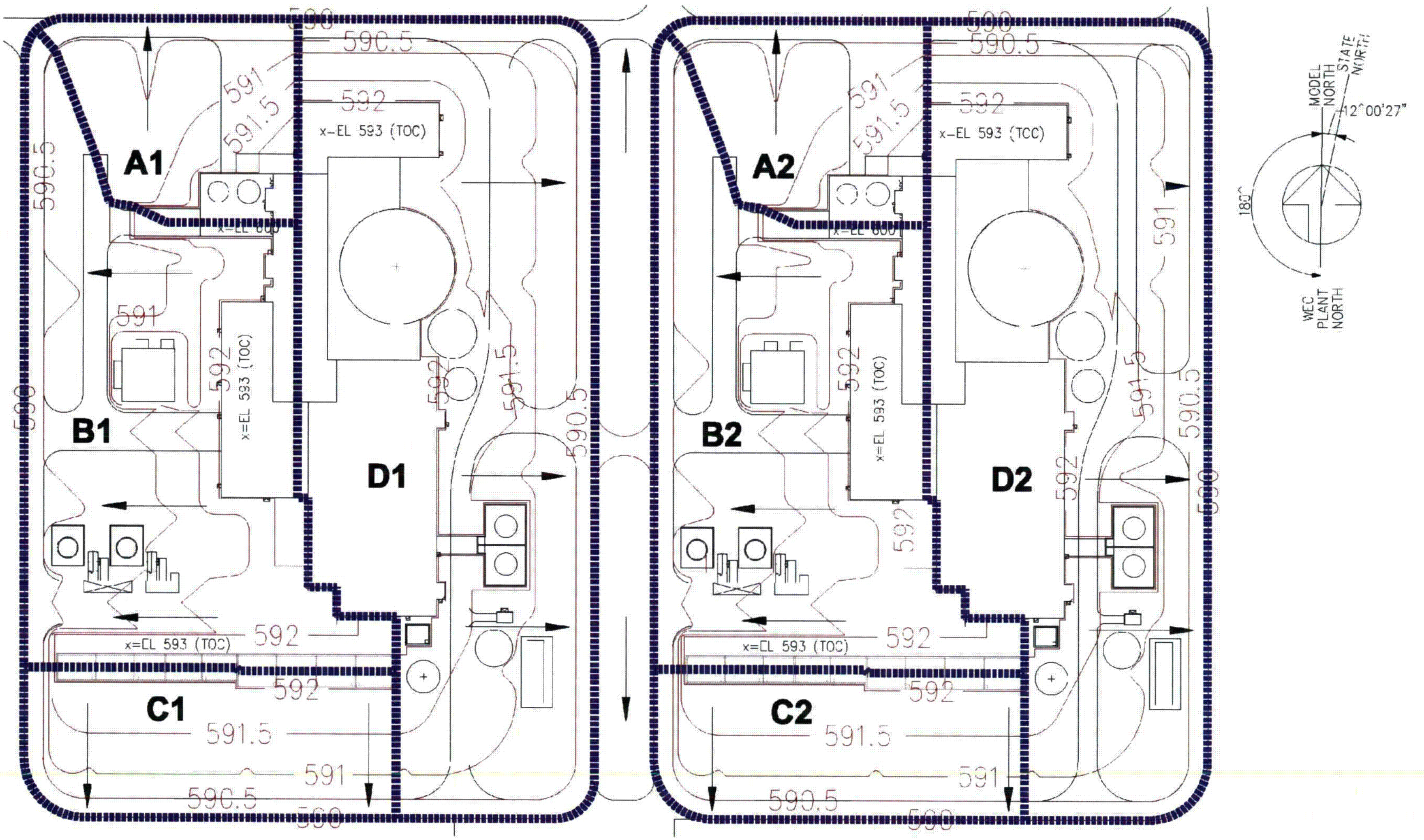
WLS COL 2.4-2

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Grading and Drainage Plan

FIGURE 2.4.2-202

45. COLA Part 2, FSAR Chapter 2, Figure 2.4.2-204 is revised as follows:



WLS COL 2.4-2

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

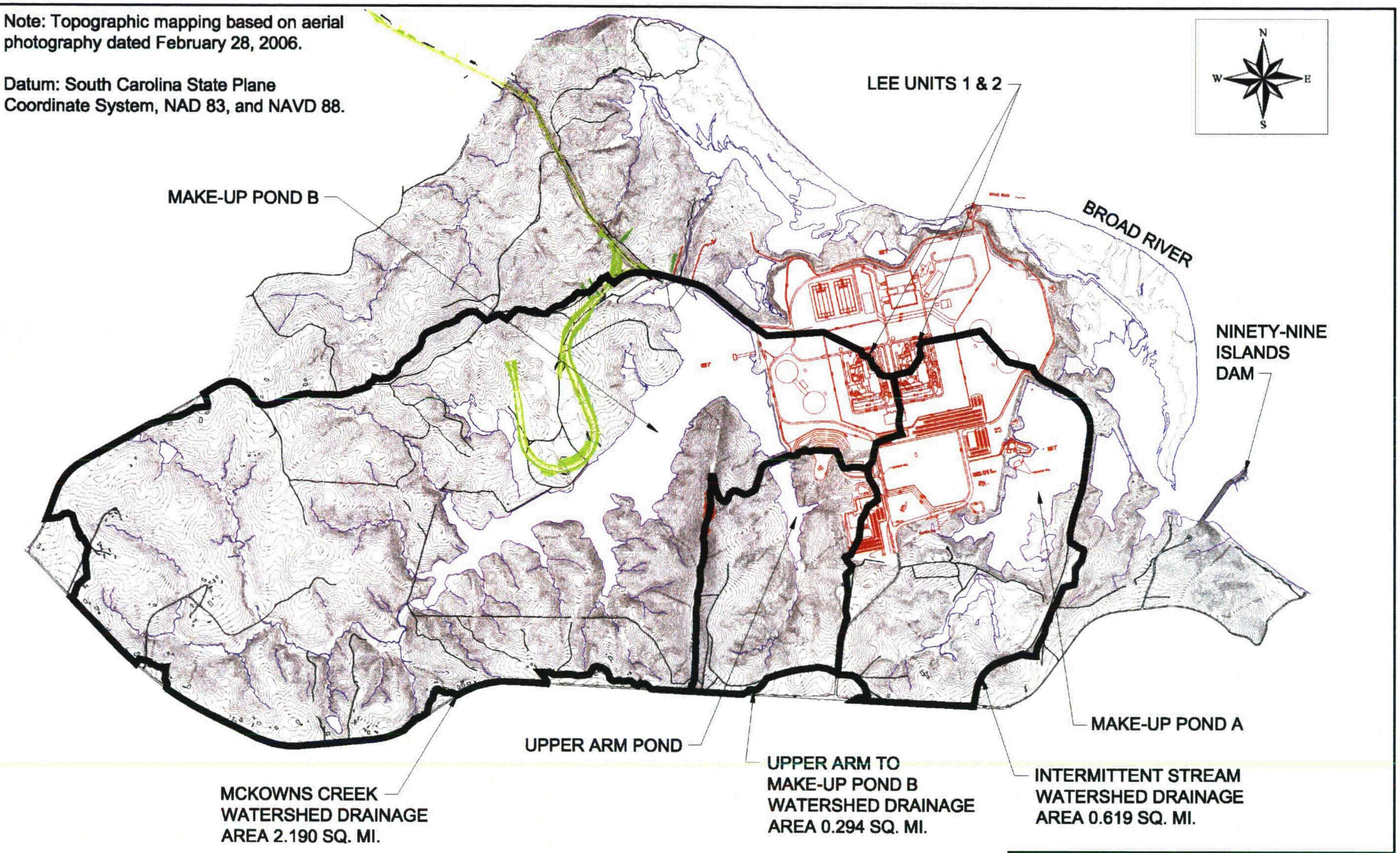
Site Analysis Drainage Areas

FIGURE 2.4.2-204

46. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-201 is revised as follows:

Note: Topographic mapping based on aerial photography dated February 28, 2006.

Datum: South Carolina State Plane Coordinate System, NAD 83, and NAVD 88.



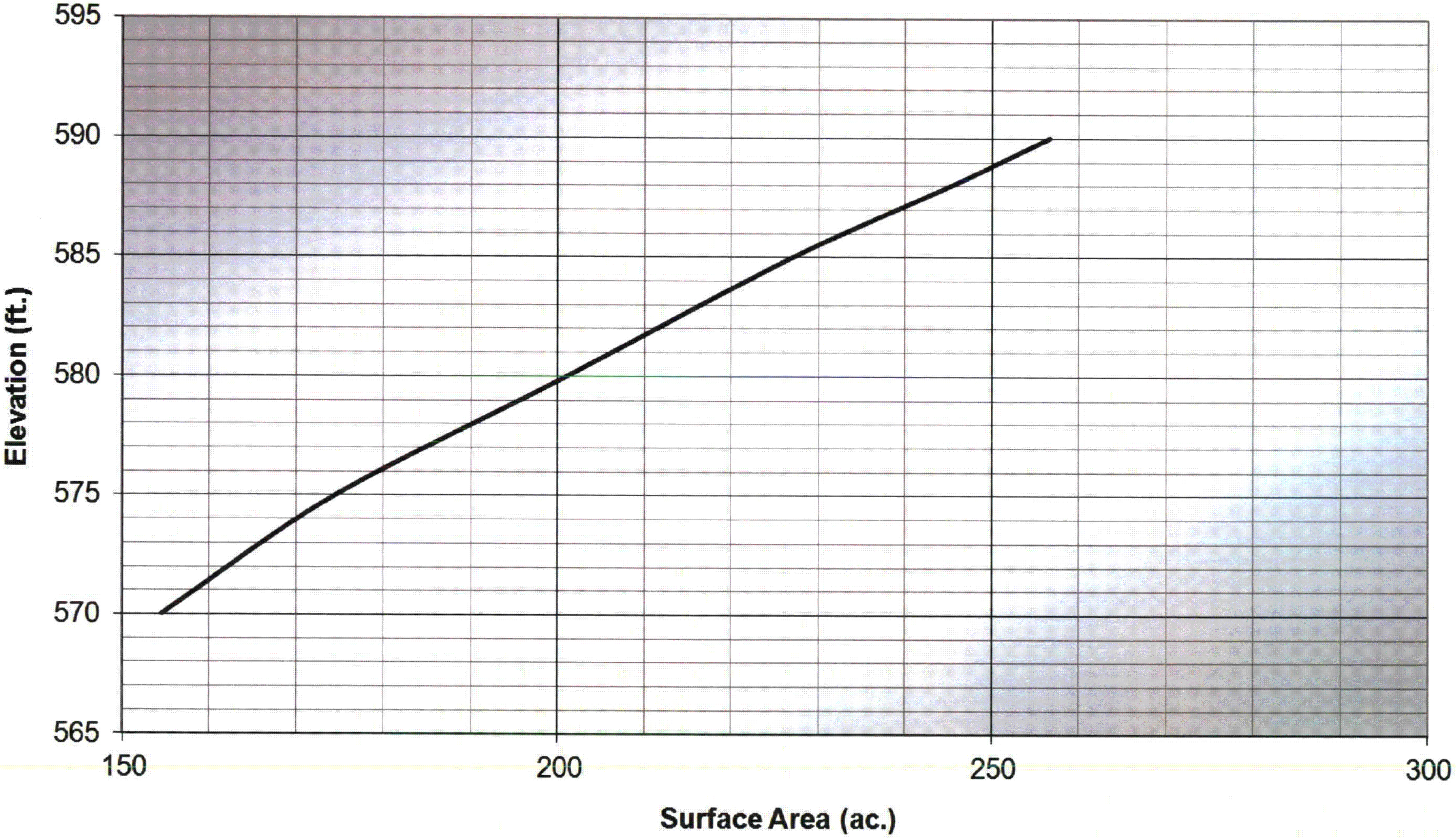
WLS COL 2.4-2

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Make-Up Pond A and
Make-Up Pond B Watersheds

FIGURE 2.4.3-201

47. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-223 is revised as follows:



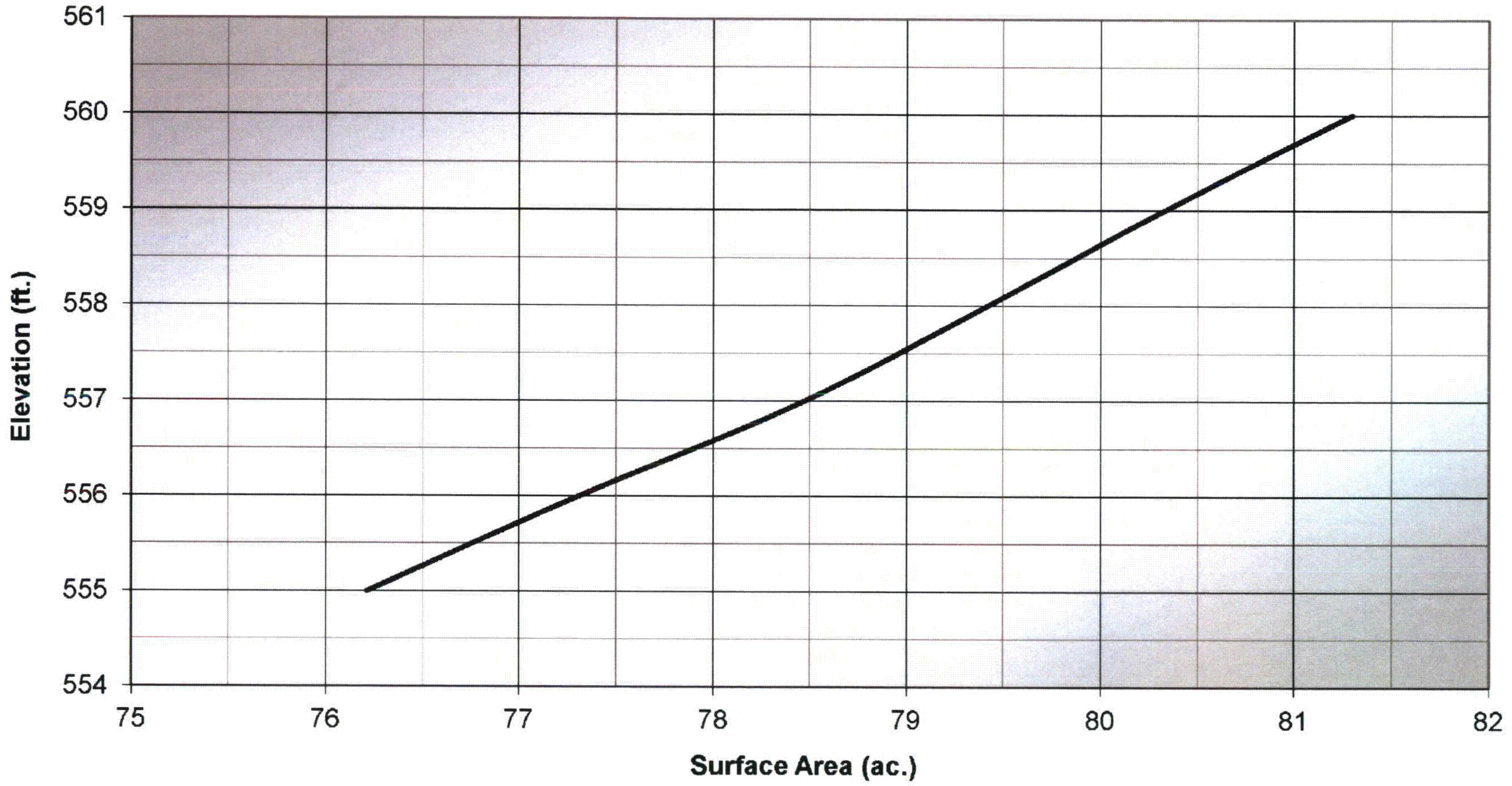
WLS COL 2.4-2

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Storage Capacity Curve,
Make-Up Pond B

FIGURE 2.4.3-223

48. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-225 is revised as follows:



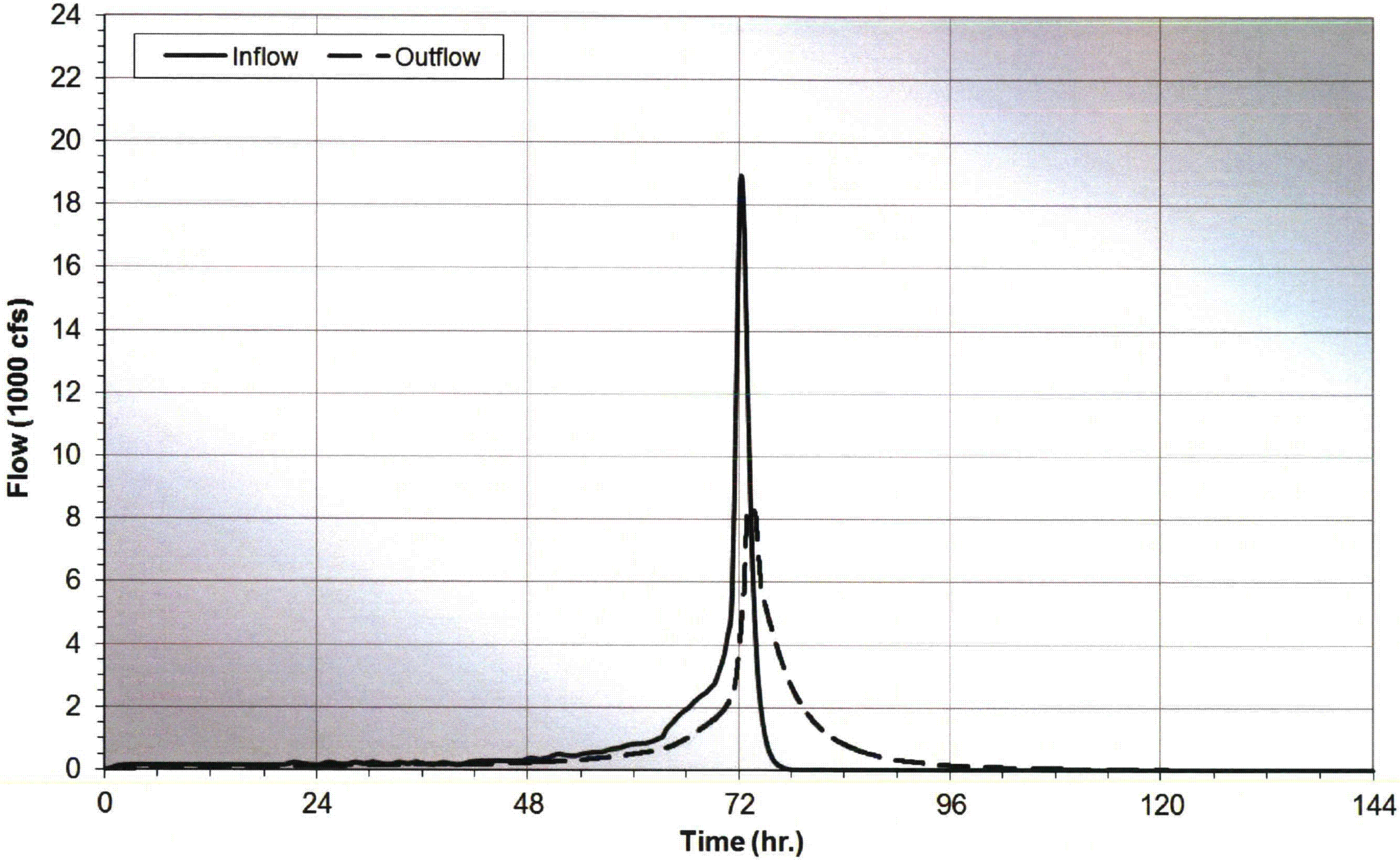
WLS COL 2.4-2

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Storage Capacity Curve,
Make-Up Pond A

FIGURE 2.4.3-225

49. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-227 is revised as follows:

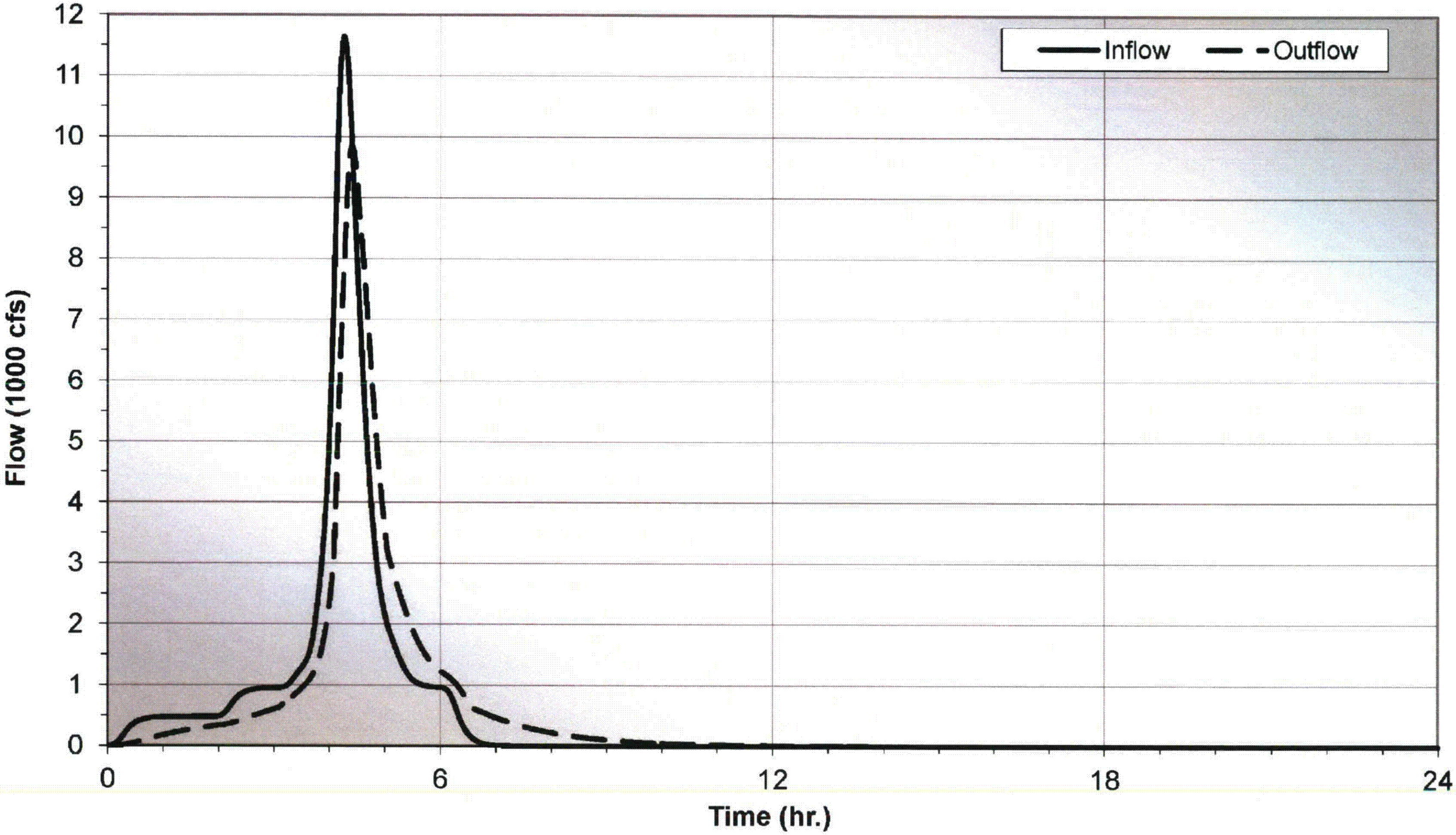


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

PMF Hydrograph Without Upper Arm Dam Failure, Make-Up Pond B

FIGURE 2.4.3-227

50. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-228 is revised as follows:

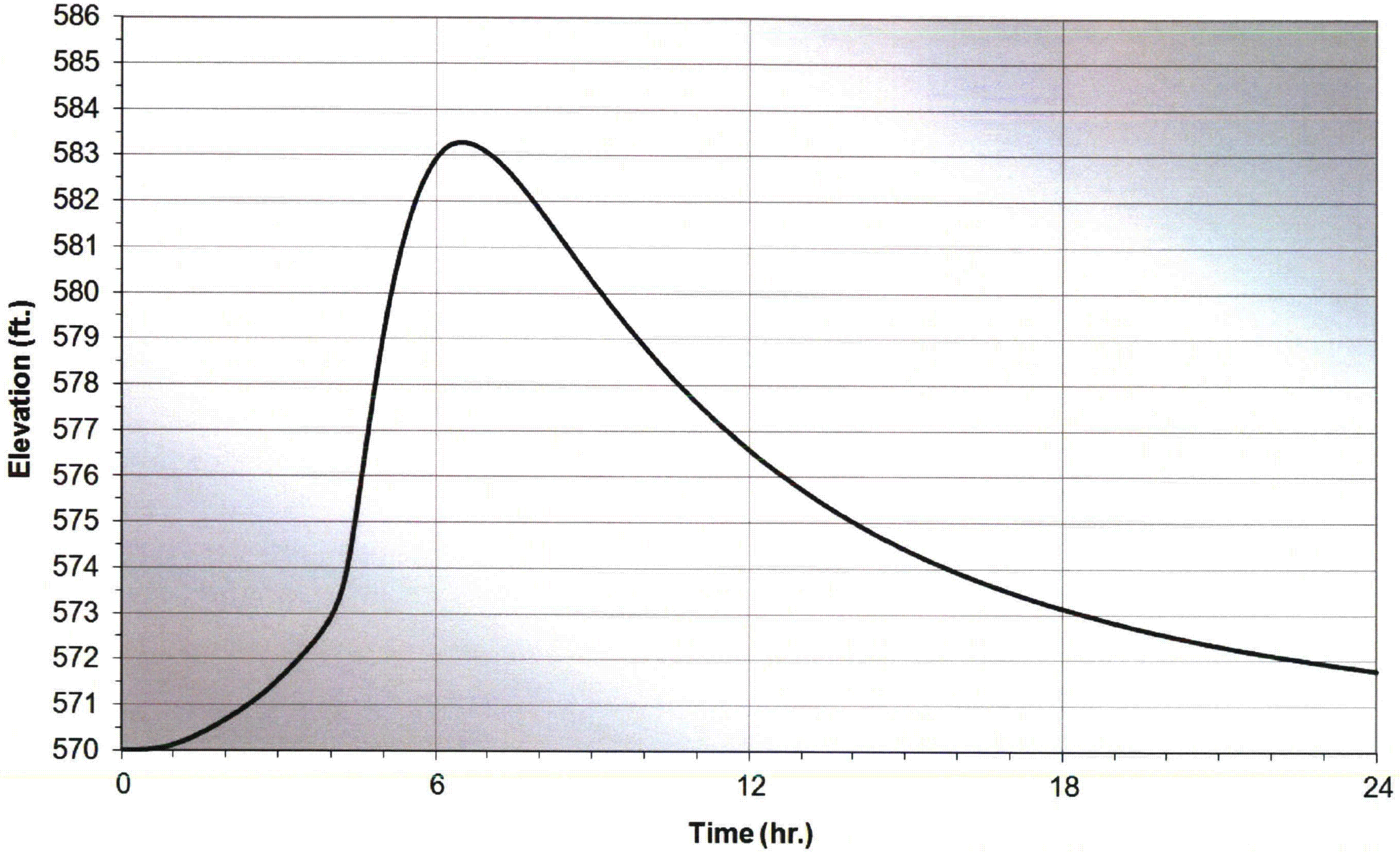


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

PMF Hydrograph
Make-Up Pond A

FIGURE 2.4.3-228

51. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-230 is revised as follows:

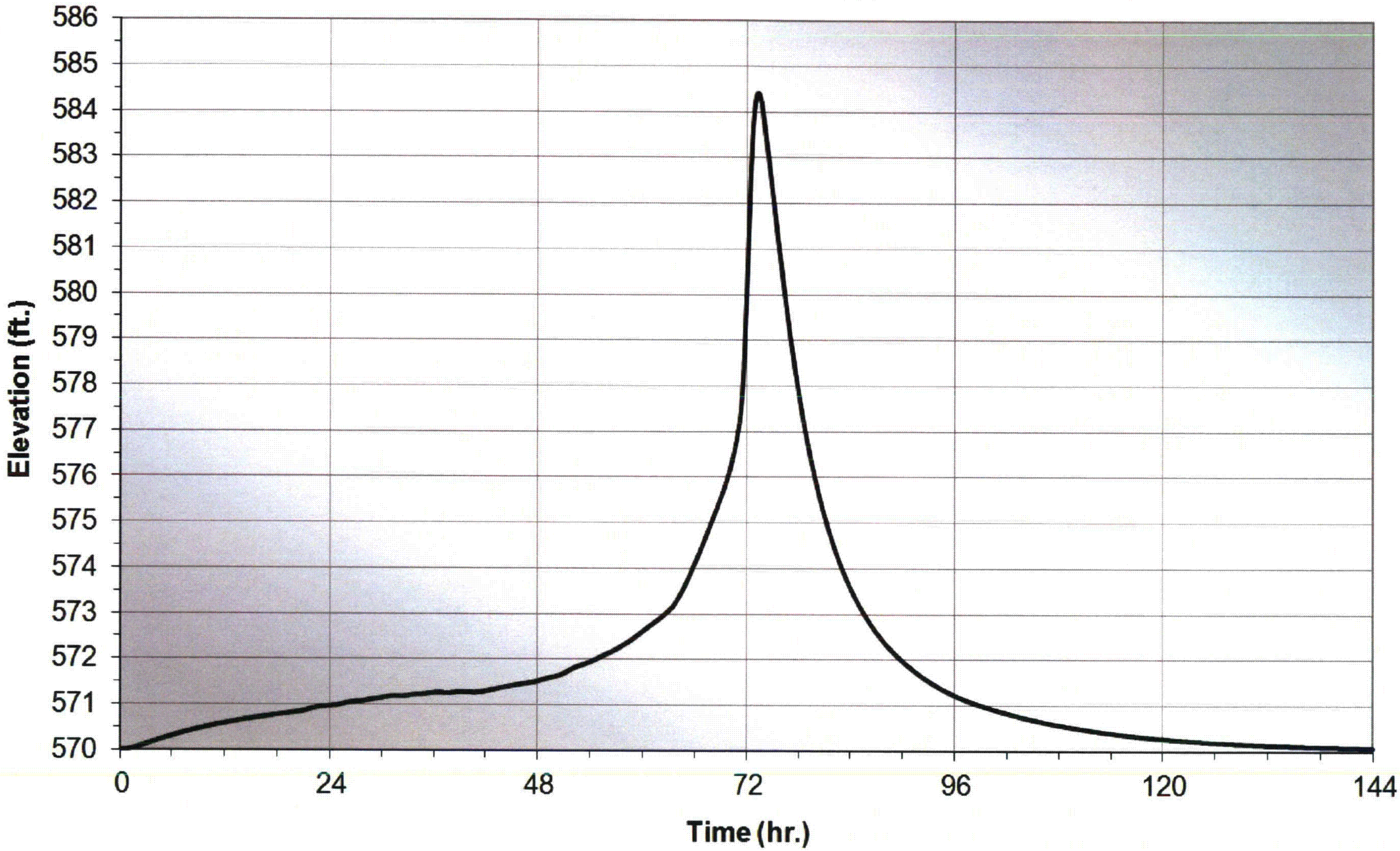


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Flood El. Hydrograph Make-Up Pond B
Without Upper Arm Dam Failure,
6-hr. Local Intense Precipitation

FIGURE 2.4.3-230

52. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-231 is revised as follows:

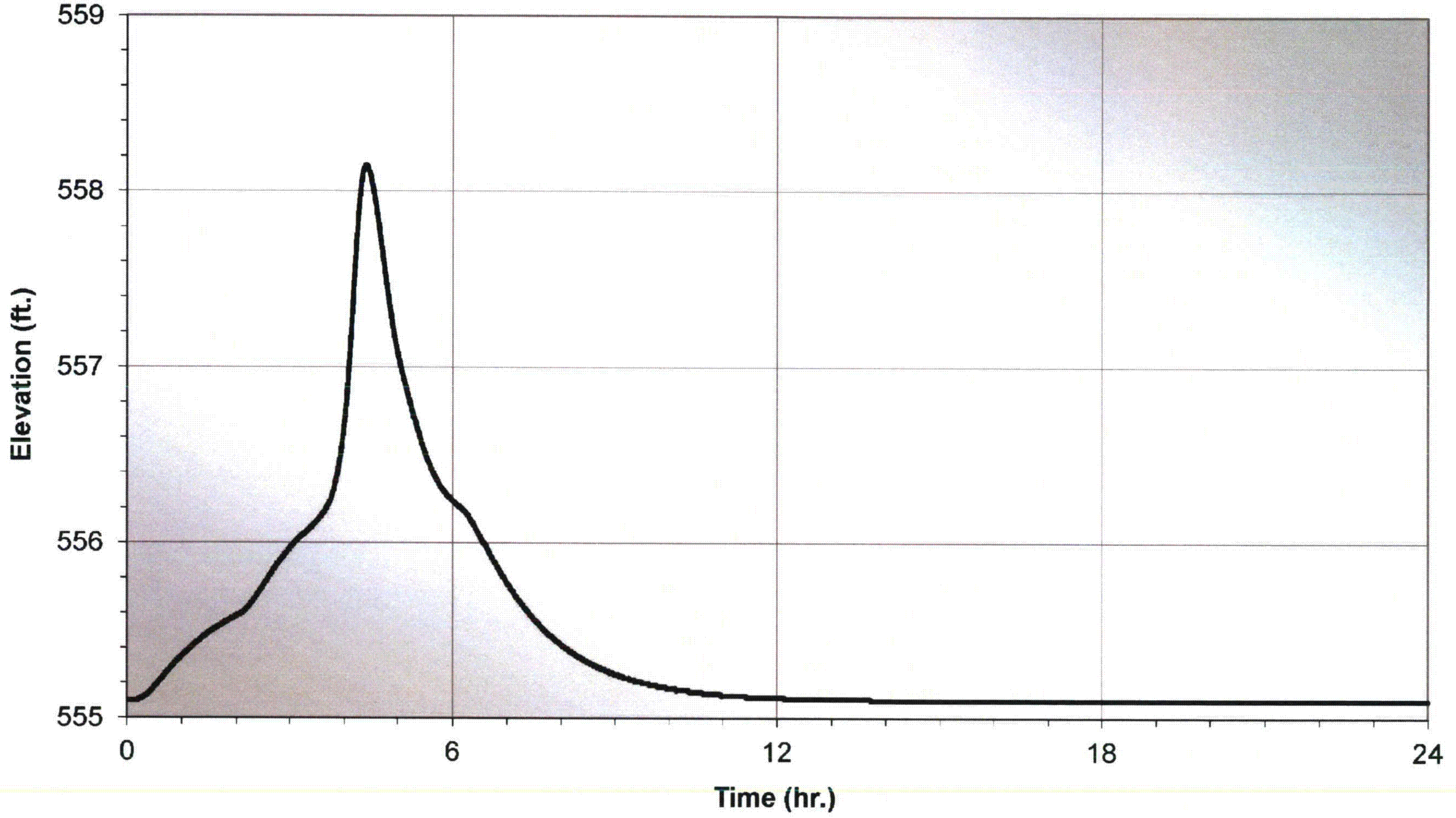


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Flood El. Hydrograph Make-Up Pond B
Without Upper Arm Dam Failure,
72-hr. Local Intense Precipitation

FIGURE 2.4.3-231

53. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-233 is revised as follows:

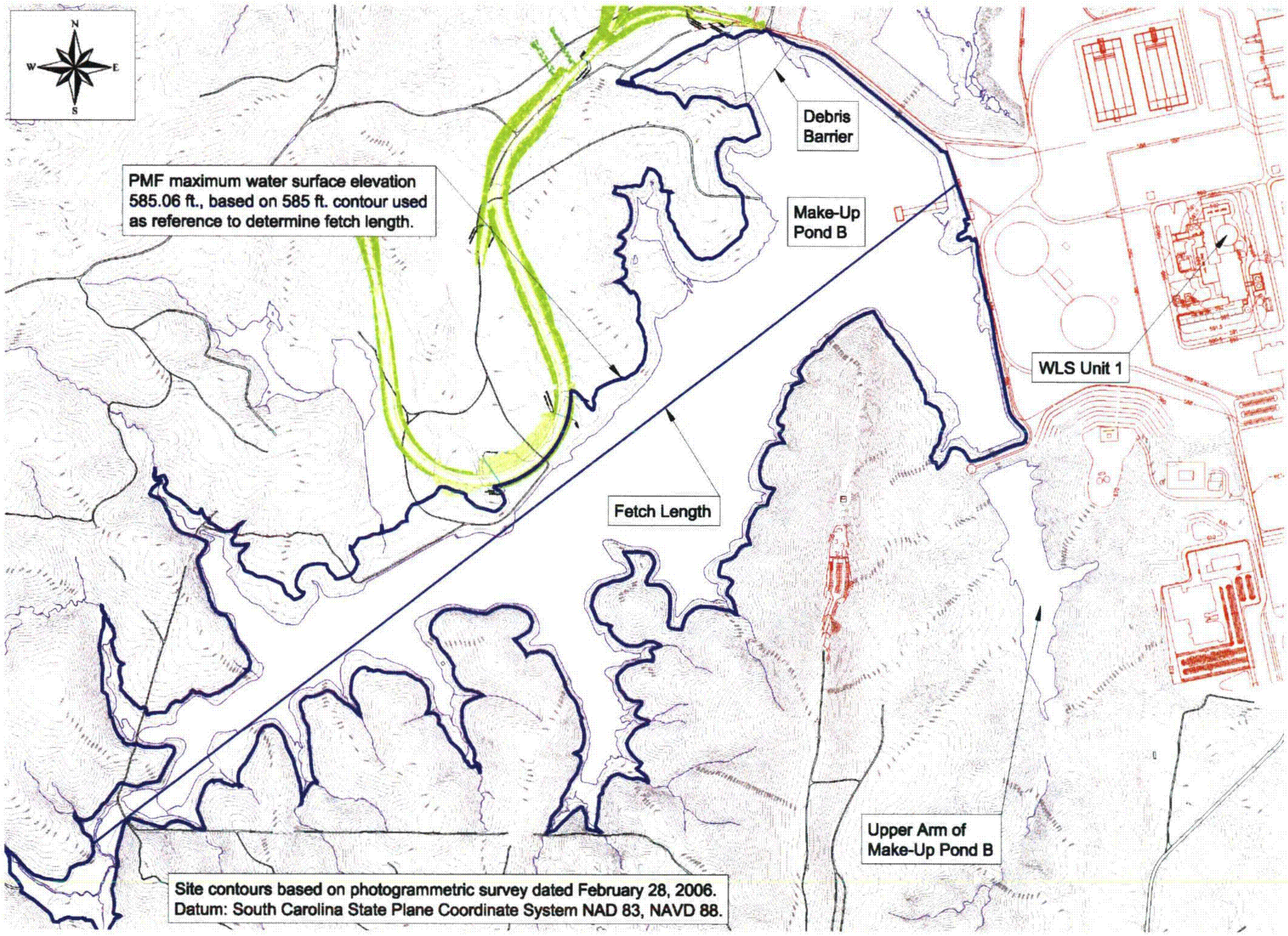


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Flood Elevation Hydrograph
Make-Up Pond A
6-Hour Local Intense Precipitation

FIGURE 2.4.3-233

54. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-234 is revised as follows:

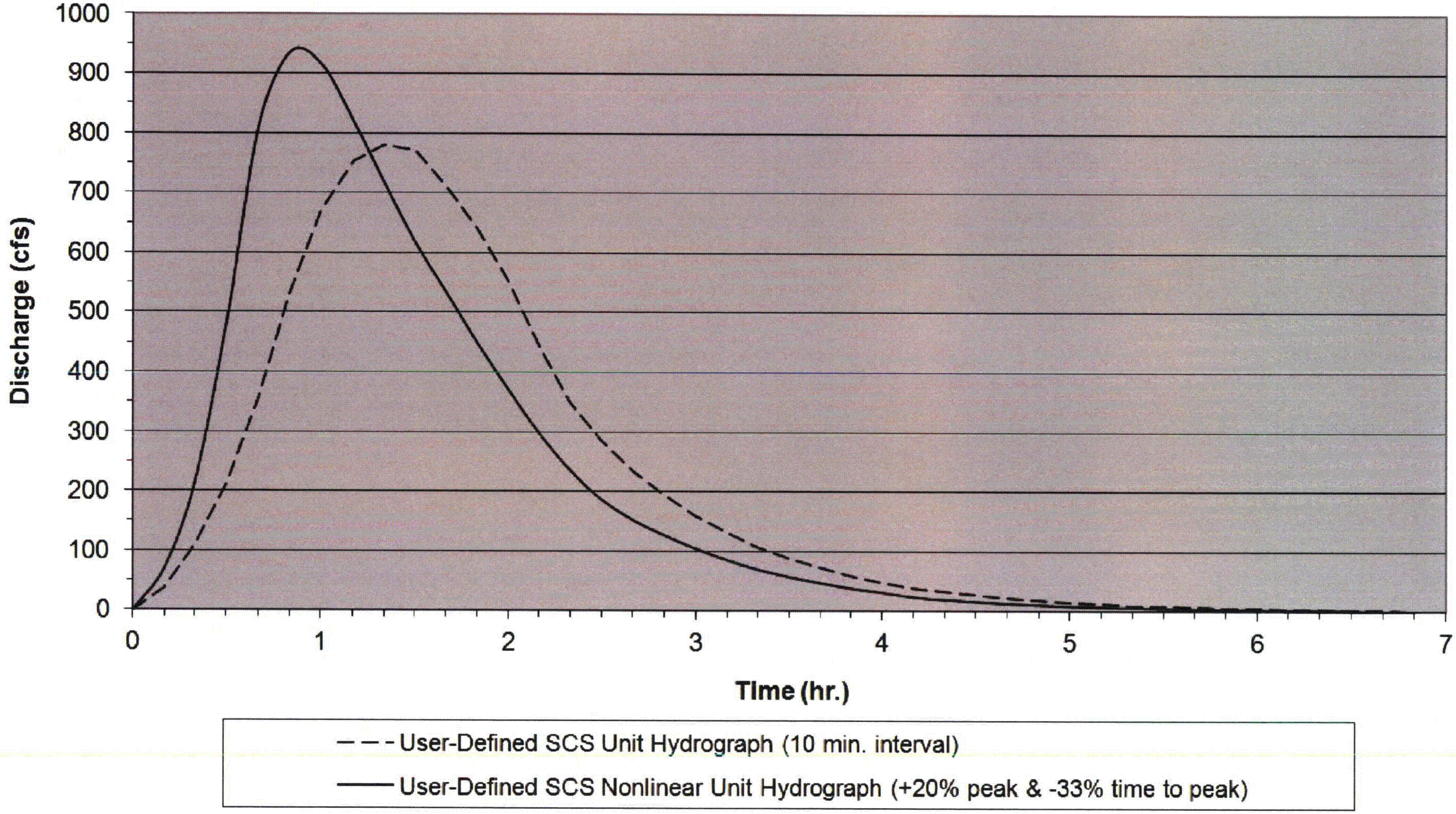


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Make-Up Pond B Coincident Wind Wave Fetch Length

FIGURE 2.4.3-234

55. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-237 is revised as follows:

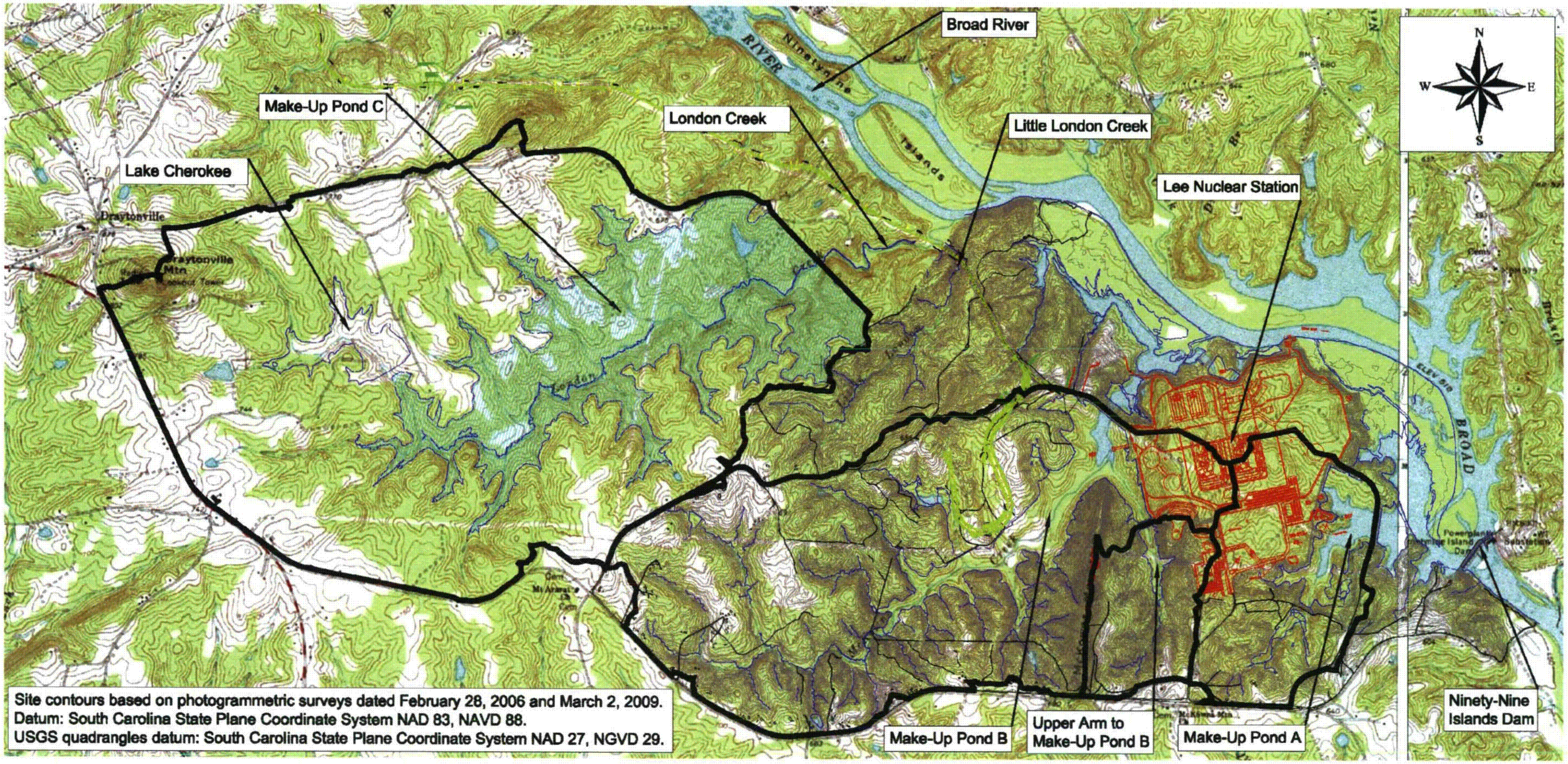


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Make-Up Pond B
Unit Hydrographs

FIGURE 2.4.3-237

56. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-239 is revised as follows:



Site contours based on photogrammetric surveys dated February 28, 2006 and March 2, 2009.
Datum: South Carolina State Plane Coordinate System NAD 83, NAVD 88.
USGS quadrangles datum: South Carolina State Plane Coordinate System NAD 27, NGVD 29.

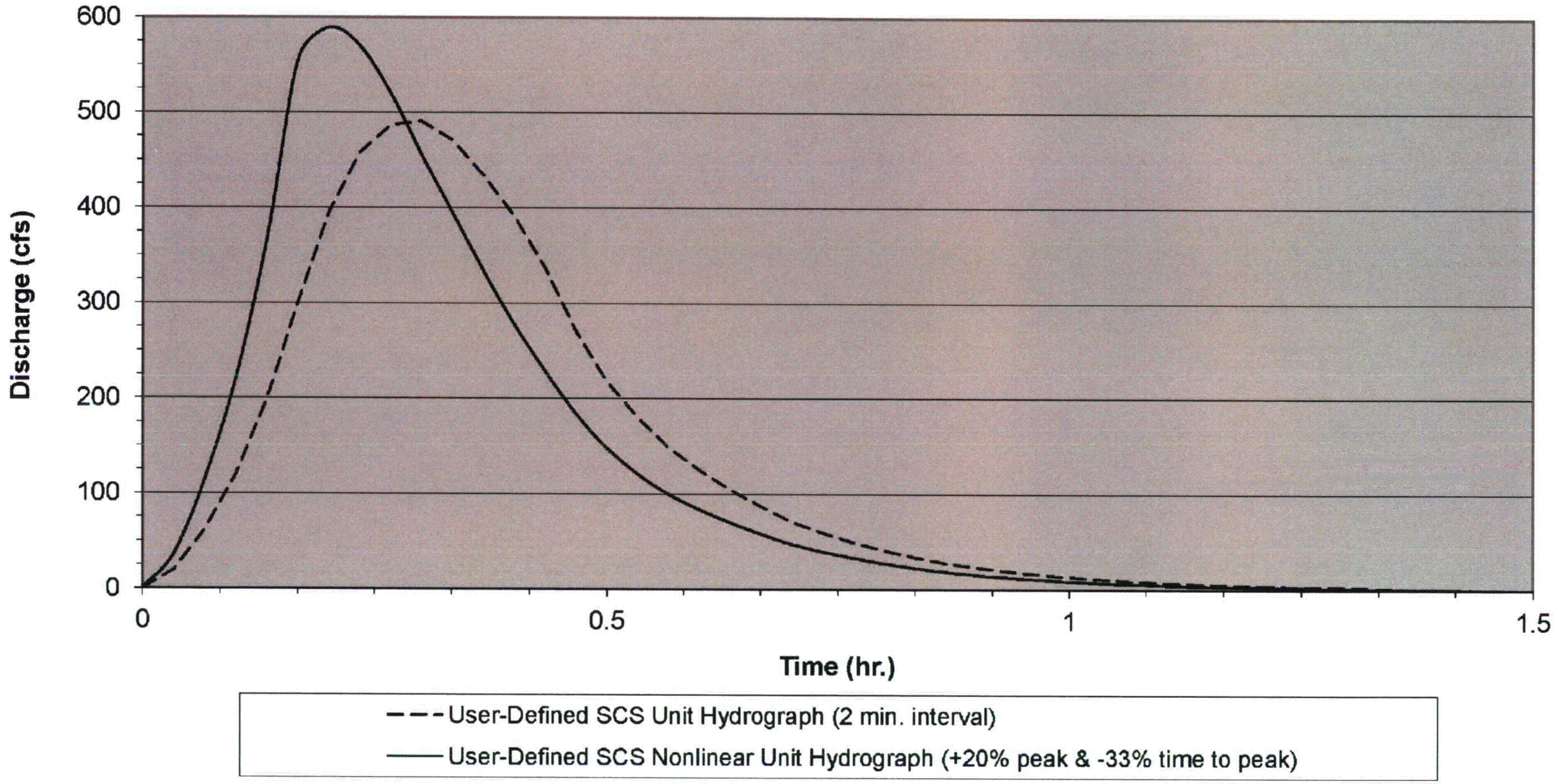
WLS COL 2.4-2

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Make-Up Pond C Watershed

FIGURE 2.4.3-239

57. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-246 is revised as follows:

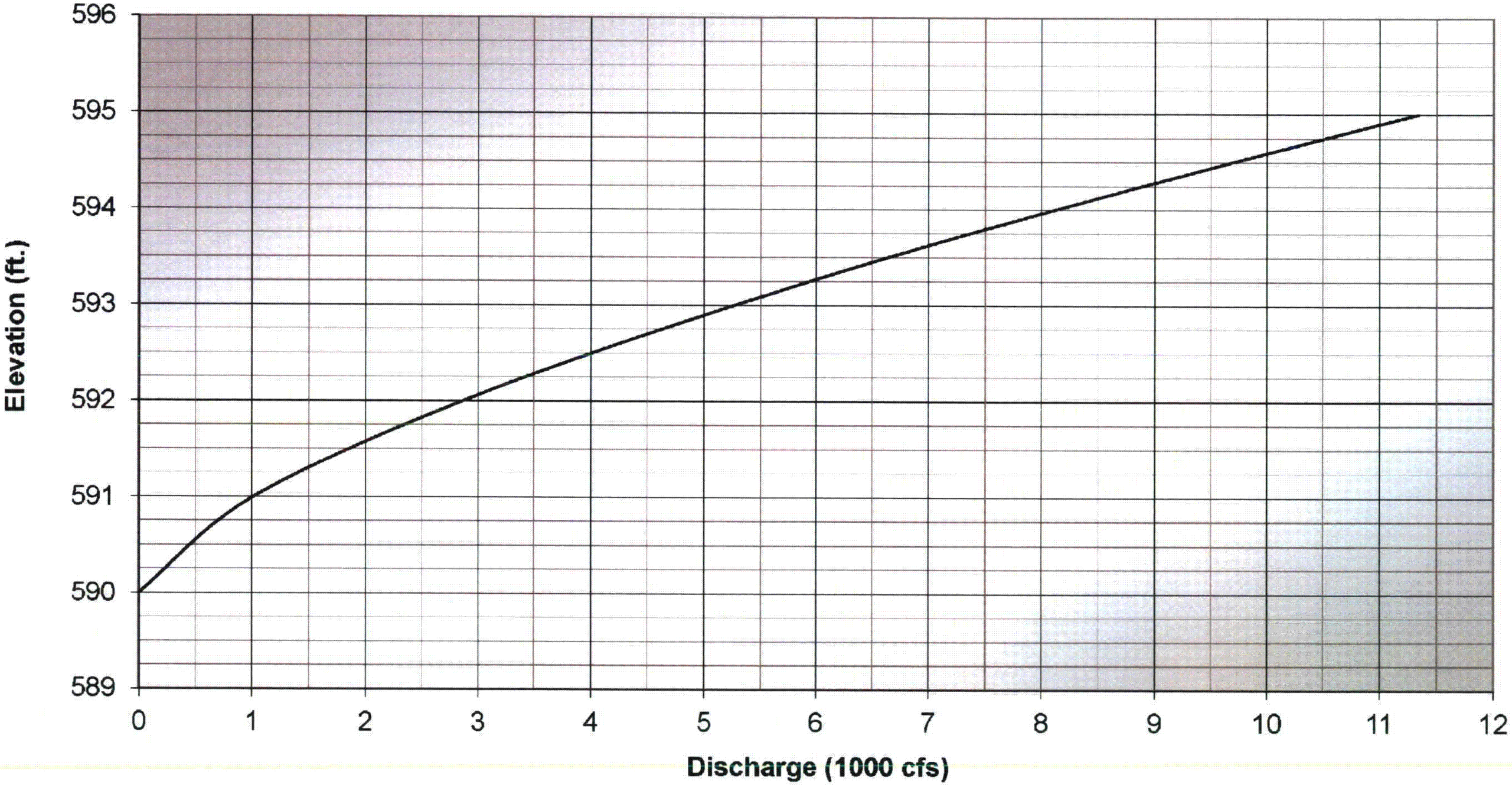


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Upper Arm Dam Unit
Hydrographs

FIGURE 2.4.3-246

58. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-247 is revised as follows:

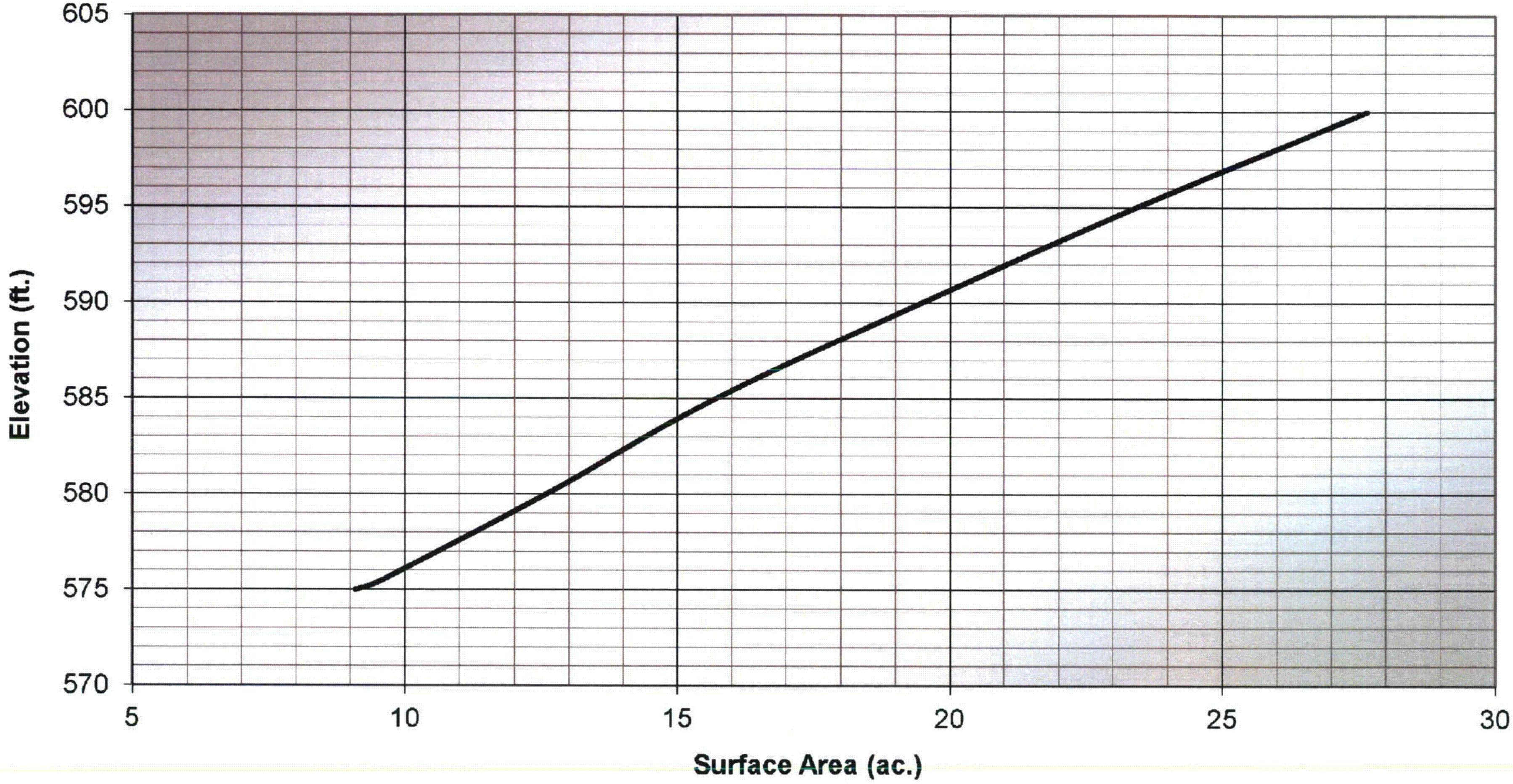


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Discharge Rating Curve,
Upper Arm Dam

FIGURE 2.4.3-247

59. COLA Part 2, FSAR Chapter 2, Figure 2.4.3-248 is revised as follows:

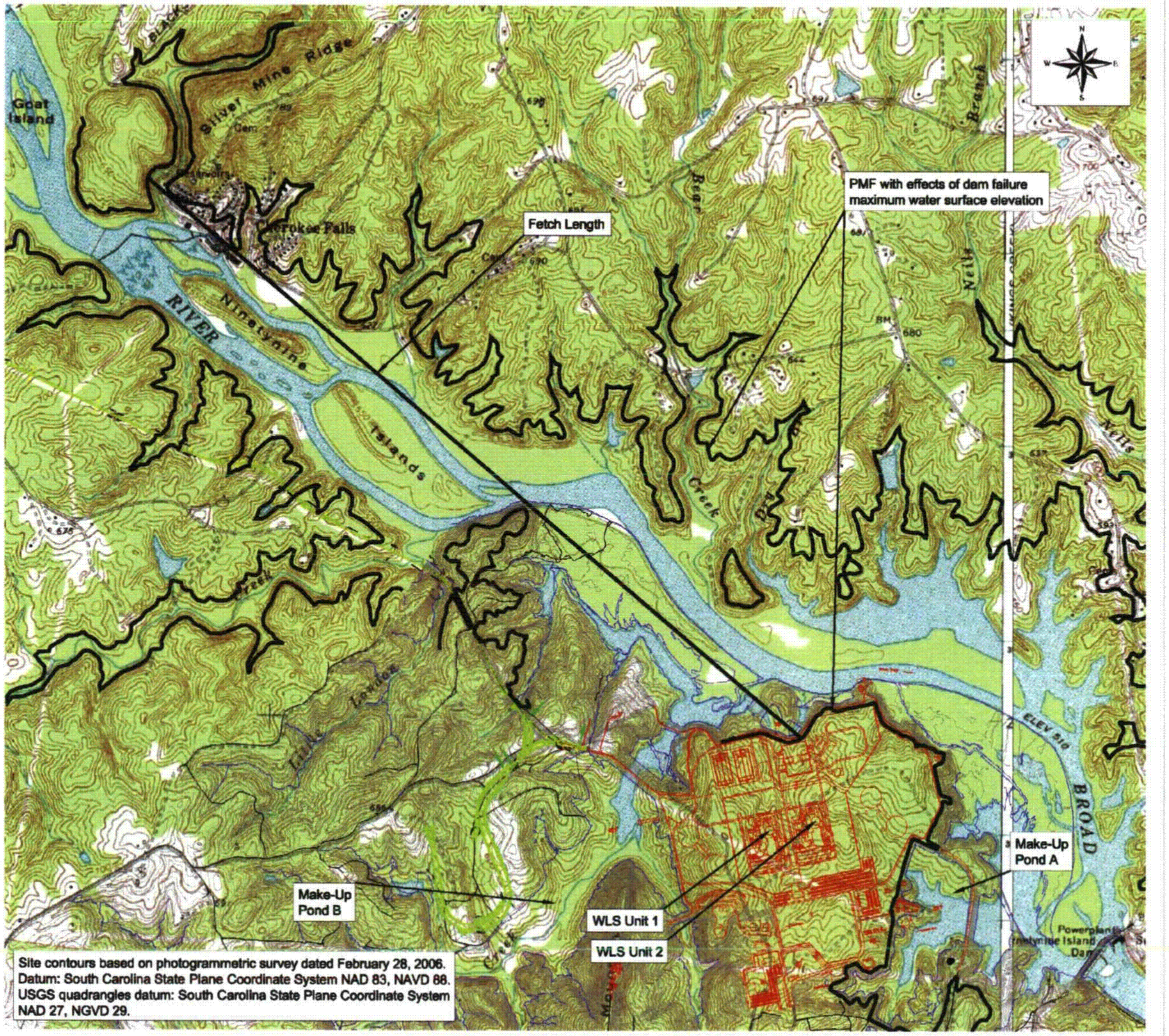


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Storage Capacity Rating Curve,
Upper Arm Dam

FIGURE 2.4.3-248

60. COLA Part 2, FSAR Chapter 2, Figure 2.4.4-201 is revised as follows:



Site contours based on photogrammetric survey dated February 28, 2006.
Datum: South Carolina State Plane Coordinate System NAD 83, NAVD 88.
USGS quadrangles datum: South Carolina State Plane Coordinate System NAD 27, NGVD 29.

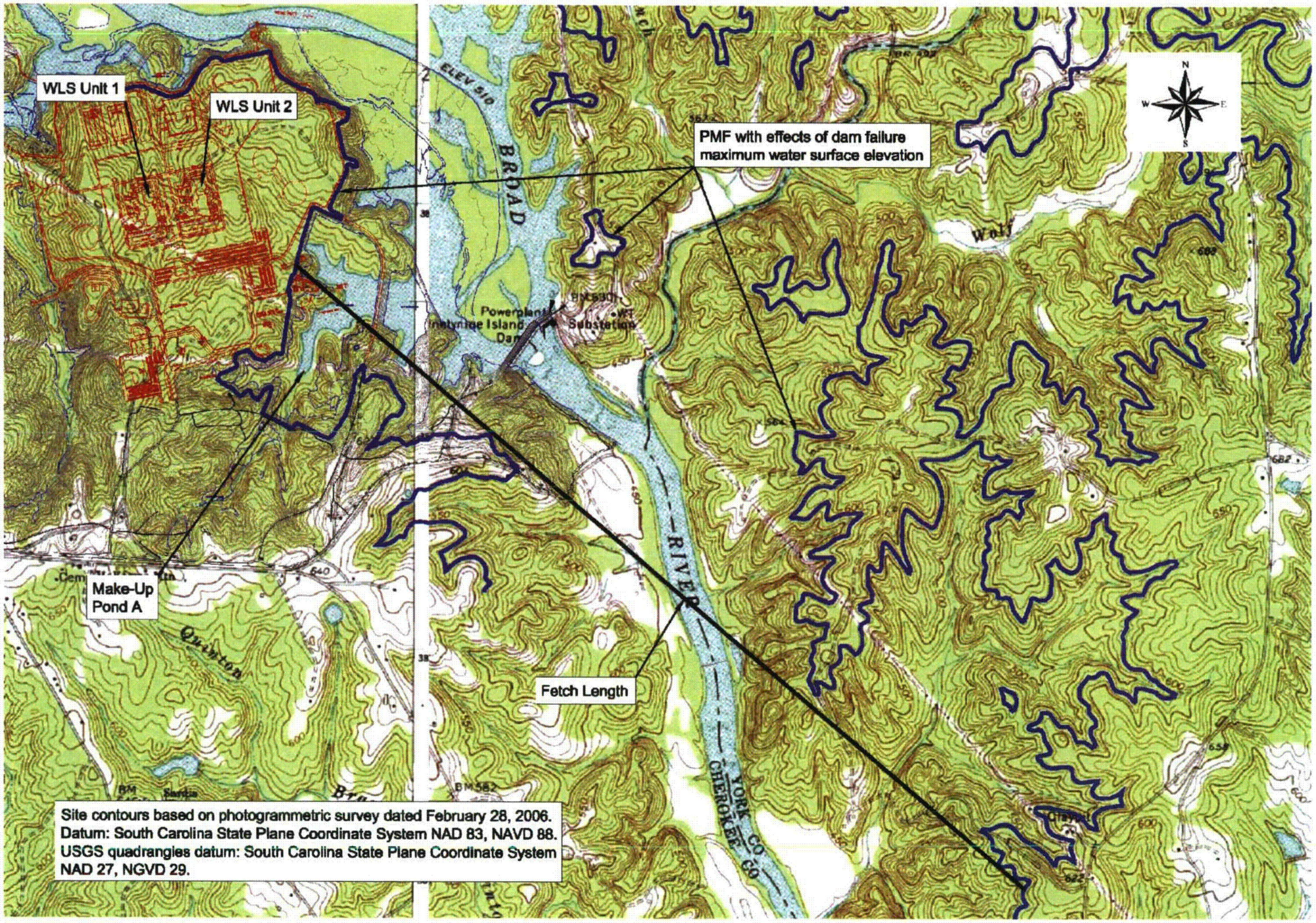
WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Broad River Coincident Wind Wave Fetch Length

FIGURE 2.4.4-201

WLS COL 2.4-2

61. COLA Part 2, FSAR Chapter 2, Figure 2.4.4-202 is revised as follows:



Site contours based on photogrammetric survey dated February 28, 2006.
Datum: South Carolina State Plane Coordinate System NAD 83, NAVD 88.
USGS quadrangles datum: South Carolina State Plane Coordinate System NAD 27, NGVD 29.

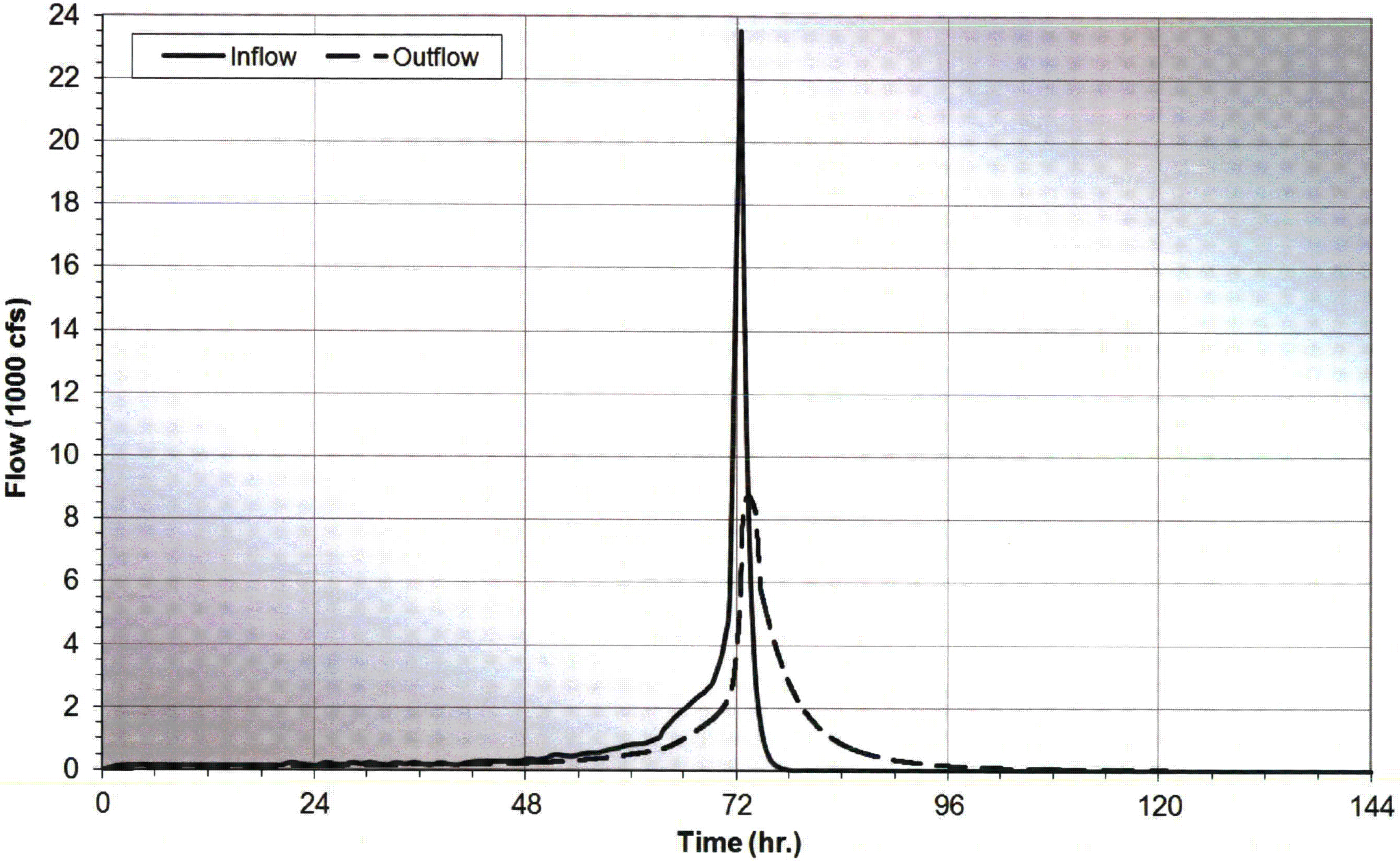
WLS COL 2.4-2

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Make-Up Pond A Coincident Wind Wave Fetch Length

FIGURE 2.4.4-202

62. COLA Part 2, FSAR Chapter 2, Figure 2.4.4-203 is revised as follows:

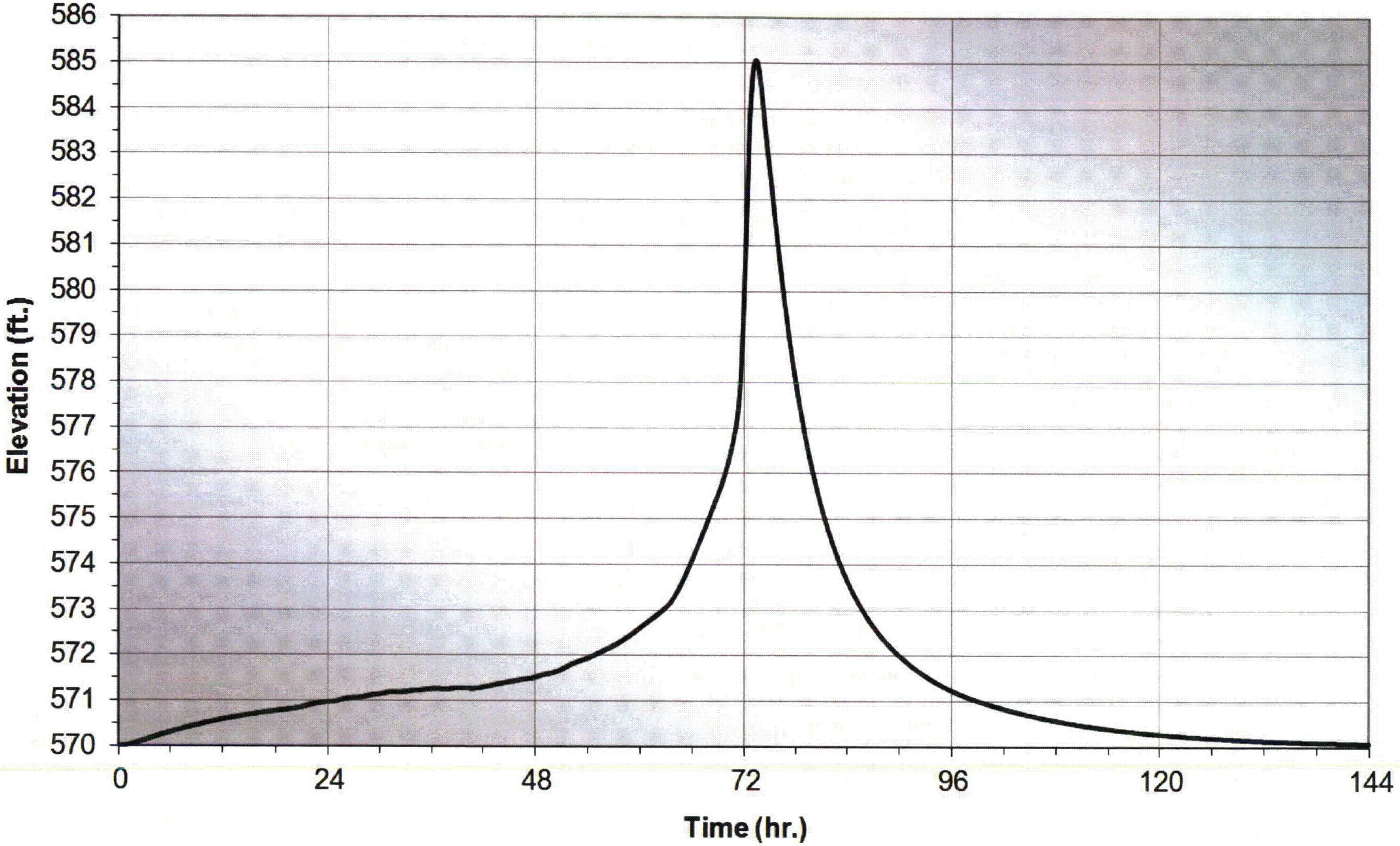


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

PMF Hydrograph With Upper Arm Dam Failure, Make-Up Pond B

FIGURE 2.4.4-203

63. COLA Part 2, FSAR Chapter 2, Figure 2.4.4-205 is revised as follows:

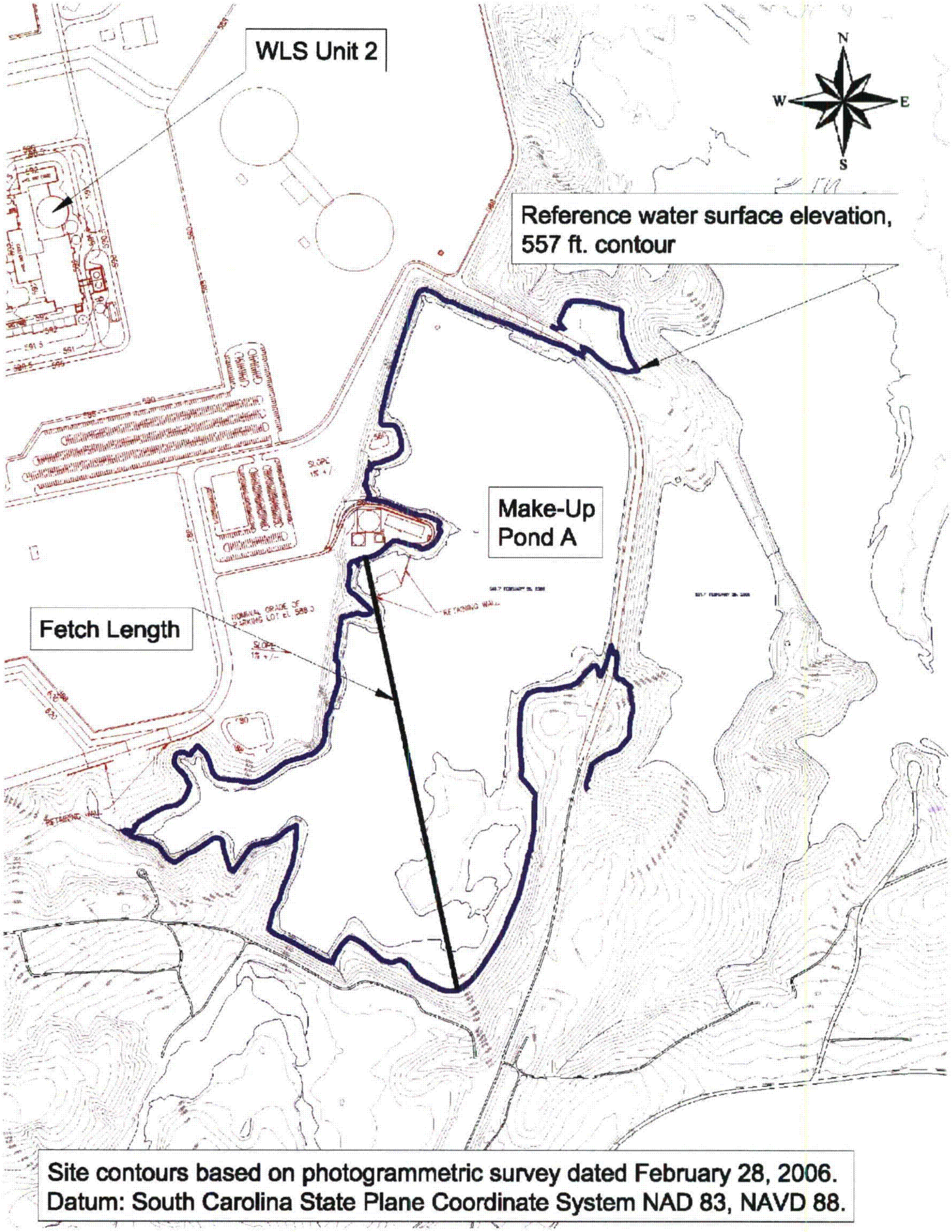


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Flood El. Hydrograph Make-Up Pond B
With Upper Arm Dam Failure,
72-hr. Local Intense Precipitation

FIGURE 2.4.4-205

64. COLA Part 2, FSAR Chapter 2, Figure 2.4.5-201 is revised as follows:

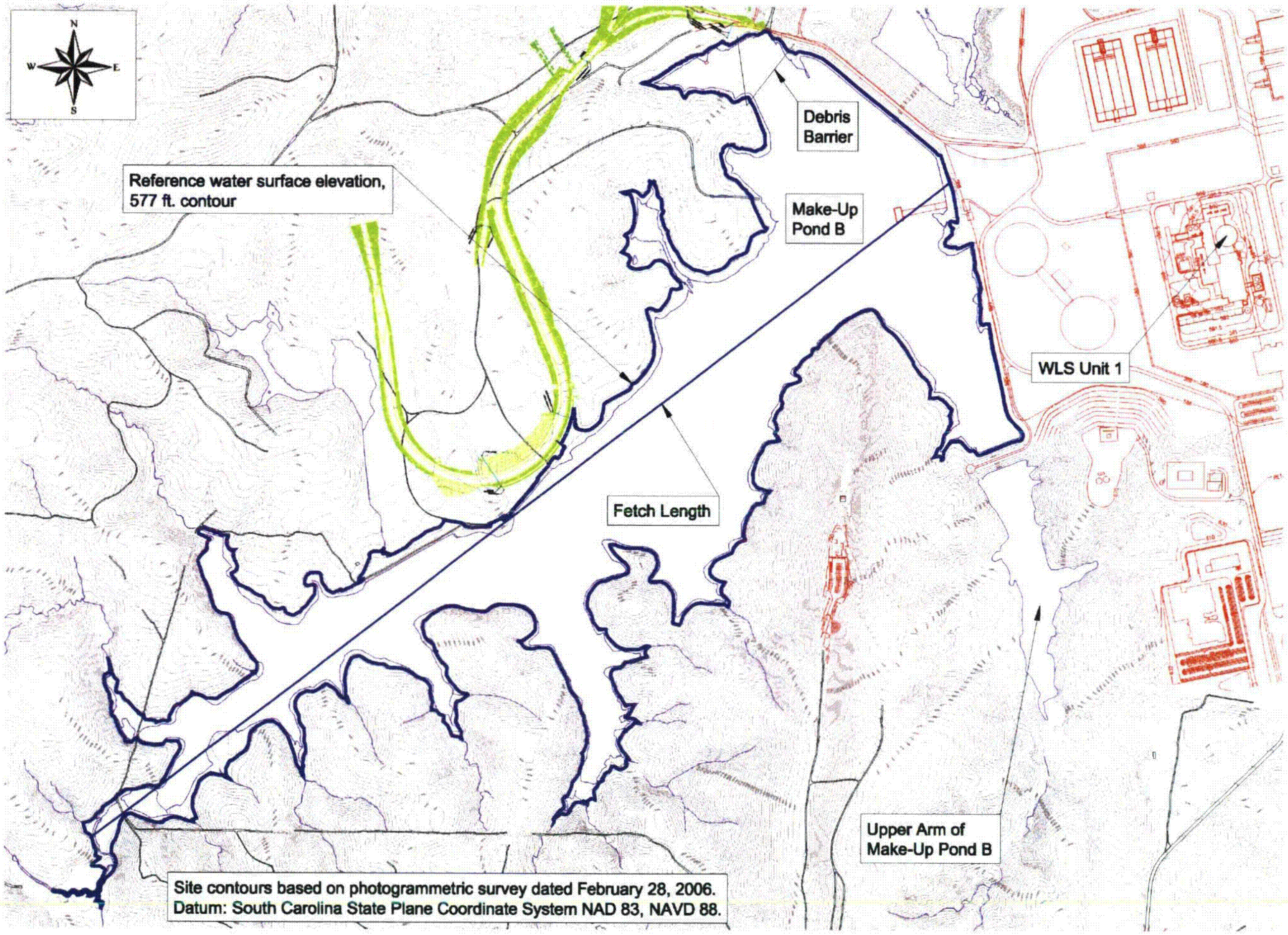


WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Make-Up Pond A
Extreme Wind Speed Fetch Length

FIGURE 2.4.5-201

65. COLA Part 2, FSAR Chapter 2, Figure 2.4.5-202 is revised as follows:



Site contours based on photogrammetric survey dated February 28, 2006.
Datum: South Carolina State Plane Coordinate System NAD 83, NAVD 88.

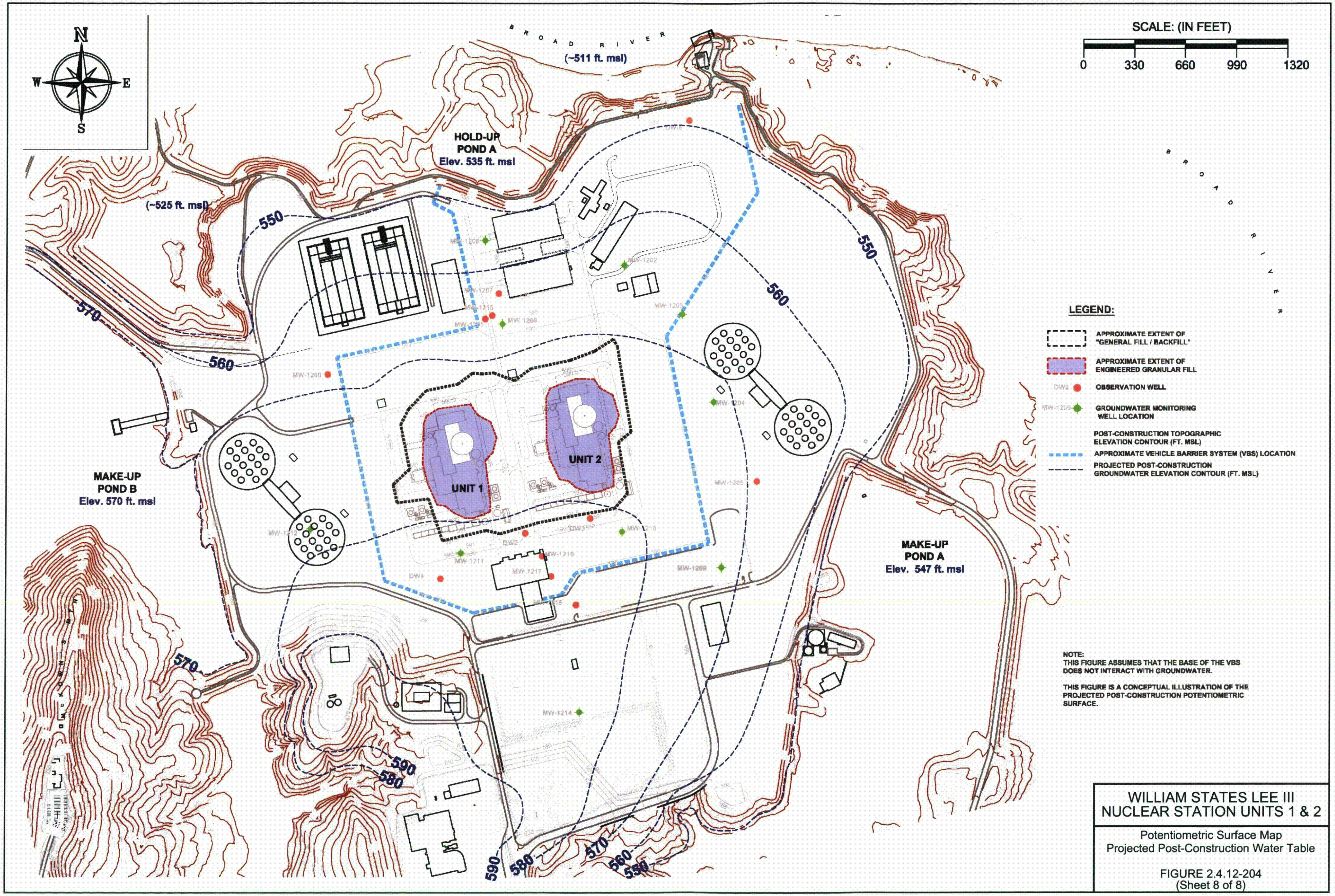
WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Make-Up Pond B
Extreme Wind Speed Fetch Length

FIGURE 2.4.5-202

66. COLA Part 2, FSAR Chapter 2, Figure 2.4.12-204, Sheet 8 of 8 is revised as follows:

WLS
COL 2.4-4



LEGEND:

⬚	APPROXIMATE EXTENT OF "GENERAL FILL / BACKFILL"
🟪	APPROXIMATE EXTENT OF ENGINEERED GRANULAR FILL
DW2 ●	OBSERVATION WELL
MW-1209 ◆	GROUNDWATER MONITORING WELL LOCATION
	POST-CONSTRUCTION TOPOGRAPHIC ELEVATION CONTOUR (FT. MSL)
▪▪▪▪	APPROXIMATE VEHICLE BARRIER SYSTEM (VBS) LOCATION
– – –	PROJECTED POST-CONSTRUCTION GROUNDWATER ELEVATION CONTOUR (FT. MSL)

NOTE:
THIS FIGURE ASSUMES THAT THE BASE OF THE VBS DOES NOT INTERACT WITH GROUNDWATER.

THIS FIGURE IS A CONCEPTUAL ILLUSTRATION OF THE PROJECTED POST-CONSTRUCTION POTENTIOMETRIC SURFACE.

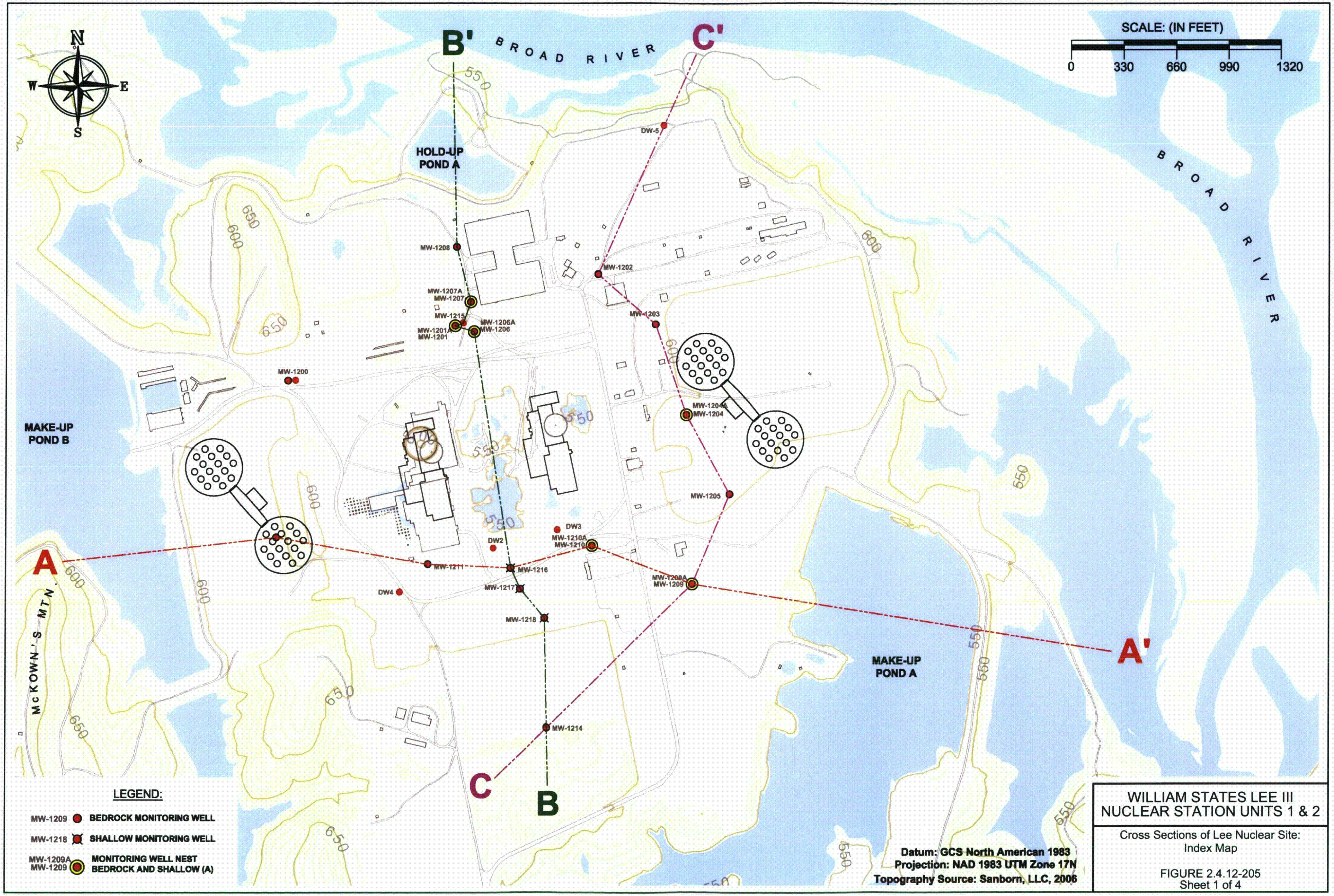
WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Potentiometric Surface Map
Projected Post-Construction Water Table

FIGURE 2.4.12-204
(Sheet 8 of 8)

67. COLA Part 2, FSAR Chapter 2, Figure 2.4.12-205, Sheet 1 of 4 is revised as follows:

WLS
COL 2.4-4



LEGEND:

- MW-1209 ● BEDROCK MONITORING WELL
- MW-1218 ☒ SHALLOW MONITORING WELL
- MW-1209A / MW-1209 ◉ MONITORING WELL NEST BEDROCK AND SHALLOW (A)

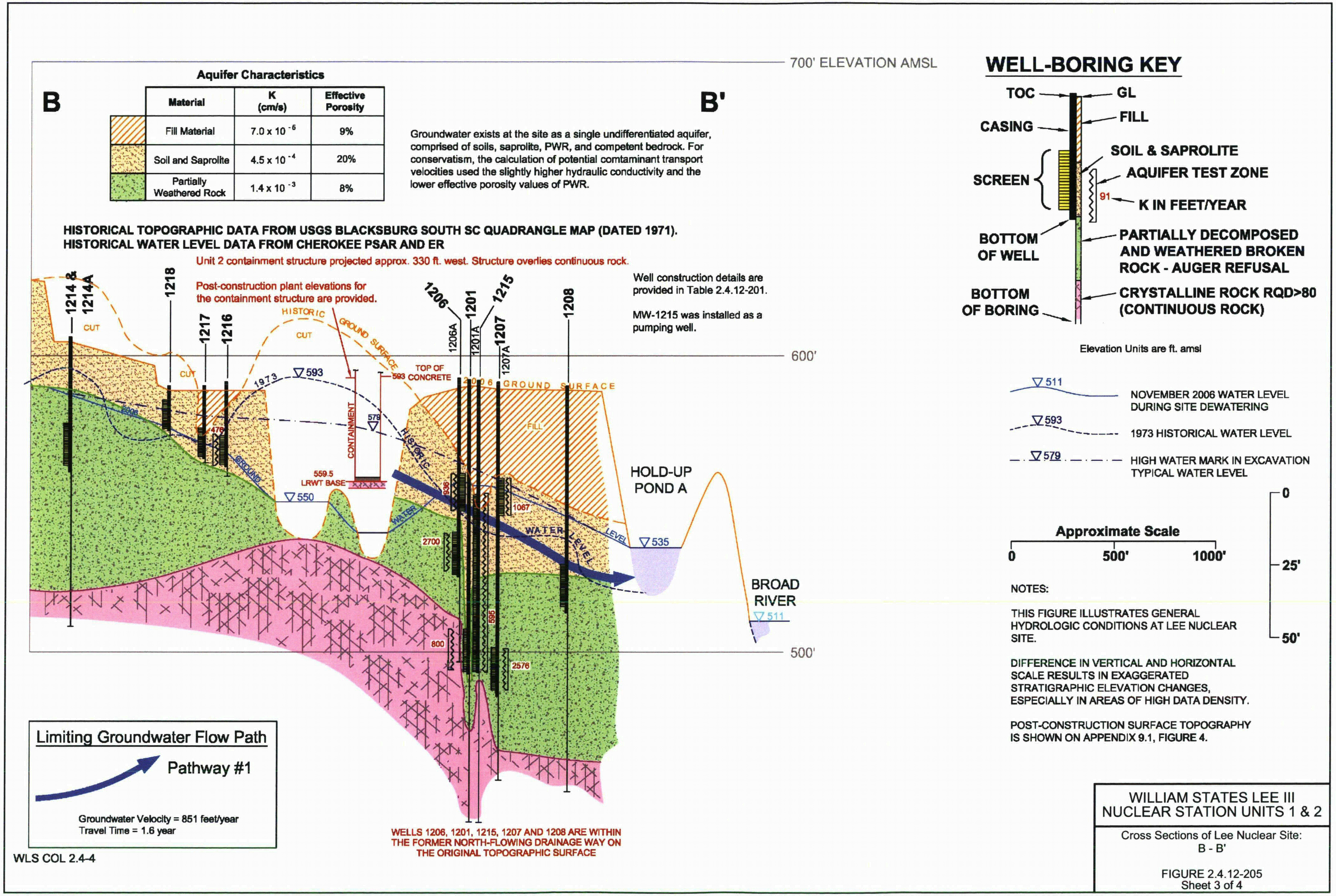
Datum: GCS North American 1983
Projection: NAD 1983 UTM Zone 17N
Topography Source: Sanborn, LLC, 2006

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Cross Sections of Lee Nuclear Site:
Index Map

FIGURE 2.4.12-205
Sheet 1 of 4

68. COLA Part 2, FSAR Chapter 2, Figure 2.4.12-205, Sheet 3 of 4 is revised as follows:



Aquifer Characteristics

	Material	K (cm/s)	Effective Porosity
▨	Fill Material	7.0×10^{-5}	9%
▨	Soil and Saprolite	4.5×10^{-4}	20%
🟩	Partially Weathered Rock	1.4×10^{-3}	8%

Groundwater exists at the site as a single undifferentiated aquifer, comprised of soils, saprolite, PWR, and competent bedrock. For conservatism, the calculation of potential comtaminant transport velocities used the slightly higher hydraulic conductivity and the lower effective porosity values of PWR.

HISTORICAL TOPOGRAPHIC DATA FROM USGS BLACKSBURG SOUTH SC QUADRANGLE MAP (DATED 1971).
HISTORICAL WATER LEVEL DATA FROM CHEROKEE PSAR AND ER

Unit 2 containment structure projected approx. 330 ft. west. Structure overlies continuous rock.

Post-construction plant elevations for the containment structure are provided.

Well construction details are provided in Table 2.4.12-201.

MW-1215 was installed as a pumping well.

WELLS 1206, 1201, 1215, 1207 AND 1208 ARE WITHIN THE FORMER NORTH-FLOWING DRAINAGE WAY ON THE ORIGINAL TOPOGRAPHIC SURFACE

Limiting Groundwater Flow Path

Groundwater Velocity = 851 feet/year
Travel Time = 1.6 year

Elevation Units are ft. amsl

NOVEMBER 2006 WATER LEVEL DURING SITE DEWATERING

1973 HISTORICAL WATER LEVEL

HIGH WATER MARK IN EXCAVATION TYPICAL WATER LEVEL

NOTES:

THIS FIGURE ILLUSTRATES GENERAL HYDROLOGIC CONDITIONS AT LEE NUCLEAR SITE.

DIFFERENCE IN VERTICAL AND HORIZONTAL SCALE RESULTS IN EXAGGERATED STRATIGRAPHIC ELEVATION CHANGES, ESPECIALLY IN AREAS OF HIGH DATA DENSITY.

POST-CONSTRUCTION SURFACE TOPOGRAPHY IS SHOWN ON APPENDIX 9.1, FIGURE 4.

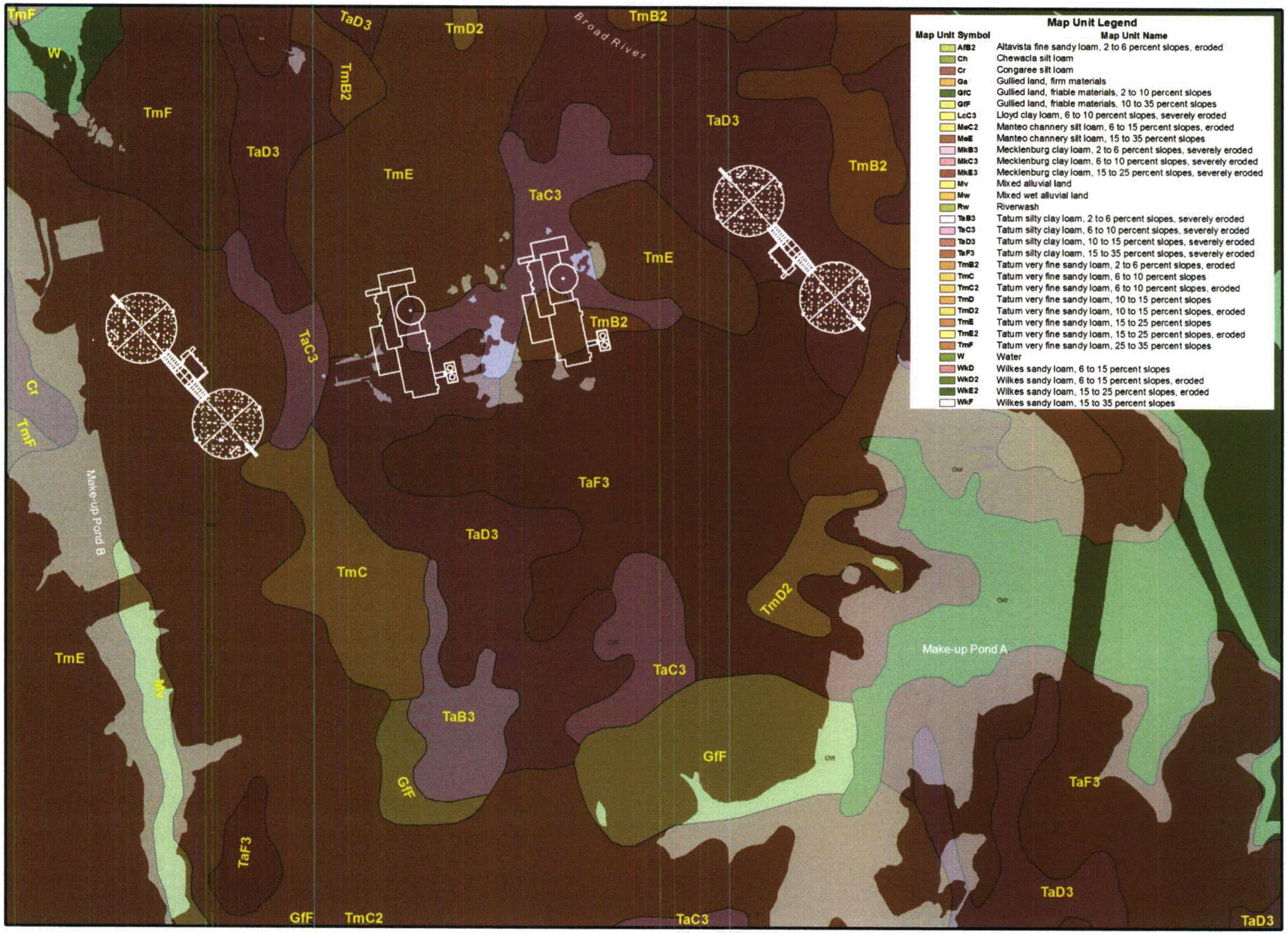
WLS COL 2.4-4

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Cross Sections of Lee Nuclear Site:
B - B'

FIGURE 2.4.12-205
Sheet 3 of 4

69. COLA Part 2, FSAR Chapter 2, Figure 2.4.12-206 is revised as follows:



Locations of permanent structures are approximate. Structures are intended to depict an approximate spatial relationship with surrounding features or conditions.

Source: Reference 280

N
W E
S

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

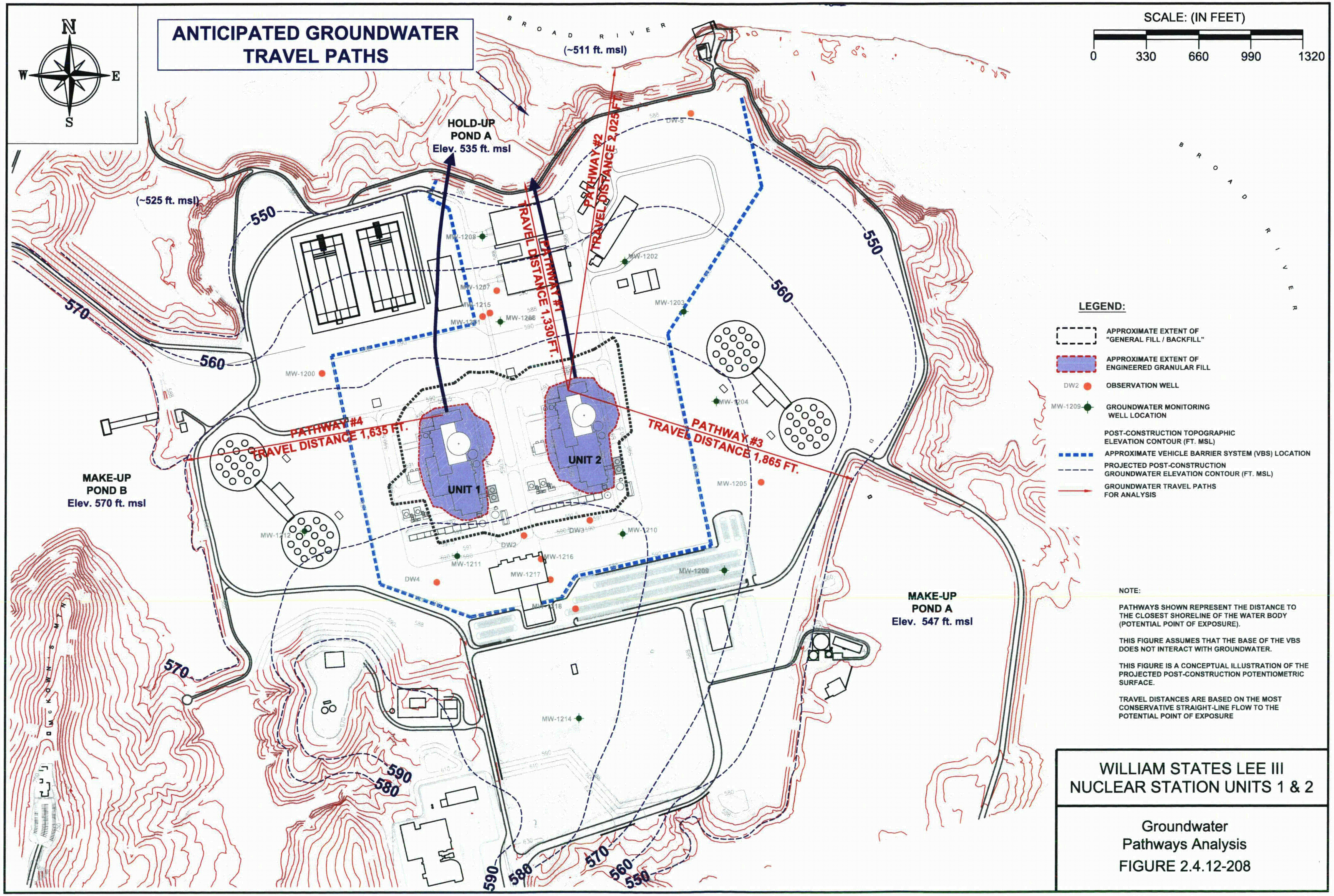
Soil Map of the Lee Nuclear Site

FIGURE 2.4.12-206

WLS COL 2.4-4

Datum: GCS North American 1983
Projection: NAD 1983 UTM Zone 17N

70. COLA Part 2, FSAR Chapter 2, Figure 2.4.12-208 is revised as follows:



NOTE:

PATHWAYS SHOWN REPRESENT THE DISTANCE TO THE CLOSEST SHORELINE OF THE WATER BODY (POTENTIAL POINT OF EXPOSURE).

THIS FIGURE ASSUMES THAT THE BASE OF THE VBS DOES NOT INTERACT WITH GROUNDWATER.

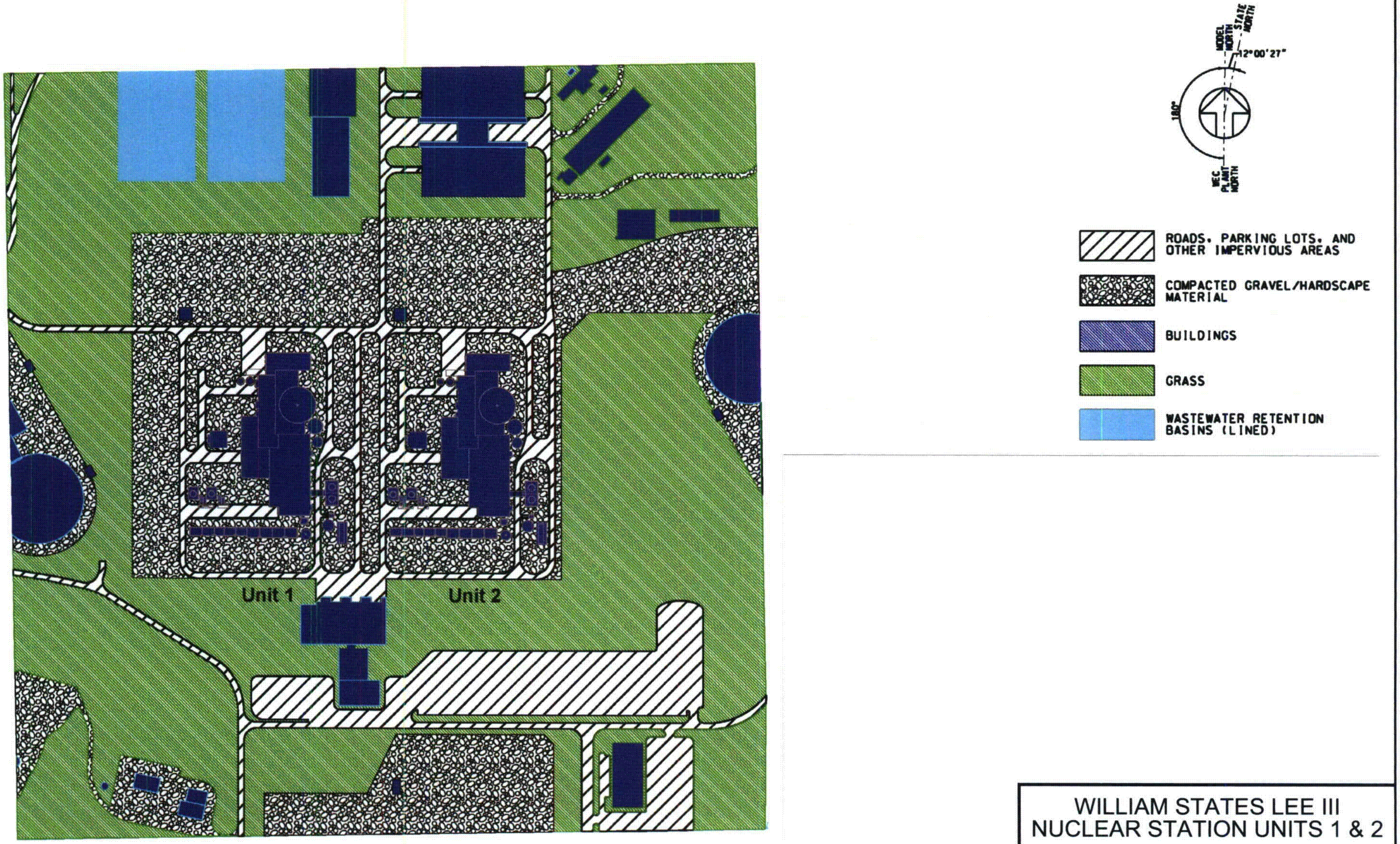
THIS FIGURE IS A CONCEPTUAL ILLUSTRATION OF THE PROJECTED POST-CONSTRUCTION POTENTIOMETRIC SURFACE.

TRAVEL DISTANCES ARE BASED ON THE MOST CONSERVATIVE STRAIGHT-LINE FLOW TO THE POTENTIAL POINT OF EXPOSURE

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Groundwater
Pathways Analysis
FIGURE 2.4.12-208

71. COLA Part 2, FSAR Chapter 2, Figure 2.4.12-209 is revised as follows:



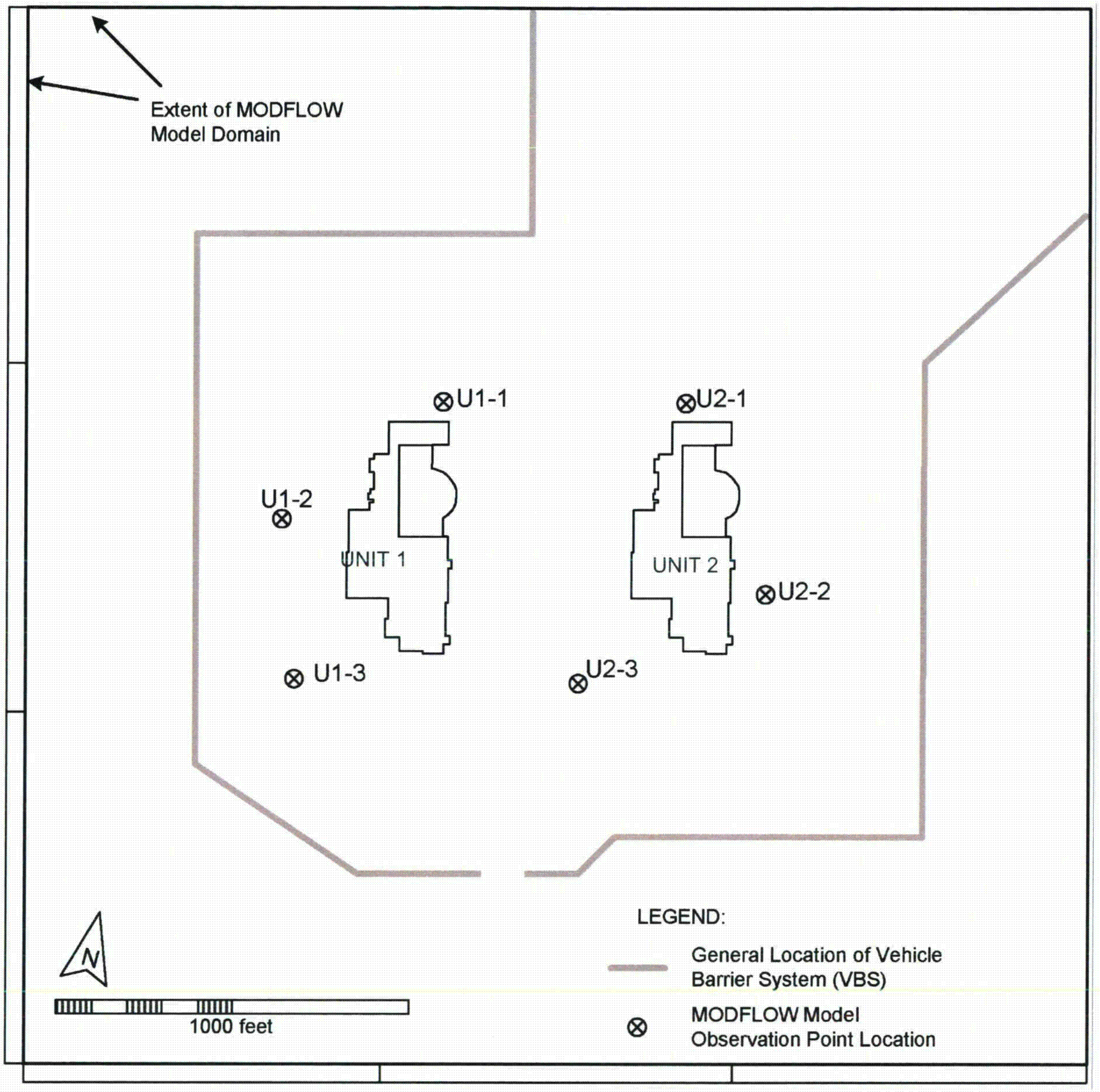
WLS COL 2.4-4

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Post-Construction Surface Cover Treatment
in Power Block and
Immediate Surrounding Area

FIGURE 2.4.12-209

72. COLA Part 2, FSAR Chapter 2, Figure 2.4.12-210 is revised as follows:



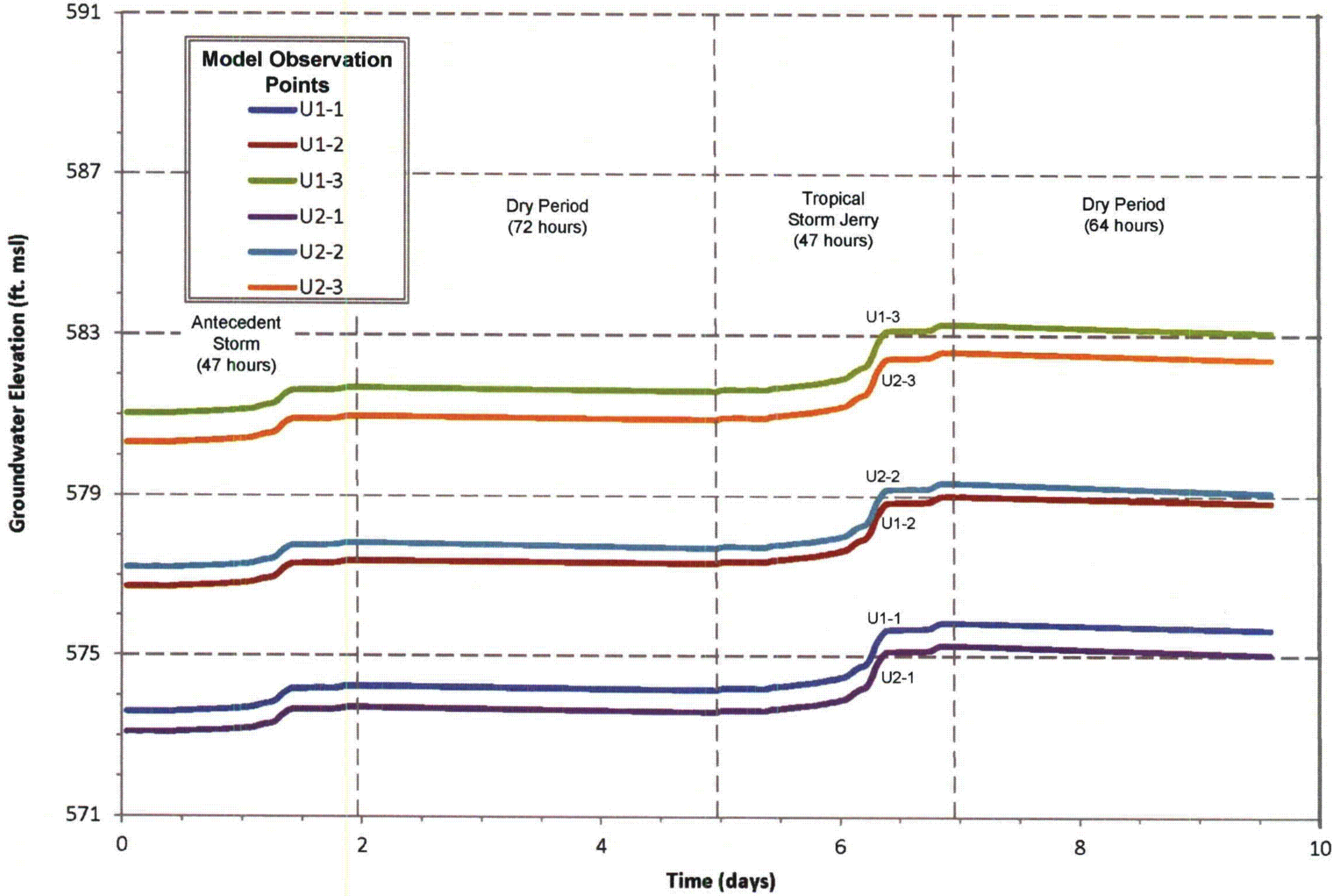
WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Maximum Post-Construction Groundwater Analysis, MODFLOW Model Domain

FIGURE 2.4.12-210

WLS COL 2.4-4

73. COLA Part 2, FSAR Chapter 2, Figure 2.4.12-211 is revised as follows:



WLS COL 2.4-4

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Maximum Post-Construction
Groundwater Analysis, Results Hydrograph

FIGURE 2.4.12-211

Attachment 6

Revisions to FSAR Chapter 2

Appendix 2AA

1. COLA Part 2, FSAR Chapter 2, Appendix 2AA first paragraph is revised to read as follows:

APPENDIX 2AA

This Appendix contains geotechnical boring logs, test pit logs, SPT energy measurements, and Packer Test results that are the basis for discussion in relevant sections of 2.5. The logs and tests represent a record of subsurface conditions at the William States Lee III Nuclear Station site. Attachment 1 contains geotechnical boring logs (124 borings in total) and monitoring well construction logs (24 in total) resulting from the COL investigation as well as a key to symbols and descriptions. Attachment 2 contains the results of SPT energy measurement testing performed on the Lee Nuclear Station site. Attachment 3 contains test pit logs resulting from the COL investigation, 14 logs in total. Attachment 4 contains Packer Test results from four locations on the Lee site. Attachment 5 contains the Cone Penetrometer Test, Seismic Cone Penetrometer Test, and Pore Pressure Dissipation Test results performed on the Lee Nuclear Station site. Attachment 6 contains seven geotechnical boring logs for WLS Units 1 and 2, which supplement the boring logs presented in Attachment 1.

2. COLA Part 2, FSAR Chapter 2, Appendix 2AA is revised to add Attachment 6 as follows:

APPENDIX 2AA

ATTACHMENT 6 – LEE NUCLEAR STATION GEOTECHNICAL BORINGS LOGS, 2012 EXPLORATION

This Attachment contains the seven geotechnical boring logs from the 2012 geotechnical investigation supporting WLS Units 1 and 2. This attachment supplements the geotechnical boring logs presented in Attachment 1.

ROCK LOG COPY BORING LOGS 6234120050 11.19.12.GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number Lee Nuclear Station COL 6234 - 12 - 0050	amec LCI FUGRO	**ROCK LOG - Boring No. B-2000**	
Type and Diameter of Boring Rock core / HQ / 3 inch	Boring Location Unit 1 NI N 1166027 E 1846302		Total Depth 126.0
Drilling Contractor and Rig AMEC / J. Landeros / CME 550 X	Elevation and Datum 544.5 feet MSL	Ground Water Depth 0 feet	Depth to Bedrock 9.7 feet
Casing Size and Depth NA	Length of Core Barrel and Bit 8.6 feet	No. of Core Boxes 12	Date Started 10/8/12
	Borehole Inclination -90	Logged by M. Harvey	Date Completed 10/12/12

Reviewed by / Date M. Gray 10/17/12
Reviewed by / Date M. Gray 11/19/12

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
0							▼	Concrete; gray (5Y 6/1) with rebar removed with 6 inch thin wall bit from 0 to 4 ft.		544
1										543
2										542
3										541
4		1	5.0/5.0					Concrete; gray (6/N).	Begin rock core drilling at 4 ft, RQD is applicable to rock only.	540
5										539
6										538
7										537
8										536
9		2	5.0/5.0	67						535
10					SW	R3		META-DIORITE; dark gray (3.5/N), CONTINUOUS ROCK.	Concrete to rock interface at 9.7 ft.	534
11										533
12										532
13								META-GRANODIORITE; gray (6/N).		531
14		3	5.0/5.0	94	SW	R3				530
15					MW					529
16										528
17										527
18					SW	R5				526
19		4	4.8/5.0	94	MW	R3				525
20										524
21										523
22										522
23					SW	R4				521
24		5	5.0/5.0	100	SW	R4 to R5				520
25										519
26										518
27								At 26.7 ft., quartz vein, 2 inch, dip 54°.		517
28										516
29		6	4.9/5.0	94						515
30					SW to F	R5				514
31										513
32										512
33										511
34		7	5.0/5.0	100	SW to F	R5				510
35										509
36										508
37										507
38										506
39										505
40										

ROCK LOG COPY BORING LOGS 6234120050 11.19.12.GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

ROCK LOG - Boring No. B-2000

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
40								META-GRANODIORITE; gray (6/N).		504
41		8	5.0/5.0	100	F	R5				503
42										502
43										501
44										500
45										499
46		9	5.0/5.0	100	F	R5				498
47										497
48										496
49										495
50										494
51		10	5.0/5.0	100	F	R5				493
52										492
53										491
54									End of day 10/9/12 Start of day 10/10/12; water level at 0 ft.	490
55								META-GRANODIORITE; gray (6/N) and light red (2.5YR 5/6), and light gray (7/N), quartz and pink feldspar.		489
56		11	4.9/5.0	97	SW to F	R5				488
57										487
58										486
59								META-GRANODIORITE; gray (6/N), weathering visible on fracture surfaces.		485
60										484
61		12	5.0/5.0	88	SW to F	R5				483
62										482
63									63.0 - 64.8 ft - 100% water loss.	481
64								META-GRANODIORITE; gray (6/N).		480
65										479
66		13	5.0/5.0	96	F	R5				478
67										477
68										476
69										475
70										474
71		14	4.8/5.0	88	SW	R5				473
72										472
73								META-GRANODIORITE; gray (6/N) and light red (2.5YR 6/8), quartz and pink feldspar.		471
74		15	1.0/1.0	100				META-GRANODIORITE; white (8/N), 98% quartz	74 - 78.2 ft; slow progress	470
75					F					469
76		16	2.0/2.0	100		R6				468
77		17	1.0/1.0	100	F					467
78		18	1.0/1.0	100				META-GRANODIORITE; gray (6/N).	End of day 10/10/12 Start of day 10/11/12; water	466
79										465
80										

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.19.12.GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

amec LCI Fugro

ROCK LOG - Boring No. B-2000

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
80 81 82 83	▨	19	5.0 / 5.0	100	F	R5		META-GRANODIORITE; white (8/N), light red (2.5YR 6/6) with gray (5/N), decreasing pink feldspar content with depth.	level at 0.2 ft. 78.2 ft; Sharpen bit.	464 463 462 461
84 85 86 87 88	▨	20	5.0 / 5.0	98	F	R5		META-GRANODIORITE; gray (6/N). At 88.4 ft., quartz vein, dip 54°.		460 459 458 457 456
89 90 91	▨	21	3.0 / 3.0	100	F	R5		META-GRANODIORITE; gray (6/N). At 90-92.7 ft., quartz vein; 1.5 to 0.5 inch, dip near vertical.		455 454 453
92 93	▨	22	2.0 / 2.0	100					92 ft; 100% water loss	452 451
94 95 96 97 98	▨	23	5.0 / 5.0	91	F	R5		At 97.2-97.4 ft., quartz vein with pink feldspar.		450 449 448 447 446
99 100 101 102 103	▨	24	5.0 / 5.0	98	F	R5		META-GRANODIORITE; gray (6/N). At 102.5-103.1 ft., quartz vein.		445 444 443 442 441
104 105 106 107 108	▨	25	5.0 / 5.0	94	F	R5				440 439 438 437 436
109 110 111 112 113	▨	26	5.0 / 5.0	94	F	R5			Drill bit dull.	435 434 433 432 431
114 115 116 117 118	▨ ■	27	5.0 / 5.0	100	F	R5		At 114.5 ft., quartz vein, dip 60°. At 117-117.7 ft., META-QUARTZDIORITE, dip 60°. META-DIORITE; dark gray (4/N).	End of day 10/11/12. Start of day 10/12/12; water level at 0.15 ft.	430 429 428 427
119 120	■									426 425

ROCK LOG COPY BORING LOGS 6234120050 11.19.12.GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

amec LCI FUGRO

ROCK LOG - Boring No. B-2000

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
120	■							META-DIORITE; dark gray (4/N).		
121	■	28	5.0 / 5.0	100	F	R5				424
122	■									423
123	■									422
124	■									421
125	■	29	2.0 / 2.0	100	F	R5				420
126										419
127										418
128										417
129								Total Depth 126.0 ft. Groundwater encountered at 0 feet during drilling. Borehole backfilled with grout on 10/23/12.		416
130										415
131										414
132										413
133										412
134										411
135										410
136										409
137										408
138										407
139										406
140										405
141										404
142										403
143										402
144										401
145										400
146										399
147										398
148										397
149										396
150										395
151										394
152										393
153										392
154										391
155										390
156										389
157										388
158										387
159										386
160										385

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number Lee Nuclear Station COL 6234 - 12 - 0050	amec LCI FUGRO	**ROCK LOG - Boring No. B-2001**	
Type and Diameter of Boring: Rock core / HQ / 3 inch	Boring Location: Unit 1 NI N 1165894 E 1846423		Total Depth: 100.5
Drilling Contractor and Rig: TRI State Drilling / CME 75 / CME 55	Elevation and Datum: 544.5 feet MSL	Ground Water Depth: 0 feet	Depth to Bedrock: 4.8 feet
Casing Size and Depth: NA	Length of Core Barrel and Bit: 8.6 feet	No. of Core Boxes: 9	Date Started: 10/13/12
	Borehole Inclination: -90	Logged by: M. Flanik	Date Completed: 10/16/12

Reviewed by / Date M. Gray 10/17/12

Reviewed by / Date M. Gray 11/19/12

Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing
1	0.5/0.5				
2	5.0/5.0	80	F	R3	
3	2.6/2.6	88	F	R4	
4	2.4/2.4	88	F	R5	
5	5.0/5.0	71	SW	R5	
6	5.0/5.0	94	F	R5	
7	5.0/5.0	100	F	R5	
8	2.2/2.2	80	F	R5	
9	0.7/0.7	100	F	R5	
10	0.8/0.9	89	F	R5	
11	1.2/1.2	100	F	R5	
12	1.4/1.4	89	F	R5	
13	2.3/2.7	85	F	R5	
14	0.3/0.3	100	F	R5	
15	0.3/0.3	100	F	R5	

Lithology

Concrete with rebar removed using 6 inch thin wall bit from 0 to 4 ft.

META-DIORITE; black (2.5/N), fine grained, few quartz veins, CONTINUOUS ROCK.

META-DIORITE; greenish black (2.5/1 10Y), fine graned, few quartz veins.

META-DIORITE; very dark greenish gray (3/1 10GY), few thin quartz veins, thicker 14.5 - 15 ft.

META-DIORITE; very dark greenish gray (3/1 10GY), with thin quartz veins.

META-GRANODIORITE; bluish gray (6/1 10B), medium grained.

Remarks

Begin rock coring at 4 ft; RQD is applicable to rock only.
Concrete to rock interface at 4.8 ft.

Fluid color changes from gray to brown and back to gray.

End of day 10/13/12
Start of day 10/14/12; Water level at 0 ft.
Drilling water changed from gray to bluish gray.
"Deglaze" bit.

"Deglaze" bit.

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

amec LCI FUGRO

ROCK LOG - Boring No. B-2001

Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks
	0.6/0.6						"Deglaze" bit. "Deglaze" bit.
16	4.9/5.0	88	F	R5			
17	4.9/5.0	76	SW F	R4 R5		META-GRANODIORITE; dark greenish gray (4/1 10G), fine grained, quartz vein with calcite, sheared along foliation. META-GRANODIORITE; dark bluish gray (4/1 5PB), medium grained, with quartz veins.	
18	5.0/5.0	88	F	R5			Fluid color changes from light gray to dark gray.
19	4.8/5.0	96	F	R5		META-GRANODORITE, dark bluish gray (4/1 5PB), medium grained. At 54.5-55.5 ft., quartz vein, dip 75°.	End of day 10/14/12 Start of day 10/15/12; Water level at 0.05 ft. "Deglaze" bit. "Deglaze" bit. "Deglaze" bit.
20	1.2/1.2	100	F	R5		META-DIORITE; dark greenish black (2.5/1 10G), fine grained.	
21	3.8/3.8	89	F	R5		META-GRANODIORITE; dark bluish gray (4/1 5PB), medium grained, few quartz veins. META-GRANODORITE; dark bluish gray (4/1 5PB), medium grained, with vertical quartz veins.	
22	4.7/4.7	100	F	R5		META-GRANODORITE; dark bluish gray (4/1 5PB), medium grained.	0.4 ft. of Run 21 recovered with Run 22.
23	0.3/0.3		F	R5			Inner barrel full, pull out.
24	5.0/5.0	100	F	R5		At 74.2-74.5 ft., quartz veins.	
25	1.1/1.1	100	F	R5		META-GRANODIORITE; dark bluish gray (4/1 5PB), medium grained.	Tube locks up, pull rod.
26	3.9/3.9	76	F	R5		META-GRANODIORITE; dark bluish gray (4/1 5PB), medium grained, few quartz veins.	"Deglaze" bit.

Depth (feet): 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80

Elevation (feet): 504, 503, 502, 501, 500, 499, 498, 497, 496, 495, 494, 493, 492, 491, 490, 489, 488, 487, 486, 485, 484, 483, 482, 481, 480, 479, 478, 477, 476, 475, 474, 473, 472, 471, 470, 469, 468, 467, 466, 465

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

ROCK LOG - Boring No. B-2001

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
80	▨	27	1.1 / 1.1	86	F	R5			Blocked up	464
81	▨	28	1.1 / 1.1	100	F	R5				
82 83 84	▨	29	0.8 / 0.8 3.1 / 3.1	82	F	R5		META-GRANODIORITE - dark bluish gray (4/1 5PB), medium grained.	Blocked up; top of core rounded. Change bit. End of day 10/15/12	463 462 461
85 86 87 88 89	▨	30	4.8 / 5.0	94	F	R5		At 84.2 ft., META-DIORITE vein. META-GRANODIORITE; dark bluish gray (4/1 5PB) medium grained, few dark veins, trace dark biotite porphroblast.	Start of day 10/16/12; water level at 0.0 ft. "Deglaze" bit.	460 459 458 457 456
90 91 92 93 94	▨	31	5.0 / 5.0	83	F	R5				455 454 453 452 451
95 96 97	▨	32	3.0 / 3.0	100	F	R5		META-GRANODIORITE; dark bluish gray (4/1 5PB), medium grained, trace thin, dark veins.		450 449 448
98 99 100	▨	33	2.8 / 3.0	93	F	R5			Inner barrel blocked. Pull out and change bit.	447 446 445
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120								Total Depth 100.5 ft. Groundwater encountered at 0 feet during drilling. Borehole backfilled with grout on 10/24/12.		444 443 442 441 440 439 438 437 436 435 434 433 432 431 430 429 428 427 426 425

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.19.12.GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number Lee Nuclear Station COL 6234 - 12 - 0050	amec LCI FUGRO		**ROCK LOG - Boring No. B-2002**
Type and Diameter of Boring Rock core / HQ / 3 inch	Boring Location Unit 1 NI N 1165782 E 1846365		Total Depth 225.6
Drilling Contractor and Rig AMEC / L. Carter / CME750 X	Elevation and Datum 558.8 feet MSL	Ground Water Depth 12.5 feet	Depth to Bedrock 6.6 feet
Casing Size and Depth NA	Length of Core Barrel and Bit 8.6 feet	No. of Core Boxes 15	Date Started 10/13/12
	Borehole Inclination -90	Logged by R. Ortiz	Date Completed 10/16/12

Reviewed by / Date M. Gray 10/17/12
Reviewed by / Date M. Gray 11/19/12

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
0								Concrete with rebar removed using 6 inch thin wall bit from 0 to 2.9 ft.		
1										558
2										557
3								Fill Concrete (unreinforced).	Begin rock core drilling at 2.9 ft. RQD applicable to rock only.	556
4		1	2.7 / 2.7							555
5										554
6										553
7								META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium grained, massive, close to very closely spaced healed fractures dip 60°, healed fractures may be along dominant foliaion orientation, CONTINUOUS ROCK.	Concrete to rock interface at 6.6 ft.	552
8		2	4.8 / 4.8	92	F	R5				551
9										550
10										549
11			0.4					Not Recovered - See remarks.	The drill bit damaged at end of run 2, (10.4 ft), 0.2 ft of core left in hole. Unable to continue until bit pieces were removed from borehole. Tricone bit used to advance from 10.4 to 10.8 ft. No core recovery possible.	548
12								▼		547
13		3	4.8 / 4.8	96	F	R5				546
14										545
15										544
16										543
17										542
18		4	5.0 / 5.0	100	F	R5				541
19										540
20										539
21								META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium grained, massive, moderately close foliation (old healed fractures) dip 60°.		538
22										537
23		5	5.0 / 5.0	100	F	R5				536
24										535
25										534
26										533
27										532
28		6	5.0 / 5.0	58	F	R5			28 ft; 100% water loss.	531
29										530
30										529
31								META-GRANODIORITE; bluish gray (5PB 5/1), medium grained grained, massive, 40% quartz, 40% feldspar, 20% mafics, quartz has been recrystalized as has the feldspars. Very close to closely spaced healed fractures dominant dip 60°. small mafic xenolith offset by healed fracture. Offset is 4-6mm.	End of day 10/13/12 Start of day 10/14/12; water level at 14 ft.	528
32										527
33		7	5.0 / 5.0	100	F	R5			33 ft: 100% water loss	526
34										525
35										524
36										523
37									36.6 ft: "dry sharpen" bit	522
38		8	5.0 / 5.0	92	F	R5			38 ft: "dry sharpen" bit	521
39										520
40										519

ROCK LOG COPY BORING LOGS 6234120050 11.19.12 GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

amec LCI FUGRO

ROCK LOG - Boring No. B-2002

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
		9	4.4/5.0	70	F	R3 R5		At 39.8-40.4 ft., META-DIORITE; greenish black (10BG 2.5/1), fine grained, massive, sharp 80° dipping upper contact, olive yellow (2.5Y 6/8), tight.	Run 9 may be short 0.1 ft due to slight change in rig height. 40.8 ft; Switch to Series #2 bit.	
		10	5.0/5.0	100	F	R5		At 47.1-48.1 ft., quartz vein, 4mm to 5cm thick, dip 80°		
		11	3.0/3.0	100	F	R5		META-GRANODIORITE; bluish gray (5PB 5/1), medium grained, massive, close spaced healed fractures (foliation), dip 60°. META-DIORITE; greenish black (10BG 2.5/1), fine grained, massive.		
		12	1.5/2.0	75				META-GRANODIORITE; bluish gray (5PB 5/1), medium grained, massive, close spaced healed fractures (foliation), dip 60°.	Run 12 recovered 1.5 ft; lower 0.5 ft of core fell out and wedged in hole; not retrieved by run 13.	
		13	5.0/5.0	98	F	R5		META-DIORITE; greenish black (10BG 2.5/1), fine grained, massive. META-GRANODIORITE; bluish gray (5PB 5/1), medium grained, massive, close spaced healed fractures (foliation), dip 60°.		
		14	5.0/5.0	98	F	R5		META-DIORITE; dark bluish gray (5PB 4/1), fine grained, massive. META-GRANODIORITE; bluish gray (5PB 5/1), medium grained, massive, close spaced healed fractures (foliation), dip 60°.		
		15	5.0/5.0	94	F	R5		At 66.2-67.2 ft., healed brecciated zone, quartz veins fill in void spaces. META-DIORITE; greenish black (10BG 2.5/1), fine grained, massive, moderately close spaced quartz veins.	Lower 0.5 ft. of core is damaged trying to remove from core barrel.	
		16	5.0/5.0	100	F	R5		At 71.6 ft., 6 cm wide healed fracture, healed with quartz and calcite open void space with small quartz and calcite crystals and pyrite.		
		17	5.0/5.0	100	F	R5		META-DIORITE to META-QUARTZDIORITE; fine to medium grained. META-DIORITE; greenish black (10BG 2.5/1), fine grained, massive, moderately close spaced quartz veins to 79 ft.		

Depth (feet)	Elevation (feet)
40	
41	518
42	517
43	516
44	515
45	514
46	513
47	512
48	511
49	510
50	509
51	508
52	507
53	506
54	505
55	504
56	503
57	502
58	501
59	500
60	499
61	498
62	497
63	496
64	495
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66	493
67	492
68	491
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70	489
71	488
72	487
73	486
74	485
75	484
76	483
77	482
78	481
79	480
80	479

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.19.12.GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

amec LCI FUGRO

ROCK LOG - Boring No. B-2002

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
80										
81										478
82								At 81-84.1 ft., quartz and epidote veins, moderately closely spaced, some veins offset by thinner veins. Some brecciation.		477
83		18	5.0/5.0	100	F	R5				476
84										475
85										474
86										473
87										472
88		19	5.0/5.0	100	F	R5		META-GRANODIORITE; bluish gray (5PB 5/1), contact dip at 30°.		471
89										470
90										469
91										468
92										467
93		20	5.0/5.0	90	F	R5		At approximately 92 ft., quartz vein 3 cm thick, dip 80°.		466
94										465
95										464
96										463
97								At 96.4 ft., quartz vein, 3.5 cm, dip 80°.		462
98		21	5.0/5.0	100	F	R5				461
99										460
100										459
101										458
102										457
103		22	5.0/5.0	98	F	R5				456
104										455
105										454
106								META-GRANODIORITE, bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, massive, moderately close to cloase spaced healed fractures (foliation), dip 60°, 20% quartz, 40% feldspar, 40% mafics.	End of day 10/14/12 Start of day 10/15/12; water at 12.5 ft.	453
107										452
108		23	5.0/5.0	98	F	R5				451
109										450
110										449
111										448
112								111.2 ft; Mafic xenolith 0.4 ft long.		447
113		24	5.0/5.0	100	F	R5				446
114										445
115										444
116										443
117		25	3.6/3.6	97						442
118					F	R5				441
119										440
120			1.4							439

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.19.12.GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number Lee Nuclear Station COL 6234 - 12 - 0050	amec LCI FUGRO	ROCK LOG - Boring No. B-2002

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
120	26	1.4	100						
121							META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1) medium to coarse grained, massive, quartz and feldspars crystals appear to be recrystalized (granofelsic texture), 20% quartz, 40% feldspar, 40% mafics, fused grain boundaries.		438
122									437
123	27	5.0 / 5.0	100	F	R5				436
124									435
125									434
126								125.6 ft; Replace bit, Series #6 bit.	433
127									432
128	28	5.0 / 5.0	100	F	R5				431
129									430
130									429
131									428
132									427
133	29	5.0 / 5.0	100	F	R5				426
134									425
135									424
136							META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, 20% quartz, 40% feldspars, 40% mafics, moderately close to wide spaced mafic xenoliths.		423
137									422
138	30	5.0 / 5.0	100	F	R5				421
139									420
140									419
141									418
142								142 ft; dry sharpen bit.	417
143	31	5.0 / 5.0	90	F	R5				416
144								144 ft; Water circulation returns to the surface. Light grayish brown return water.	415
145									414
146									413
147									412
148	32	5.0 / 5.0	100	F	R5				411
149									410
150									409
151							META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, massive, moderately close to wide spaced mafic xenoliths, 20% quartz, 40% feldspar, 40% mafics. At 153-154 ft., quartz/feldpsar vein, 2 cm thick, dip 80°-85°.	End of day 10/15/12 Start of day 10/16/12; water level at 12.2 ft.	408
152									407
153	33	5.0 / 5.0	100	F	R5			Very weak water return to the surface. Not enough to recirculate, just enough to fill borehole up to ground surface. Still losing water. 154 ft; dry sharpen bit.	406
154									405
155									404
156									403
157									402
158	34	5.0 / 5.0	100	F	R5				401
159							At 158.9 ft., quartz vein, 2-3 cm thick, dip at 80°.		400
160									399

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Project Name and Job Number
Lee Nuclear Station COL
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ROCK LOG - Boring No. B-2002

Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing
35	5.0/5.0	100	F	R5	
36	5.0/5.0	100	F	R5	
37	5.0/5.0	100	F	R5	
38	5.0/5.0	100	F	R5	
39	5.0/5.0	100	F	R5	
40	5.0/5.0	96	F	R5	
41	5.0/5.0	96	F	R5	
42	5.0/5.0	96	F	R5	

Lithology

META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, massive, 20% quartz, 40% feldspars, 40% mafics with fused grain boundaries, moderately close healed fractures (foliations) dip at 60°.

META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, massive, 30% quartz, 40% feldspars, 30% mafics, fused grain boundaries.
At 181.6 feet: brecciated zone 0.2 feet thick, healed with quartz up to 4cm thick.

META-DIORITE; dark bluish gray (5PB 4/1), fine frained, strong.

META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, massive,

Remarks

Consistently using more than 500 gallons of water per run.

Light gray return water at ground surface.

181 ft; dry sharpen bit.

192.1 ft: dry sharpen bit.

Depth (feet)	Elevation (feet)
160	
161	398
162	397
163	396
164	395
165	394
166	393
167	392
168	391
169	390
170	389
171	388
172	387
173	386
174	385
175	384
176	383
177	382
178	381
179	380
180	379
181	378
182	377
183	376
184	375
185	374
186	373
187	372
188	371
189	370
190	369
191	368
192	367
193	366
194	365
195	364
196	363
197	362
198	361
199	360
200	359

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Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

amec LCI FUGRO

ROCK LOG - Boring No. B-2002

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
200								30% quartz, 40% feldspars, 30% mafics, fused grain boundaries.		
203		43	5.0/5.0	100	F	R5				356
208		44	5.0/5.0	100	F	R5				351
213		45	5.0/5.0	100	F	R5		META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, grain boundaries fused, massive, 30% quartz, 40% feldspars, 40% mafics.		346
218		46	5.0/5.0	94	F	R5		META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, grain boundaries fused, massive, 30% quartz, 40% feldspars, 40% mafics, moderately close to close spaced quartz veins throughout core run. At 216-219.5 feet: healed brecciated zone, greenish gray (10GY 5/1) to dark greenish gray (10GY 4/1), mineralization overprints the meta-granodiorite texture. At 220.6 ft., quartz vein (up to 1.5 cm thick) with pyrite.	215.6 ft; Dry sharpen bit.	341
223		47	5.0/5.0	95	F	R5		META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, granofels texture, grain boundaries fused, massive, 30% quartz, 40% feldspars, 40% mafics.	224.6 ft: Rods stuck and almost siezed the rig.	336
228								Total Depth 225.6 ft. Groundwater encountered at 12.5 feet during drilling. Borehole backfilled with grout on 10/23/12.		331

Depth (feet): 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240

Elevation (feet): 358, 357, 356, 355, 354, 353, 352, 351, 350, 349, 348, 347, 346, 345, 344, 343, 342, 341, 340, 339, 338, 337, 336, 335, 334, 333, 332, 331, 330, 329, 328, 327, 326, 325, 324, 323, 322, 321, 320, 319

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.19.12.GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number Lee Nuclear Station COL 6234 - 12 - 0050	amec LCI FUGRO	**ROCK LOG - Boring No. B-2003**	
Type and Diameter of Boring Rock core / HQ / 3 inch	Boring Location Unit 1 NI N 1165774 E 1846449		Total Depth 54.6
Drilling Contractor and Rig TRI State Drilling / CME 75 / CME 55	Elevation and Datum 559 feet MSL	Ground Water Depth 13.5 feet	Depth to Bedrock 4.8 feet
Casing Size and Depth NA	Length of Core Barrel and Bit 8.6 feet	No. of Core Boxes 5	Date Started 10/9/12
	Borehole Inclination -90	Logged by M. Flanik	Date Completed 10/12/12

Reviewed by / Date M. Gray 10/17/12

Reviewed by / Date M. Gray 11/19/12

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
0							At 0-3ft., CONCRETE with rebar removed with 6 inch thin wall bit.		559
3	1	0.8/1.0					CONCRETE; pink and reddish gray (2.5YR 8/3 and 4/1).	Begin rock core at 3 ft. RQD applicable to rock only.	556
4	2	0.3/0.8							555
5	3	0.4/0.4		MW	R4		META-DIORITE; black (2.5/N), fine grained, CONTINUOUS ROCK.	Concrete to rock interface at 4.8 ft.	554
6	4	0.2/0.2					META-GRANODIORITE; very dark gray (3/N), medium grained, few quartz veins.	RQD for runs 3 and 4 not calculated due to short run length.	553
7	5	3.6/3.6	88	SW	R4			Change bit for Run 5	552
11	6	5.0/5.0	92	SW to F	R5				548
13.5						▼			
16	7	5.0/5.0	98	F	R5				543
21	8	4.9/5.0	66	SW F	R5		META-DIORITE; very dark gray (3/N).		538
26	9	4.8/5.0	79	F	R5				533
29							META-DIORITE; black (2.5/N) and trace light greenish gray (8/1 10YB), fine grained.	Slight rig shake at 28.8 feet.	530
31	10	4.9/5.0	98	F	R5				528
36	11	4.8/4.8	95	F	R5				523
37							META-GRANODIORITE; gray (6/N), medium grained, few quartz veins, contact dip at 75°.	RQD for run 12 not calculated due to short run length. 100% water loss. Barrel jammed. Pump Stopped.	522
39	12	0.2/0.2							520
40									519

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.19.12.GPJ WLA9-8-06.GDT 11/19/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

amec LCI FUGRO

ROCK LOG - Boring No. B-2003

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
40									End of day 10/9/12 Start of day 10/10/12	519
41		13	5.0/5.0	92	F	R5				518
42										517
43										516
44										515
45									Rig shakes the entire run. (may be mechanical)	514
46		14	5.0/5.0	69	F	R5			Rig shaking throughout Runs 14, 15, 16 and 17	513
47										512
48								META-DIORITE; fine grained, black (2.5/N).		511
49								META-DIORITE; very day greenish gray (3/1 5BG), fine grained.		510
50										509
51		15	4.9/5.0	94	F	R5				508
52										507
53										506
54		16	0.4/0.4	100	F	R5			End of day 10/10/12. Start of day 10/11/12; water level at 12.77 ft. Switch rig to CME 55 on 10/11/12. End of day 10/11/12. Start of day 10/12/12; water level at 13.44 ft. Rig shaking continues through Run 17. Further drilling not possible. Boring abandoned.	505
55		17	0.2/0.2							504
56										503
57								Total Depth 54.6 ft. Groundwater encountered at 13.5 feet during drilling. Borehole backfilled with grout on 10/23/21.		502
58										501
59										500
60										499
61										498
62										497
63										496
64										495
65										494
66										493
67										492
68										491
69										490
70										489
71										488
72										487
73										486
74										485
75										484
76										483
77										482
78										481
79										480
80										479

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/15/12

Project Name and Job Number Lee Nuclear Station COL 6234 - 12 - 0050	amec LCI FUGRO	**ROCK LOG - Boring No. B-2004**	
Type and Diameter of Boring Rock core / HQ / 3 inch	Boring Location Unit 1 NI N 1165937 E 1846506		Total Depth 101.0
Drilling Contractor and Rig AMEC / J. Landeros / CME 550 X	Elevation and Datum 544.6 feet MSL	Ground Water Depth 0 feet	Depth to Bedrock 4.8 feet
Casing Size and Depth NA	Length of Core Barrel and Bit 8.6 feet	No. of Core Boxes 9	Date Started 10/12/12
	Borehole Inclination -90	Logged by M. Harvey	Date Completed 10/14/12

Reviewed by / Date M. Gray 10/17/12

Reviewed by / Date M. Gray 11/19/12

Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing
1	1.0 / 1.0				
2	5.0 / 5.0	100	SW	R4 to R5	
3	4.8 / 5.0	92	SW	R4 to R5	
4	5.0 / 5.0	90	SW	R4 to R5	
5	5.0 / 5.0	86	MW to SW	R4 to R5	
6	5.0 / 5.0	92	SW	R4 to R5	
7	4.8 / 5.0	90	F	R5	
8	5.0 / 5.0	90	F	R5	

Lithology	Remarks
At 0-3ft., CONCRETE with rebar.	Cored using 6-inch thin wall coring tool.
At 3-4.8ft.; FILL CONCRETE; pale yellow (2.5Y 7/3) and gray (5/N).	Rock core drilling begins at 3 ft, RQD applicable to rock only.
META-GRANODIORITE; gray (5.5/N), [average black (2.5/N), gray (6/N) (2.5YR 6/3)], CONTINUOUS ROCK.	Concrete to rock interface at 4.8 ft.
At 11.9 ft., 1/4 inch concrete infilled fracture.	
	End of day 10/12/12. Start of day 10/13/12; water level at 0.0 ft.

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/15/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

ROCK LOG - Boring No. B-2004

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
40										
41		9	5.0 / 5.0	90	F	R5		At 41.6 ft., quartz vein; 2 inch, dip 54°.		504
42								META-DIORITE; dark gray (4/N), foliation dip 54° with less than 1/4 inch quartz veins.		503
43										502
44										501
45										500
46		10	5.0 / 5.0	90	F	R5				499
47										498
48								META-GRANODIORITE; gray (6/N).		497
49										496
50								META-DIORITE; dark gray (4/N).		495
51		11	5.0 / 5.0	84	F	R5				494
52										493
53								META-GRANODIORITE; gray (6/N). Contact with above META-DIORITE dip 54°.		492
54										491
55		12	2.4 / 2.4	92	F	R5				490
56										489
57									56.4 ft; replace bit.	488
58		13	2.6 / 2.6	100	F	R5				487
59										486
60										485
61		14	5.0 / 5.0	86	F	R5				484
62										483
63										482
64										481
65										480
66		15	5.0 / 5.0	100	F	R5				479
67										478
68										477
69										476
70										475
71		16	5.0 / 5.0	93	F	R5				474
72										473
73										472
74										471
75									End of day 10/13/12. Start of day 10/14/12; water level at 0 ft.	470
76		17	5.0 / 5.0	90	SW to F	R5				469
77										468
78										467
79										466
80										465

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/15/12

Project Name and Job Number
Lee Nuclear Station COL
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amec LCI FUGRO

ROCK LOG - Boring No. B-2004

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
80–84		18	5.0 / 5.0	88	SW to F	R5		META-GRANODIORITE; gray (6/N).		464–461
84–89		19	5.0 / 5.0	100	F	R5		At 85.5 ft., quartz veins 1/4 to 1.5 in., dip 54°. At 88.0 ft., quartz veins 1/4 to 1.5 in., dip 54°.		461–456
89–94		20	5.0 / 5.0	100	F	R5				456–451
94–99		21	5.0 / 5.0	100	F	R5				451–446
99–101		22	2.0 / 2.0	100	F	R5				446–444
101–120								Total Depth 101.0 ft. Groundwater encountered at 0 feet during drilling. Borehole backfilled with grout on 10/24/12.		444–425

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

ROCK LOG - Boring No. B-2005

Type and Diameter of Boring Rock core / HQ / 3 inch	Boring Location Unit 2 NI N 1165972 E 1847268		Total Depth 225.0
Drilling Contractor and Rig AMEC / L. Carter / CME750 X	Elevation and Datum 550.3 feet MSL	Ground Water Depth 2 feet	Depth to Bedrock 0.6 feet
Casing Size and Depth 4 inch PVC SCH40 / 1 feet	Length of Core Barrel and Bit 8.6 feet	No. of Core Boxes 16	Date Started 10/8/13
	Borehole Inclination -90	Logged by R. Ortiz	Date Completed 10/13/12

Reviewed by / Date M. Gray 10/18/12
Reviewed by / Date M. Gray 11/19/12

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
0								FILL. placed for drill rig access.	Not recovered, core destroyed during initial casing advancement. Begin rock coring at 1.3 feet.	550
1								GRANO-DIORITE - highly fractured.		549
2								▼META-GRANODIORITE; dark bluish gray (5PB 4/1), medium to caorse grained, massive, few mafic xenoliths, main rock composition is 40% quartz, 30% feldspar (kspar), 30% mafics. Joint surfaces are moderately weathered with FeO2 staining and scondary mineralolgy. CONTINUOUS ROCK at 5 feet.		548
3		1	3.7/3.7	59	SW to F	R4 to R5				547
4										546
5		2	0.4/0.4	100					End of day 10/8/12. Start of day 10/9/12; water level at 0.6 ft.	545
6										544
7										543
8		3	4.6/4.6	80	SW to F	R4 to R5				542
9										541
10		4	0.9/0.9	44	SW to F	R4 to R5				540
11		5	0.1/0.1					10.9-11.0 ft; "MW to F".	New bit series 6 at 11.0 feet. RQD for run 5 not calculated due to short run length.	539
12										538
13		6	4.0/4.0	75	F	R4 to R5				537
14										536
15								META-GRANODIORITE; bluish gray (5PB 4/1), medium to coarse grained, massive. At 16.2-16.8 ft., healed shear zone, grayish green (5GY 2.5/1) to greenish black (5GY 2.5/1), close healed fracture spacing.		535
16										534
17		7	5.0/5.0	96	F	R4				533
18									Light gray return water.	532
19										531
20										530
21					F	R4				529
22		8	5.0/5.0	89				META-DIORITE, greenish black (10BG 2.5/1), fine grained, massive to schistose texture, foliation dip 60°, secondary mineralization within healed fractures, closely spaced fractures and quartz veins, chlorite and epidote common within zones of high schistocity.		528
23										527
24					SW to F	R4				526
25										525
26										524
27										523
28		9	5.0/5.0	100	F	R4			Rod chatter, driller reduces RPM.	522
29								At 29 ft; 2 cm wide deformed quartz vein, discontinuous.		521
30								META-DIORITE; greenish black (10BG 2.5/1), fine grained, massive, fractures (open and healed) are closely spaced, fractures are mineralized with epidote, chlorite and quartz healed fractures are between 1mm and 5mm wide.		520
31										519
32										518
33		10	5.0/5.0	100	F	R5				517
34										516
35										515
36										514
37		11	5.0/5.0	92	F	R5		At 37 ft; trace pyrite crystal along fracture planes.		513
38										512
39										511
40										

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

amec LCI FUGRO

ROCK LOG - Boring No. B-2005

Depth (feet)	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing
40–45	12	5.0/5.0	100	F	R5	
45–50	13	5.0/5.0	94	F	R4	
50–50.2	14	0.2/0.2				
50.2–55	15	4.8/4.8	100	F	R4	
55–60	16	5.0/5.0	98	F	R4 R3 R4	
60–65	17	5.0/5.0	100	F	R5	
65–70	18	5.0/5.0	100	F	R5	
70–75	19	5.0/5.0	100	F	R5	
75–80	20	5.0/5.0	100	F	R5	

Depth (feet): 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Elevation (feet): 510 509 508 507 506 505 504 503 502 501 500 499 498 497 496 495 494 493 492 491 490 489 488 487 486 485 484 483 482 481 480 479 478 477 476 475 474 473 472 471

Lithology

META-DIORITE; greenish black (10GY 2.5/1) to very dark greenish gray (5G 3/1), fine grained, massive, fractures (healed and open) are very close to closely spaced , fractures are healed with quartz, chlorite, and epidote. Fractures are randomly oriented but typically dip between 40°- 60°. Fractures (healed) are between 1mm and 5mm wide.

Between 50.2 feet and 55 ft, increased number and size of quartz filled veins. Veins are closely spaced and dip between 40°- 90°.

META-GRANODIORITE; vein, dark bluish gray (5PB 4/1), medium grained, mylonitic fabric dip 55°- 60°. 50% quartz, 40% k-spar, 10% mafics.

META-DIORITE; greenish black (10GY 2.5/1) to very dark greenish gray (5G 3/1), fine grained, massive, fractures (healed and open) are very close to closely spaced , fractures are healed with quartz, chlorite, and epidote. Fractures are randomly oriented but typically dip between 40°- 60°. Fractures (healed) are between 1mm and 5mm wide.
zone of high schistocity at 57.8 ft.

Strong metamorphic foliation throughout Run 16 (50 - 60° dip).

META-GRANODIORITE; bluish gray (5PB 4/1), medium to coarse grained, massive, 40% quartz, 50% feldpsar, 10% mafics, metamorphic fabric observed within run 16 is absent (not dominant), moderately close joint spacing.
At 67 ft; Moderately close mafic zenolith spacing.
At 67.6 ft; Quartz veins, dip 80° closed up to 5mm thick, margins mineralized with probably biotite. Increase in feldspar (plagioclase) content within meta-granodiorite matrix along margin of vein.

Few moderately spaced veins.

At 75 ft; decrease in feldspar content 40% quartz, 40% feldspars, 20% mafics.

Remarks

End of day 10/9/12
Start 10/10/12; water level at 1.2 ft.

RQD for run 14 not calculated due to short run length.

At 70 ft; Drill rate slowed significantly within the quartz rich meta-granodiorite.
Light gray return water.

Light gray return water.

Driller states "smooth drilling".

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Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

ROCK LOG - Boring No. B-2005

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
80 81 82		21	2.6 / 2.6	100	F	R5		META-GRANODIORITE; bluish gray (5PB 4/1), medium to coarse grained, massive, 40% quartz, 40% feldpsar, 20% mafics, metamorphic fabric observed within run 16 is absent (not dominant), moderately close joint spacing.		470 469 468
83 84		22	2.4 / 2.4	100	F	R5			At 82.6 ft; Bit blocked off and lost circulation. Drilling was stopped and Run 21 was pulled.	467 466
85 86 87 88 89		23	5.0 / 5.0	100	F	R5				465 464 463 462 461
90 91 92 93 94		24	5.0 / 5.0	100	F	R5		META-GRANODIORITE - bluish gray (5PB 4/1), medium to coarse grained, massive, 30% quartz, 40% feldspar (not k-spar), 30% mafics, very slightly fractured, very weak, widely spaced metamorphic fabric.		460 459 458 457 456
95 96 97 98 99		25	5.0 / 5.0	90	F	R5			Light gray return water. at 97 feet - "dry sharpen" bit	455 454 453 452 451
100 101 102 103 104		26	5.0 / 5.0	100	F	R5			At 100 feet the core broke too high. In an attempt to recover the lower 0.5 feet the stick up at the bottom broke and angled in the hole. This caused the recovered lower 0.5 feet of run 25 to be damaged.	450 449 448 447 446
105 106 107 108 109		27	5.0 / 5.0	100	F	R5		gradual transitional contact over 5 in. META-QUARTZDIORITE; very dark bluish gray (5PB 3/1) to bluish black (5PB 2.5/1), medium to coarse grained, massive, few mafic xenoliths, wide spaced healed fractures, composition; 20% quartz, 40% feldspar, 40% mafics.	End of day 10/10/12 Start 10/11/12; water level at 0.5 ft.	445 444 443 442 441
110 111 112 113 114		28	5.0 / 5.0	100	F	R5				440 439 438 437 436
115 116 117 118 119 120		29	5.0 / 5.0	100	F	R5		META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, massive, 30% quartz, 40% feldspar, 30% mafics. At 117 ft., weak foliation, dip 60°. META-QUARTZDIORITE; very dark bluish gray (5PB 3/1) to bluish black (5PB 2.5/1), medium to coarse grained, massive, few mafic xenoliths, wide spaced	At 117 ft; light grayish brown return water. 118.6 ft: dry sharpen bit.	435 434 433 432 431

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number Lee Nuclear Station COL 6234 - 12 - 0050	amec LCI FUGRO	**ROCK LOG - Boring No. B-2005**

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
120								healed fractures, 119.5 ft; Quartz/feldspar vein steeply dipping at 80° to core axis up to 20mm thick.		430
121										429
122		30	5.0/5.0	100	F	R5		META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, massive, 30% quartz, 40% feldspars, 40% mafics, weak foliation dips 60° to core axis occassional mafic xenoliths.		428
123										427
124										426
125									125 ft; Dry sharpen bit.	425
126								At 125.5 ft; mafic xenolith (5cm x 2cm).		424
127		31	5.0/5.0	100	F	R5				423
128										422
129								At 129.2 ft; large mafic xenolith (9cm x 7cm).		421
130										420
131										419
132		32	5.0/5.0	100	F	R5				418
133										417
134										416
135								META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, massive, 30% quartz, 40% feldspars, 40% mafics, weak foliation dip 60°.		415
136		33	2.6/2.6	100	F	R5				414
137										413
138		34	2.4/2.4	100	F	R5			Lost circulation, pulling rods to change bit. Bit changed to Series # 8 at 137.6 ft.	412
139								At 139.4 ft; Closely spaced quartz veins, dip 60°, 4mm - 15mm thick.		411
140										410
141										409
142		35	5.0/5.0	100	F	R5				408
143										407
144										406
145								At 144.5 ft; Healed shear zone mylonitic texture dips 40°- 50°. At 145 and 146.5 ft., close to moderately spaced quartz veins, some with minor offsets, veins are up to 20mm thick.		405
146										404
147		36	5.0/5.0	100	F	R5				403
148										402
149										401
150								META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, 30% quartz, 40% feldspars, 40% mafics, massive to wide spaced foliation dip 60°, few wide spaced quartz veins (up to 5mm thick).		400
151										399
152		37	5.0/5.0	100	F	R5				398
153										397
154										396
155										395
156										394
157		38	5.0/5.0	100	F	R5				393
158										392
159										391
160										

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

ROCK LOG - Boring No. B-2005

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
160								META-GRANODIORITE; bluish gray (5PB 5/1) to dark bluish gray (5PB 4/1), medium to coarse grained, 30% quartz, 40% feldspars, 40% mafics, massive to wide spaced foliation dip 60°, few wide spaced quartz veins (up to 5mm thick). At 160.6 ft; large mafic xenolith (10cm x 12cm). At 164.1 ft.; mafic xenolith (5cm x 6cm). weak metamorhpic fabric throughout core dips at 60°.	End of day 10/11/12. Start day 10/12/12; water level at 1.6 ft. Light gray return water dry sharpen bit at 161.6 ft.	390
161										389
162		39	5.0/5.0	100	F	R5				388
163										387
164										386
165										385
166										384
167		40	5.0/5.0	96	F	R5				383
168										382
169										381
170										380
171										379
172		41	5.0/5.0	100	F	R5		Weakly developed foliation fabric, wide spaced dipping 60°.		378
173										377
174										376
175										375
176									176 ft; Dry sharpen bit.	374
177		42	5.0/5.0	100	F	R5				373
178										372
179								At 179 ft; Quartz vein brecciated, healed; brecciated zone is 3cm wide. Quartz vein is up to 5mm wide. META-GRANODIORITE; bluish gray (5PB 5/1) to very dark bluish gray (5PB 3/1), medium grained, massive to wide spaced weak metamorphic fabric dip 60°, 40% quartz, 40% feldspar (potassium feldspar dominant), 20% mafics, few wide spaced mafic xenoliths, few wide spaced quartz veins.		371
180										370
181										369
182		43	5.0/5.0	100	F	R5				368
183										367
184										366
185										365
186										364
187		44	5.0/5.0	100	F	R5				363
188										362
189										361
190										360
191										359
192		45	5.0/5.0	100	F	R5		At 191.6 ft; Large mafic xenolith (13mm X 10 mm) At 92 ft; Sheared meta-granodiorite fully healed. Zone dip 60°, open fracture with crystals (quartz).		358
193									gradual transition over 0.2 ft.	357
194								META-QUARTZDIORITE - very dark bluish gray (5PB 2.5/1), medium grained, massive, 50% mafics, 20% quartz, 30% feldspar.		356
195										355
196								META-GRANODIORITE; bluish gray (5PB 5/1) to very dark bluish gray (5PB 3/1), medium grained, massive to wide spaced weak metamorphic fabric dip 60°, 40% quartz, 40% feldspar (potassium feldspar dominant), 20% mafics, few wide spaced quartz veins. At 195.6 and 195.8 ft., quartz vein, 3cm thick, dip 40°.	gradual transition over 0.3 ft.	354
197		46	5.0/5.0	100	F	R5				353
198										352
199										351
200										

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Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

ROCK LOG - Boring No. B-2005

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
200								At 195.7 and 196.3 ft., quartz vein, (up to 1cm) dip 70°.		350
201										349
202		47	5.0/5.0	100	F	R5		Weak widely spaced foliations dip 60°.		348
203										347
204									Light gray return water.	346
205								At 204.3-204.7 vein of quartz and fine grained diorite, mylonitic texture, dip 60°.		345
206		48	1.1/1.3	72	F	R5				344
207								META-GRANODIORITE; bluish gray (5PB 5/1) to very dark bluish gray (5PB 3/1), medium grained, massive to wide spaced weak metamorphic fabric dip 60°, 40% quartz, 40% feldspar (potassium feldspar dominant), 20% mafics, few wide spaced quartz veins.	At 206.3 ft; Bit no longer cutting, water pressure too high. Trip rods and change bit. New bit a Series # 6.	343
208		49	3.7/3.7	100	F	R5				342
209										341
210										340
211										339
212		50	5.0/5.0	92	F	R5		At 212 ft and 214 ft.; Vertical quartz veins, mylonitic texture along margins.		338
213										337
214										336
215								At 214.4-215.4 ft.; Vertical fractures broken along previously healed fractures.		335
216										334
217		51	5.0/5.0	92	F	R5				333
218										332
219										331
220								At 220 ft.; Vertical fractures broken along previously healed fractures.		330
221										329
222		52	5.0/5.0	94	F	R5				328
223										327
224										326
225										325
226										324
227										323
228								Total Depth 225.0 ft. Groundwater encountered at 2 feet during drilling. Borehole backfilled with grout on 10/24/12.		322
229										321
230										320
231										319
232										318
233										317
234										316
235										315
236										314
237										313
238										312
239										311
240										

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number Lee Nuclear Station COL 6234 - 12 - 0050			**ROCK LOG - Boring No. B-2006**
Type and Diameter of Boring Rock core / HQ / 3 inch	Boring Location Unit 2 NI N 1166176 E 1847173		Total Depth 101.0
Drilling Contractor and Rig AMEC / J. Landeros / CME 550 X	Elevation and Datum 558.4 feet MSL	Ground Water Depth 8 feet	Depth to Bedrock 0.3 feet
Casing Size and Depth NA	Length of Core Barrel and Bit 8.6 feet	No. of Core Boxes 9	Date Started 10/15/17
	Borehole Inclination -90	Logged by M. Harvey	Date Completed 10/17/12

Reviewed by / Date M. Gray 10/17/12

Reviewed by / Date M. Gray 11/19/12

Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing
1	1.5/1.7	64	SW to F	R4 to R5	
2	1.0/1.0	100			
3	4.8/5.0	84	SW to F	R4 to R5 R5	
4	4.9/5.0	98	SW to F		
5	5.0/5.0	96	F	R5	
6	4.9/5.0	91	F	R5	
7	5.0/5.0	90	F	R5	
8	4.9/5.0	98	F	R5	
9	4.8/5.0	81	SW to F	R4 to R5	

Depth (feet): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40

Elevation (feet): 558, 557, 556, 555, 554, 553, 552, 551, 550, 549, 548, 547, 546, 545, 544, 543, 542, 541, 540, 539, 538, 537, 536, 535, 534, 533, 532, 531, 530, 529, 528, 527, 526, 525, 524, 523, 522, 521, 520, 519

Lithology	Remarks
META-GRANODIORITE; gray (6/N).	Roller cone top 0.3 ft to establish starter hole for core barrel. Begin rock coring at 0.3 ft.
CONTINUOUS ROCK at 3 ft.	
META-GRANODIORITE; gray (6/N).	12.5 ft.; Rig sound change
	End of day 10/15/12 Start of day 10/16/12; water level at 0.0 ft.

APPENDIX 2AA, Attachment 6

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number Lee Nuclear Station COL 6234 - 12 - 0050	**ROCK LOG - Boring No. B-2006**

Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
40 41 42		10	5.0/5.0	88	SW to F	R4 to R5		At 40 ft., quartz vein 1/2 inch, dip 54°. At 40.4-40.6 ft., META-DIORITE; gray (4/N) half or less of core width. At 40.5 ft., quartz vein, 1/2 inch, dip 0° META-GRANODIORITE; gray (6/N).		518 517 516
43 44 45 46 47		11	5.0/5.0	78	SW to F	R4 to R5				515 514 513 512 511
48 49 50 51 52		12	5.0/5.0	100	F	R4 to R5		META-GRANODIORITE; gray (6/N).		510 509 508 507 506
53 54 55 56 57		13	4.8/5.0	92	F	R4 to R5				505 504 503 502 501
58 59 60 61		14	3.7/3.7	92	F	R4 to R5				500 499 498 497
62		15	1.3/1.3	100	F	R5			61.7 ft.; Change bit	496
63 64 65 66 67		16	4.8/5.0	88	F					495 494 493 492 491
68 69 70 71 72		17	4.8/5.0	98	F	R5				490 489 488 487 486
73 74 75 76 77		18	5.0/5.0	99	F	R5				485 484 483 482 481
78 79 80									79 - 80 ft.; sharpen bit	480 479

ROCK LOG COPY BORING LOGS 6234120050 11.15.12.GPJ WLA9-8-06.GDT 11/16/12

Project Name and Job Number
Lee Nuclear Station COL
6234 - 12 - 0050

ROCK LOG - Boring No. B-2006

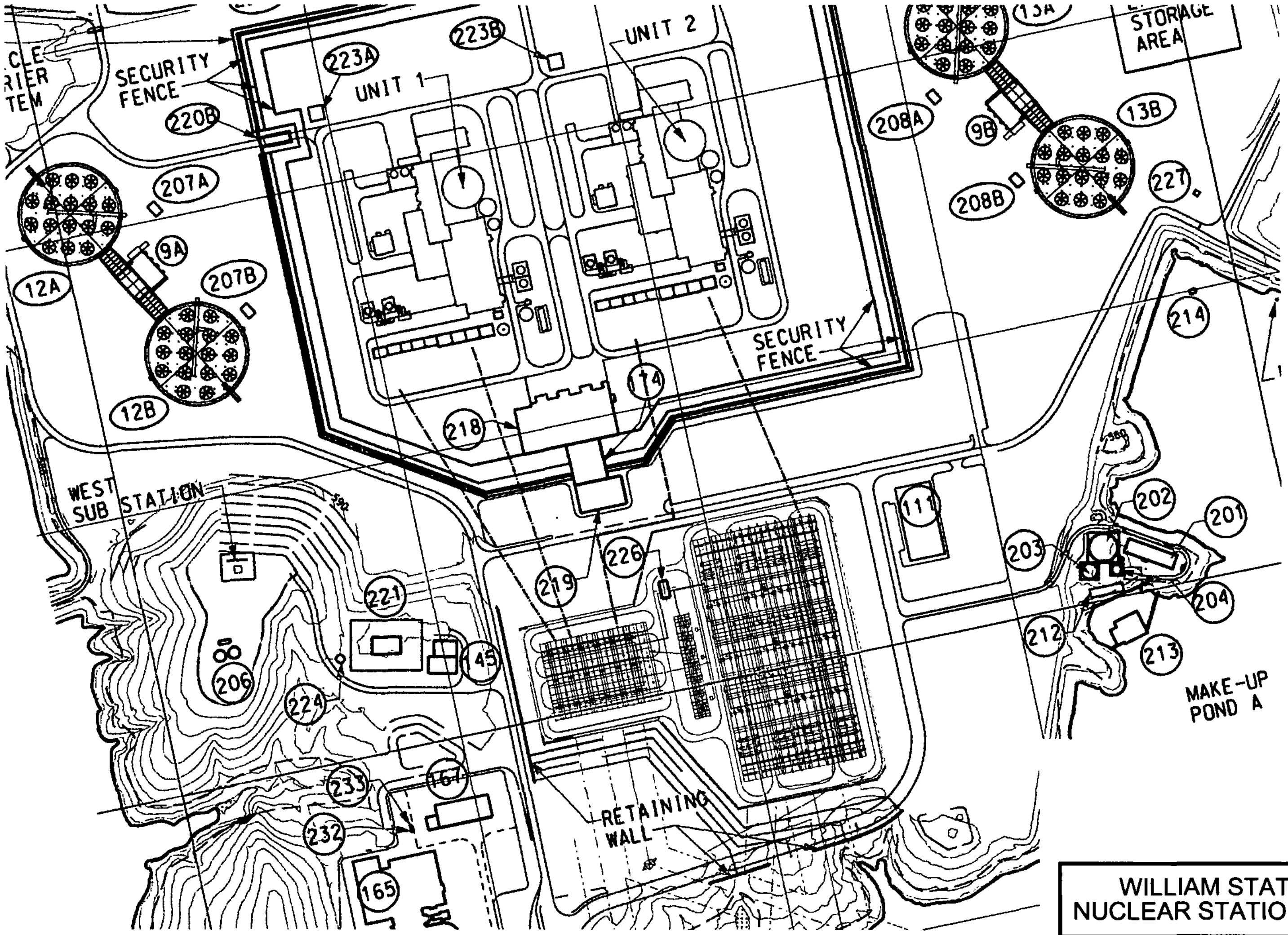
Depth (feet)	Lithology	Run No.	Recovery / Cut	% RQD	Weathering	Strength	In-Situ Testing	Lithology	Remarks	Elevation (feet)
80		19	4.9/5.0	98	F	R5		META-GRANODIORITE; gray (6/N).		478
81										477
82										476
83										475
84									End of day 10/16/12. Start of day 10/17/12; water level at 0.0 ft.	474
85		20	5.0/5.0	84	F	R4 to R5				473
86										472
87								At 86.5 ft., quartz with feldspar vein, dip 60°.		471
88										470
89										469
90		21	5.0/5.0	84	SW	R4 to R5				468
91								At 90.7 ft., quartz vein with pink feldspar and calcite, 3 inch, dip 54°.		467
92										466
93										465
94										464
95		22	5.0/5.0	84	SW to F	R4 to R5				463
96										462
97										461
98								META-GRANODIORITE; gray (6/N).		460
99		23	3.0/3.0	100	F	R5				459
100								At 100.2-100.8 ft.; Schistose texture dip 54°.		458
101										457
102										456
103										455
104								Total Depth 101.0 ft. Groundwater encountered at 8 feet during drilling. Borehole backfilled with grout on 10/24/12.		454
105										453
106										452
107										451
108										450
109										449
110										448
111										447
112										446
113										445
114										444
115										443
116										442
117										441
118										440
119										439
120										

Attachment 7

Revisions to FSAR Chapter 8

Figure 8.2-202

1. COLA Part 2, FSAR Chapter 8, Figure 8.2-202 is revised as follows:



WLS COL 8.2-1

WILLIAM STATES LEE III
NUCLEAR STATION UNITS 1 & 2

Switchyard General Arrangement

FIGURE 8.2-202

Attachment 8

Revisions to FSAR Chapter 11

Table 11.2-206

Section 11.3

Table 11.2-206

Table 11.3-201

Table 11.3-202

Table 11.3-203

Table 11.3-204

Table 11.3-205

Table 11.3-206

Table 11.3-207

Table 11.3-208

1. COLA Part 2, FSAR Chapter 11, Table 11.2-206 is revised as follows:

TABLE 11.2-206
LIQUID AND GASEOUS PATHWAY DOSES COMPARED TO 40 CFR PART 190 LIMITS

Dose (mrem/yr, per site)[a]

Dose	40 CFR 190 Requirements	Assessment of Both Units
Whole Body Dose Equivalent	25	~~2.76~~2.82E+00[b]
Thyroid Dose	75	~~2.79~~1.77E+01[c]
Dose to Another Organ	25	~~8.67~~8.3E+00[d]

---

a) Direct radiation from containment and other plant buildings is negligible based on information presented in the AP1000 DCD, Tier 2, Chapter 12, Subsection 12.4.2.1.

b) This value was conservatively calculated by summing the maximum whole body dose due to the liquid pathway (to an adult) and the maximum whole body dose due to the gaseous pathway (to a child).

c) An infant receives the maximum thyroid dose.

d) A child receives the maximum other individual organ dose which is to the bone.

2. COLA Part 2, FSAR Chapter 11, Subsection 11.3.3.4 is revised as follows:

Add the following information at the end of DCD subsection 11.3.3.4.

WLS COL 11.3-1
WLS COL 11.5-3 The calculated gaseous doses for the maximum exposed individual are compared to the regulatory limits from Appendix I of 10 CFR Part 50 and 10 CFR Part 20.1301 for acceptance. Table 11.3-205 and Table 11.3-206 display this comparison and demonstrate that the calculated gaseous doses for the maximally exposed individual are less than the regulatory limits. The Lee Nuclear Station site-specific values are bounded by the DCD identified acceptable releases. With the annual airborne releases listed in DCD Table 11.3-3, the site-specific air doses at ground level at the site boundary are 0.773~~613~~ mrad for gamma radiation and ~~2.93~~3.25 mrad for beta radiation. These doses are based on the annual average atmospheric dispersion factor from Section 2.3. These doses are below the 10 CFR Part 50, Appendix I design objectives of 10 mrad per year for gamma radiation or 20 mrad per year for beta radiation.

Dose and dose rate to man were calculated using the GASPAR II computer code. This code is based on the methodology presented in Regulatory Guide 1.109. Factors common to both estimated individual dose rates and estimated population dose are addressed in this subsection. Unique data are discussed in the respective subsections.

Activity pathways considered are plume, ground deposition, inhalation, and ingestion of vegetables, meat, and milk (~~both cow and goat~~cow or goat).

Based on site meteorological conditions, the highest rate of plume exposure and ground deposition occurs at the Exclusion Area Boundary (EAB) 0.81~~3~~ mi. SE of the ~~plant~~Effluent Release Boundary.

Agricultural products are estimated from U.S. Department of Agriculture National Agricultural Statistics Service. GASPAR II evenly distributes the food production over the entire 50 miles when given a total production for calculating dose.

Population distribution within the 50-mi. radius is presented in FSAR Tables 2.1-203 and 2.1-204.

3. Estimated Individual Doses COLA Part 2, FSAR Chapter 11, Subsection 11.3.3.4.1 is revised as follows:

WLS COL 11.3-1 Dose rates to individuals are calculated for airborne decay and deposition, inhalation, and ingestion of milk (goat ~~and~~ or cow), meat and vegetables. Dose from plume and ground deposition are calculated as affecting all age groups equally.

Plume exposure approximately 0.81~~3~~ mi. SE of ~~Lee Nuclear Station~~the Effluent Release Boundary produced a maximum dose rate to a single organ of ~~2.06~~2.38 mrem/yr to skin. The maximum total body dose rate was calculated to be ~~3.70~~4.73E-1 mrem/yr.

Ground deposition approximately 0.81~~3~~ mi. SE of the Effluent Release Boundary~~Lee Nuclear Station~~ produced a maximum dose rate to a single organ of ~~1.23~~1.33E-1 mrem/yr to skin. The maximum total body dose rate was calculated to be ~~1.05E~~1.14E-1 mrem/yr.

Inhalation Dose at the EAB, 0.81~~3~~ mi. SE of the Effluent Release Boundary~~the plant~~, results in a maximum dose rate to a single organ of ~~6.32~~7.03E-1 mrem/yr to a child's thyroid. The maximum total body dose rate is calculated to be ~~4.82~~5.24E-2 mrem/yr to a teenager.

Vegetable consumption assumes that the dose is received from the garden special location, approximately 1.0~~1~~ mi. SSE of the plant. GASPAR II default vegetable consumption values are used in lieu of site-specific vegetable consumption data as permitted by Regulatory Guide 1.109. The estimated maximum dose rate to a single organ is 2.42~~36~~ mrem/yr to a child's thyroid. The maximum total body dose rate is calculated to be 4.59~~22~~E-1 mrem/yr to a child.

Meat consumption assumes that the dose is received from the ~~animal~~ cow special location, approximately 1.65~~47~~ mi. SE of the plant. GASPAR II default meat consumption values are used in lieu of site-specific meat consumption data as permitted by Regulatory Guide 1.109. The estimated maximum dose rate to a single organ is 2.74~~99~~E-1 mrem/yr to a child's bone. The maximum total body dose rate is calculated to be ~~6.34~~5.81E-2 mrem/yr to a child.

Cow milk consumption assumes that the dose is received from the ~~animal~~ cow special location, approximately 1.65~~09~~ mi. SE of the plant. GASPAR II default cow milk consumption values are used in lieu of site-specific cow milk consumption data as permitted by Regulatory Guide 1.109. The estimated maximum dose rate to a single organ is 6.23~~12~~ mrem/yr to an infant's thyroid. The maximum total body dose rate is calculated to be 3.99~~46~~E-1 mrem/yr to an infant.

Goat milk consumption assumes that the dose is received from the nearest milk ~~animal~~ goat special location, approximately ~~1.06~~1.05 mi. SSW of the plant. GASPAR II default goat milk consumption values are used in lieu of site-specific goat milk consumption data as permitted by Regulatory Guide 1.109. The estimated maximum dose rate to a single organ is ~~6.74~~7.58 mrem/yr to an infant's thyroid. The maximum total body dose rate is calculated to be ~~2.66~~3.26E-1 mrem/yr to an infant.

The maximum dose rate to any organ considering every pathway is calculated to be ~~1.39E+1~~8.80 mrem/yr to an infant's thyroid. The maximum total body dose rate is calculated to be ~~1.32~~1.35 mrem/yr to a child. These are below the 10 CFR 50, Appendix I design objectives of 5 mrem/yr to total body, and 15 mrem/yr to any organ, including skin.

Table 11.3-201 contains GASPAR II input data for dose rate calculations. Information regarding the special locations for man, ~~milk animal~~cow, goat, garden, ~~school,~~ and the EAB is located in Section 2.3. Table 11.3-202 contains total organ dose rates based on age group and pathway. Table 11.3-203 contains total air dose at each special location.

4. Estimated Individual Doses COLA Part 2, FSAR Chapter 11, Subsection 11.3.3.4.4 is revised as follows:

WLS COL 11.3-1 The population doses are given in Tables 11.3-204 and 11.3-208. The lowest cost gaseous radwaste system augment is $6,320. Assuming 100 percent efficiency of this augment, the minimum possible cost per person-rem is determined by dividing the cost of the augment by the population dose. This is $1,~~319~~264 per person-rem total body ($6,320/~~4.79~~5.00 person-rem). The total body exposure-related costs per person-rem reduction exceed the $1,000 per person-rem criterion prescribed in Appendix I to 10 CFR Part 50 and are therefore not cost beneficial. Realistic efficiencies would increase the cost per person-rem further above the $1,000 criterion.

As shown in Tables 11.3-204 and 11.3-208, the WLS thyroid dose from gaseous effluents is 9.~~52~~80 person-rem, which exceeds the 6.32 person-rem threshold value. Based on the estimated 9.80~~52~~ person-rem/year thyroid dose, those augments with a "Total Annual Cost" less than $9,80~~52~~0 are considered below.

PWR Air Ejector Charcoal/HEPA Filtration Unit

The Total Annual Cost (TAC) for this augment is $9,140. To be cost beneficial at $1000 per person-rem, this augment must remove sufficient activity to decrease the population dose by at least 9.14 person-rem (thyroid); that is, decrease the thyroid dose from 9.80~~52~~ person-rem (initial level) to a final level of 0.66~~38~~ person-rem. No iodine is released through the condenser air removal (offgas) system as shown in DCD Table 11.3-3, sheet 2 of 3. This augment does not affect the iodine discharged by the plant which accounts for a total 4.85~~79~~ person-rem in the thyroid population dose. Therefore, it would be impossible to achieve the necessary dose reduction, and this augment is not cost-beneficial.

3-Ton Charcoal Adsorber

The TAC for this augment is $8,770. To be cost beneficial at $1,000 per person-rem, this augment must remove sufficient activity to decrease the population dose by at least 8.77 person-rem (thyroid); that is, decrease the thyroid dose from 9.80~~52~~ person-rem (initial level) to a final level of ~~0.75~~1.03 person-rem.

The 3-Ton Charcoal Adsorber unit in Regulatory Guide 1.110 is based on a 200 cubic foot charge of activated charcoal for an "add-on" vessel to an existing system per the information contained within that document's Total Direct Cost Estimate Sheet attachments. For the AP1000, it is assumed that this augment would be appended to the Gaseous Radwaste System where it would increase the delay time of noble gases exiting the existing activated carbon delay beds. No iodine is released through the Gaseous Radwaste System as shown in DCD Table 11.3-3, sheet 2 of 3. This augment does not affect the iodine discharged from the plant which accounts for 4.85~~79~~ person-rem in the thyroid population dose. Therefore, it would be impossible to achieve the necessary dose reduction, and this augment is not cost-beneficial.

Main Condenser Vacuum Pump Charcoal/HEPA Filtration System

The TAC for this augment is $7,690. To be cost beneficial at $1,000 per person-rem, this augment must remove sufficient activity to decrease the population dose by at least 7.69 person-rem (thyroid); that is, decrease the thyroid dose from an initial level of 9.80~~52~~ person rem to a final level of ~~1.83~~2.11 person-rem. However, no iodine is released through the condenser air removal system as shown in DCD Table 11.3-3, sheet 2 of 3. This augment does not affect the iodine discharged by the plant which accounts for 4.85~~79~~ person-rem in the thyroid population dose. Therefore, it would be impossible to achieve the necessary dose reduction, and this augment is not cost-beneficial.

1,000 cfm Charcoal/HEPA Filtration System

The TAC for this augment is $7,580. To be cost beneficial at $1,000 per person-rem, this augment must remove sufficient activity to decrease the population dose by at least 7.58 person-rem (thyroid); that is, decrease the thyroid dose from an initial level of 9.80~~52~~ person rem to a final level of ~~1.94~~2.22 person-rem.

Conservatively assuming that this rather small capacity augment could be placed in the ventilation system at some point that would eliminate all iodine and particulate releases, it would not be effective in reducing the noble gas releases, the carbon-14 release, or the airborne tritium release. The noble gases, carbon-14, and tritium discharged by the plant account for 4.67~~46~~ person-rem in the thyroid population dose. Therefore, it would be impossible to achieve the necessary dose reduction, and this augment is not cost-beneficial.

600 ft3 Gas Decay Tank

The TAC for this augment is $7,460. Thus, to be cost beneficial at $1,000 per person-rem, this augment must remove at least 7.46 person-rem (thyroid); that is, decrease the thyroid dose from an initial level of ~~9.52~~9.80 person-rem to a final level of ~~2.06~~2.34 person-rem.

No iodine is released through the AP1000 waste gas system as shown in DCD Table 11.3-3. This augment would not affect the iodine discharged by the plant which accounts for 4.85~~79~~ person-rem in the thyroid population dose. Therefore, it would be impossible to achieve the necessary dose reduction, and this augment is not cost-beneficial.

Steam Generator Flash Tank Vent to Main Condenser

The TAC for this augment is $6,320. Thus, to be cost beneficial at $1,000 per person-rem, this augment must remove at least 6.32 person-rem (thyroid); that is decrease the thyroid dose from an initial level of 9.80~~52~~ person-rem to a final level of 3.48~~2~~ person-rem. Addition of this augment presumes that the design already includes a steam generator flash tank; the augment being evaluated is the installation of vent piping and instrumentation from the tank to the main condenser. However, the AP1000 design does not include a steam generator flash tank. Therefore, the TAC of $6,320 for this augment is underestimated. As shown in DCD Figure 10.4.8-1, the AP1000 design includes steam generator blowdown heat exchangers that provide cooling of the blowdown fluid and prevent flashing prior to the blowdown flow entering the main condenser. Therefore, this augment would not provide any additional dose reduction, and this augment is not cost-beneficial.

Conclusion

Based on the above evaluation, none of the radwaste augments are cost-beneficial in reducing the annual thyroid dose from gaseous effluents for WLS.

5. COLA Part 2, FSAR Chapter 11, Table 11.3-201 is revised as follows:

WLS COL 11.3-1
WLS COL 11.5-3

TABLE 11.3-201
GASPAR II INPUT PARAMETERS[(a)]

Input Parameter	Value
Number of Source Terms	1
Distance from site to NE Corner of the US (mi)	~~790~~1088
Source Term	DCD Table 11.3-3
Population Data	Table 2.1-203 and Table 2.1-204, year 2056
Fraction of the year leafy vegetables are grown	0.58
Fraction of max individual's vegetable intake from own garden	0.76
Fraction of the year milk cows are on pasture	0.75
Fraction of milk-cow feed intake from pasture while on pasture	1
Fraction of the year goats are on pasture	0.83
Fraction of goat feed intake from pasture while on pasture	1
Fraction of the year beef cattle are on pasture	0.75
Fraction of beef-cattle feed intake from pasture while on pasture	1
Total Production Rate for the 50-mile area	
-Vegetables (kg/yr)	151,333,289
-Milk (L/yr)	84,765,807
-Meat (kg/yr)	354,508,878
Special Location Data	Section 2.3
Meteorological Data	Section 2.3

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a) Input parameters not specified use default GASPAR II values.

6. COLA Part 2, FSAR Chapter 11, Table 11.3-202 is revised as follows:

WLS COL 11.3-1
WLS COL 11.5-3

TABLE 11.3-202 (Sheet 1 of 3)
INDIVIDUAL DOSE RATES

	Dose (mrem/yr)							
Pathway	Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
Adult								
Plume	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	5.05E-01~~3.99E-01~~	2.38E+00~~2.06E+00~~
Ground	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.33E-01~~1.23E-01~~
Vegetable	1.38E-01~~1.27E-01~~	1.39E-01~~1.28E-01~~	6.09E-01~~5.70E-01~~	1.38E-01~~1.27E-01~~	1.34E-01~~1.23E-01~~	9.08E-01~~8.87E-01~~	1.28E-01~~1.18E-01~~	1.27E-01~~1.17E-01~~
Meat	3.96E-02~~4.32E-02~~	4.36E-02~~4.79E-02~~	1.73E-01~~1.89E-01~~	3.96E-02~~4.33E-02~~	3.92E-02~~4.28E-02~~	6.59E-02~~7.41E-02~~	3.89E-02~~4.24E-02~~	3.88E-02~~4.23E-02~~
~~Cow~~ Goat Milk	5.72E-02~~4.71E-02~~	4.47E-02~~4.30E-02~~	1.60E-01~~1.72E-01~~	6.28E-02~~4.95E-02~~	5.38E-02~~4.74E-02~~	9.96E-01~~7.99E-01~~	4.49E-02~~4.21E-02~~	4.31E-02~~4.15E-02~~
Cow Milk	5.37E-02~~4.71E-02~~	4.95E-02~~4.30E-02~~	1.98E-01~~1.72E-01~~	5.62E-02~~4.95E-02~~	5.41E-02~~4.74E-02~~	8.13E-01~~7.99E-01~~	4.87E-02~~4.21E-02~~	4.81E-02~~4.15E-02~~
Inhalation	5.18E-02~~4.76E-02~~	5.24E-02~~4.82E-02~~	7.99E-03~~7.29E-03~~	5.29E-02~~4.87E-02~~	5.38E-02~~4.95E-02~~	4.82E-01~~4.35E-01~~	6.70E-02~~6.16E-02~~	5.02E-02~~4.62E-02~~
Total(1)	8.74E-01~~7.88E-01~~	8.72E-01~~7.79E-01~~	1.57E+00~~1.55E+00~~	8.80E-01~~7.97E-01~~	8.68E-01~~7.82E-01~~	3.04E+00~~3.56E+00~~	9.02E-01~~8.05E-01~~	2.78E+00~~2.47E+00~~
Teen								
Plume	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	5.05E-01~~3.99E-01~~	2.38E+00~~2.06E+00~~
Ground	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.33E-01~~1.23E-01~~
Vegetable	2.07E-01~~1.91E-01~~	2.09E-01~~1.93E-01~~	9.76E-01~~9.10E-01~~	2.12E-01~~1.95E-01~~	2.06E-01~~1.90E-01~~	1.23E+00~~1.20E+00~~	1.97E-01~~1.81E-01~~	1.96E-01~~1.79E-01~~
Meat	3.21E-02~~3.50E-02~~	3.44E-02~~3.77E-02~~	1.46E-01~~1.59E-01~~	3.23E-02~~3.53E-02~~	3.20E-02~~3.49E-02~~	5.13E-02~~5.75E-02~~	3.17E-02~~3.46E-02~~	3.16E-02~~3.45E-02~~

WLS COL 11.3-1

WLS COL 11.5-3

TABLE 11.3-202 (Sheet 2 of 3)
INDIVIDUAL DOSE RATES

Pathway	Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
	Dose (mrem/yr)							
~~Cow~~ Goat Milk	8.56E-02~~7.11E-02~~	7.30E-02~~5.95E-02~~	2.91E-01~~2.41E-01~~	1.05E-01~~8.90E-02~~	8.96E-02~~7.45E-02~~	1.58E+00~~1.40E+00~~	7.45E-02~~6.09E-02~~	7.08E-02~~5.75E-02~~
Cow Milk	8.93E-02~~7.79E-02~~	8.47E-02~~7.34E-02~~	3.63E-01~~3.15E-01~~	9.71E-02~~8.55E-02~~	9.34E-02~~8.20E-02~~	1.29E+00~~1.27E+00~~	8.41E-02~~7.28E-02~~	8.28E-02~~7.15E-02~~
Inhalation	5.24E-02~~4.82E-02~~	5.29E-02~~4.86E-02~~	9.68E-03~~8.82E-03~~	5.44E-02~~5.00E-02~~	5.56E-02~~5.11E-02~~	6.02E-01~~5.43E-01~~	7.60E-02~~6.98E-02~~	5.07E-02~~4.66E-02~~
Total(1)	9.68E-01~~8.98E-01~~	9.68E-01~~8.87E-01~~	2.08E+00~~2.11E+00~~	9.91E-01~~9.30E-01~~	9.74E-01~~9.08E-01~~	4.05E+00~~4.95E+00~~	1.01E+00~~9.23E-01~~	2.87E+00~~2.57E+00~~
Child								
Plume	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	5.05E-01~~3.99E-01~~	2.38E+00~~2.06E+00~~
Ground	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.33E-01~~1.23E-01~~
Vegetable	4.59E-01~~4.22E-01~~	4.52E-01~~4.15E-01~~	2.31E+00~~2.15E+00~~	4.69E-01~~4.32E-01~~	4.59E-01~~4.22E-01~~	2.42E+00~~2.36E+00~~	4.45E-01~~4.08E-01~~	4.43E-01~~4.06E-01~~
Meat	5.81E-02~~6.34E-02~~	5.91E-02~~6.46E-02~~	2.74E-01~~2.99E-01~~	5.85E-02~~6.39E-02~~	5.80E-02~~6.33E-02~~	8.73E-02~~9.76E-02~~	5.77E-02~~6.30E-02~~	5.76E-02~~6.29E-02~~
~~Cow~~ Goat Milk	1.71E-01~~1.40E-01~~	1.58E-01~~1.28E-01~~	7.07E-01~~5.84E-01~~	2.14E-01~~1.80E-01~~	1.87E-01~~1.55E-01~~	3.15E+00~~2.80E+00~~	1.62E-01~~1.32E-01~~	1.56E-01~~1.27E-01~~
Cow Milk	1.99E-01~~1.73E-01~~	1.93E-01~~1.67E-01~~	8.88E-01~~7.72E-01~~	2.16E-01~~1.89E-01~~	2.09E-01~~1.83E-01~~	2.60E+00~~2.55E+00~~	1.93E-01~~1.67E-01~~	1.91E-01~~1.65E-01~~
Inhalation	4.63E-02~~4.26E-02~~	4.57E-02~~4.21E-02~~	1.18E-02~~1.07E-02~~	4.83E-02~~4.44E-02~~	4.94E-02~~4.54E-02~~	7.03E-01~~6.32E-01~~	6.58E-02~~6.04E-02~~	4.47E-02~~4.12E-02~~
Total(1)	1.35E+00~~1.32E+00~~	1.34E+00~~1.29E+00~~	4.07E+00~~4.29E+00~~	1.38E+00~~1.38E+00~~	1.36E+00~~1.34E+00~~	6.95E+00~~8.91E+00~~	1.38E+00~~1.33E+00~~	3.25E+00~~2.99E+00~~

WLS COL 11.5-3

WLS COL 11.3-1

TABLE 11.3-202 (Sheet 3 of 3)
INDIVIDUAL DOSE RATES

	Dose (mrem/yr)							
Pathway	Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
Infant								
Plume	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	4.73E-01~~3.70E-01~~	5.05E-01~~3.99E-01~~	2.38E+00~~2.06E+00~~
Ground	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.14E-01~~1.05E-01~~	1.33E-01~~1.23E-01~~
Vegetable	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Meat	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Cow~~ Goat Milk	3.26E-01~~2.66E-01~~	3.09E-01~~2.51E-01~~	1.34E+00~~1.10E+00~~	4.23E-01~~3.55E-01~~	3.58E-01~~2.96E-01~~	7.58E+00~~6.74E+00~~	3.17E-01~~2.59E-01~~	3.07E-01~~2.50E-01~~
Cow Milk	3.99E-01~~3.46E-01~~	3.89E-01~~3.36E-01~~	1.72E+00~~1.49E+00~~	4.38E-01~~3.84E-01~~	4.17E-01~~3.64E-01~~	6.23E+00~~6.12E+00~~	3.91E-01~~3.38E-01~~	3.88E-01~~3.35E-01~~
Inhalation	2.68E-02~~2.46E-02~~	2.61E-02~~2.40E-02~~	5.93E-03~~5.39E-03~~	2.89E-02~~2.65E-02~~	2.88E-02~~2.64E-02~~	6.30E-01~~5.66E-01~~	4.03E-02~~3.71E-02~~	2.57E-02~~2.37E-02~~
Total(1)	1.01E+00~~1.11E+00~~	1.00E+00~~1.09E+00~~	2.31E+00~~3.07E+00~~	1.05E+00~~1.24E+00~~	1.03E+00~~1.16E+00~~	8.80E+00~~1.39E+01~~	1.05E+00~~1.14E+00~~	2.93E+00~~2.79E+00~~

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1) The milk pathway contribution for the total dose of each receptor is conservatively assumed to be the higher of the two milk pathways, either goat milk or cow milk.

7. COLA Part 2, FSAR Chapter 11, Table 11.3-203 is revised as follows:

WLS COL 11.3-1

WLS COL 11.5-3

ITABLE 11.3-203
DOSE IN MILLIRADS AT SPECIAL LOCATIONS

Special Location	Beta Air Dose	Gamma Air Dose
Cow (Meat, Milk)	~~1.24~~1.09E-00	~~2.94~~1.99E-01
~~Cow Milk~~Goat (Milk)	~~9.80~~8.25E-01	~~2.33~~1.96E-01
EAB	~~2.93~~3.25E-00	~~6.13~~7.73E-01
Garden	~~1.09~~1.24E-00	~~1.99~~2.94E-01
~~Goat Milk~~	~~6.31E-01~~	~~1.04E-01~~

8. COLA Part 2, FSAR Chapter 11, Table 11.3-204 is revised as follows:

WLS COL 11.3-1

WLS COL 11.5-3

TABLE 11.3-204
POPULATION DOSES

(person-rem)

Pathway	Total Body	GI-Tract	Bone	Liver	Kidney	Thyroid	Lung	Skin
Plume	1.45E+00~~1.43E+00~~	1.45E+00~~1.43E+00~~	1.45E+00~~1.43E+00~~	1.45E+00~~1.43E+00~~	1.45E+00~~1.43E+00~~	1.45E+00~~1.43E+00~~	1.69E+00~~1.65E+00~~	1.48E+01~~1.43E+01~~
Ground	2.75E-01~~2.78E-01~~	2.75E-01~~2.78E-01~~	2.75E-01~~2.78E-01~~	2.75E-01~~2.78E-01~~	2.75E-01~~2.78E-01~~	2.75E-01~~2.78E-01~~	2.75E-01~~2.78E-01~~	3.23E-01~~3.26E-01~~
Inhalation	4.09E-01~~3.90E-01~~	4.10E-01~~3.91E-01~~	4.60E-02~~4.41E-02~~	4.16E-01~~3.97E-01~~	4.21E-01~~4.02E-01~~	3.07E+00~~2.99E+00~~	4.97E-01~~4.74E-01~~	4.01E-01~~3.82E-01~~
Vegetable	7.61E-01~~7.15E-01~~	7.60E-01~~7.14E-01~~	3.34E+00~~3.15E+00~~	7.63E-01~~7.17E-01~~	7.49E-01~~7.04E-01~~	7.75E-01~~7.29E-01~~	7.45E-01~~6.99E-01~~	7.43E-01~~6.97E-01~~
Cow Milk	2.75E-01~~2.59E-01~~	2.68E-01~~2.52E-01~~	1.15E+00~~1.08E+00~~	2.85E-01~~2.69E-01~~	2.79E-01~~2.62E-01~~	1.82E+00~~1.81E+00~~	2.68E-01~~2.51E-01~~	2.66E-01~~2.50E-01~~
Meat	1.83E+00~~1.72E+00~~	1.90E+00~~1.79E+00~~	8.22E+00~~7.72E+00~~	1.83E+00~~1.72E+00~~	1.82E+00~~1.71E+00~~	2.41E+00~~2.30E+00~~	1.82E+00~~1.70E+00~~	1.81E+00~~1.70E+00~~
Total	5.00E+004~~.79E+00~~	5.07E+004~~.85E+00~~	1.45E+01~~1.37E+01~~	5.02E+004~~.81E+00~~	5.00E+004~~.78E+00~~	9.80E+00~~9.52E+00~~	5.29E+00~~5.06E+00~~	1.84E+01~~1.76E+01~~

9. COLA Part 2, FSAR Chapter 11, Table 11.3-205 is revised as follows:

WLS COL 11.3-1

WLS COL 11.5-3

TABLE 11.3-205
CALCULATED MAXIMUM INDIVIDUAL DOSES COMPARED TO 10 CFR PART 50 APPENDIX I LIMITS

Description	Limit	Calculated Values
Noble Gases(1)		
Gamma Dose (mrad)	10	~~6.13E-01~~7.73E-01
Beta Dose (mrad)	20	~~2.93E+00~~3.25E+00
Total Body Dose (mrem)	5	~~3.70E-01~~4.73E-01
Skin Dose (mrem)	15	~~2.06E+00~~2.38E+00
Radioiodines and Particulates		
Total Body Dose (mrem)	-	~~9.50E-01~~8.76E-01
Max to Any Organ (mrem)(2)	15	~~1.39E+01~~8.32E+00

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1) Doses due to noble gases in the released plume are calculated at the location of maximum dose at the site boundary (location of highest χ/Q values). This location is ~~0.83~~0.81 miles southeast of the ~~plant~~Effluent Release Boundary.

2) The maximum dose to any organ is the dose to the thyroid of an infant.

10. COLA Part 2, FSAR Chapter 11, Table 11.3-206 is revised as follows:

WLS COL 11.3-1
WLS COL 11.5-3

TABLE 11.3-206
MAXIMUM INDIVIDUAL DOSES FROM BOTH UNITS DUE TO ROUTINE GASEOUS EFFLUENTS COMPARED TO 10 CFR 20.1301 LIMITS

Description	Limit	Calculated Values
TEDE (mrem)	100	3.12~~7~~E+00
Maximum Dose per Hour (mrem/hr)	2	3.56~~2~~E-04

11. COLA Part 2, FSAR Chapter 11, Table 11.3-207 is revised as follows:

TABLE 11.3-207
COLLECTIVE GASEOUS DOSES COMPARED TO 40 CFR PART 190 LIMITS

Description	Limit	Calculated Values for Both Units
Total Body Dose Equivalent (mrem)	25	~~2.64E+00~~2.70E+00
Thyroid Dose (mrem)	75	~~2.78E+01~~1.76E+01
Max to Any Other Organ (mrem)[(a)]	25	~~8.58E+00~~8.14E+00

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a) Note that the maximum dose to any organ other than the thyroid is the dose to the bone of a child.

12. COLA Part 2, FSAR Chapter 11, Table 11.3-208 is revised as follows:

WLS COL 11.3-1
WLS COL 11.5-3

TABLE 11.3-208
POPULATION DOSE BY ISOTOPIC GROUP

Source	Total Body (person-rem)	% of Total Total Body	Thyroid (person-rem)	% of Total Thyroid
Noble Gases	~~1.43E+00~~1.45E+00	~~30%~~29%	~~1.43E+00~~1.45E+00	15%
Iodines	~~9.94E-03~~1.00E-02	0%	~~4.79E+00~~4.85E+00	~~50%~~49%
Particulates	~~3.18E-01~~3.16E-01	~~7%~~6%	~~2.76E-01~~2.74E-01	3%
C-14	~~2.30E+00~~2.45E+00	~~48%~~49%	~~2.30E+00~~2.45E+00	~~24%~~25%
H-3	~~7.28E-01~~7.70E-01	15%	~~7.28E-01~~7.70E-01	8%
Total	~~4.79E+00~~5.00E+00	100%	~~9.52E+00~~9.80E+00	100%

Attachment 9

Revisions to FSAR Chapter 12

Subsection 12.4

Table 12.4-201

3. COLA Part 2, FSAR Chapter 12, Subsection 12.4, Subsection 12.4.1.9.3, first paragraph is revised as follows:

The determination of construction worker dose from Unit 1 operation depends on the airborne effluent release and the atmospheric transport to the worker location. The atmospheric dispersion calculation used the guidance provided in Regulatory Guide 1.111, meteorological data for the two years beginning December 1, 2005 and ending November 30, 2007~~6~~, and downwind distances to the construction worker locations. The XOQDOQ computer code (NUREG/CR-2919) was used to determine the χ/Q and D/Q values for the nearest location along the Unit 1 protected area fence in each direction as well as the nearest point of the Unit 2 shield building construction area. The plant vent is assumed for the normal gaseous effluent release location.

4. COLA Part 2, FSAR Chapter 12, Subsection 12.4, Subsection 12.4.1.9.4, third paragraph is revised as follows:

The 10 CFR 20.1301 limits annual doses from licensed operations to individual members of the public to 100 mrem TEDE. In addition, the dose from external sources to unrestricted areas must be less than 2 mrem in any one hour. This applies to the public both outside and within access controlled areas. The dose limits and estimated doses are given in Table 12.4-201. For an occupational year, i.e., 2080 hours on site, the dose due to routine gaseous effluents at the Unit 2 shield building, the principal construction area, would be 0.397~~29~~ mrem TEDE. The use of 2080 hours assumes the worker works 40 hours per week for 52 weeks per year. The maximum hourly dose due to routine gaseous effluents was determined at the locations where the highest dose rates could be expected, the Unit 1 fence line. The limiting annual dose to a worker was determined to be 5.37~~5.9~~ mrem per year in the southeast sector at the Unit 1 fence line. This assumes the worker stands at this point on the fence line for all working hours for the entire year. The hourly dose at this location, based on an occupational year, is 2.58~~85~~E-03 mrem/hr. These values are less than the limits specified for members of the public. Therefore, construction workers can be considered to be members of the general public and do not require radiation monitoring.

5. COLA Part 2, FSAR Chapter 12, Subsection 12.4, Subsection 12.4.1.9.5 is revised as follows:

The collective dose is the sum of all doses received by all workers. It is a measure of population risk. The total worker collective dose is 0.834~~61~~ person-rem. This estimate is based upon the construction workforce of 2100 and assumes 2,080 hours per year occupancy for each worker. This estimate evaluates the Unit 2 shield building as the average location of the workforce. This is reasonable because the shield building is near the center of the Unit 2 power block, which is the principal Unit 2 construction area.

6. COLA Part 2, FSAR Chapter 12, Table 12.4-201 is revised as follows:

WLS SUP 12.4-1

TABLE 12.4-201
CONSTRUCTION WORKER DOSE COMPARISON TO 10 CFR 20.1301 CRITERIA

Type of Dose	Dose Limits [1] (TEDE)	Estimated Dose [2]
Annual total effective dose equivalent	100 mrem	0.397~~0.29~~ mrem
Maximum dose in any hour	2 mrem	2.~~85E~~58E-03 mrem

NOTES:

1. 10 CFR 20.1301 criteria.
2. The estimated annual total effective dose equivalent is calculated at the point on the Unit 2 shield building closest to Unit 1. The estimated maximum dose in any hour is calculated at the maximum point of exposure on the assumed fence line surrounding Unit 1. The doses are calculated using the methodology in Regulatory Guide 1.109.

Attachment 10

Revisions to FSAR Chapter 19

Table 19.58-201

2. COLA Part 2, FSAR Chapter 19, Table 19.58-201, Sheets 3 through 5 are revised as follows:

TABLE 19.58-201 (Sheet 3 of 12)
EXTERNAL EVENT FREQUENCIES FOR WLS

Category	Event	Evaluation Criteria (See Notes)	Applicable to Site? (Y/N)[1]	Explanation of Applicability Evaluation	Event Frequency (Events/yr)
				These event frequencies are bounded by the limiting initiating event frequencies given in Table 3.0-1 of APP-GW-GLR-101. Therefore, the safety features of the AP1000 are unaffected and the CDFs given in APP-GW-GLR-101 Table 3.0-1 for these events are applicable to WLS Units 1 and 2. Winds below 74 mph (storms) are not considered to have an adverse impact of WLS Units 1 and 2 as the switchyard and non-safety buildings will be designed to function at a higher wind speed (96 mph). Therefore, no additional PRA considerations are required for winds below hurricane force.	
External Flood	External Flood	D	Y	As discussed in Subsection 2.4.2.2, specific analysis of Broad River flood levels resulting from surges, seiches, snowmelt, ice effects, flood-waves from landslides, and tsunamis is not required for the Lee Nuclear Station. As discussed in Subsections 2.4.2.2 and 2.4.2.3, the Probable Maximum Precipitation (PMP) event for the site (local intense precipitation) results in a flood elevation of ~~589.59~~592.56 ft. The Lee Nuclear Station safety-related plant elevation is ~~590~~ 593 ft. As discussed in Subsection 2.4.4, failure of the on-site reservoirs would not affect the safety-related facilities.	N/A

TABLE 19.58-201 (Sheet 4 of 12)
EXTERNAL EVENT FREQUENCIES FOR WLS

Category	Event	Evaluation Criteria (See Notes)	Applicable to Site? (Y/N)[1]	Explanation of Applicability Evaluation	Event Frequency (Events/yr)
				As discussed in Subsections 2.4.1.2.2.6 and 2.4.4.3, the Probable Maximum Flood (PMF) event on the Make-Up Pond B watershed with the added effects of dam failure and coincident wind wave activity results in a flood elevation of ~~585.8~~589.10 ft. The Lee Nuclear Station safety-related plant elevation is ~~590~~ 593 ft. This result shows a margin ~~exceeding~~ of approximately 4 ft. between the calculated flood elevation and the point where safety-related SSCs could be impacted. As discussed in Subsection 2.4.4.3, the PMF event on the Broad River and inundated Make-Up Pond A, including effects of dam failures and the coincident wind wave activity, results in a flood elevation of ~~585.64~~585.36 ft. Thus, the Make-Up Pond B event described above remains the bounding event for external flooding and provides reasonable assurance that the plant has adequate protection from external flooding. As discussed in Subsection 2.4.4.1, the Make-Up Pond C peak dam failure outflow was combined with the maximum historical flow recorded on the Broad River. The resulting combined peak outflow does not exceed the critical dam failure event for the Broad River watershed, and, even if routed to the Lee Nuclear Station without attenuation, the resulting water surface elevation would not exceed the elevation determined from the critical multiple dam failure scenario coincident with the Broad River watershed PMF. Thus, the consequences of the Make-Up Pond C failure event are bounded and would not adversely affect safety related structures.	

TABLE 19.58-201 (Sheet 5 of 12)
EXTERNAL EVENT FREQUENCIES FOR WLS

Category	Event	Evaluation Criteria (See Notes)	Applicable to Site? (Y/N)[1]	Explanation of Applicability Evaluation	Event Frequency (Events/yr)
				The above discussion and results for "External Floods" are consistent with the evaluation presented in Section 4.0 of APP-GW-GLR-101 (Reference 201), which states that the AP1000 is protected against floods up to the 100 ft level (~~590~~ 593 ft msl for Lee Nuclear Station). Therefore, it is concluded that this event frequency is bounded by the CDF of 5.85E-15 events per year given in APP-GW-GLR-101, Section 4.0 and the safety features of the AP1000 are unaffected.	
Transportation and Nearby Facility Accidents	Aviation (commercial/ general/ military)	A, B	Y	As discussed in Subsection 3.5.1.6, a calculation performed in accordance with the guidelines of Standard Review Plan (SRP) Section 3.5.1.6, determined the general aviation probability of aircraft accidents that hit safety related structures is less than 1.8E-7 per year. Note, the calculated event frequency is based entirely on the general aviation crash rate, including use of low altitude Airway V54. This event frequency is bounded by the limiting value of 1.21E-6 events/year for small aircraft in APP-GW-GLR-I01. As discussed in Subsection 3.5.1.6, no airports having more than 500 D^2 movements per year are located within 10 miles of the site, and no airports beyond 10 miles of the site have more than 1000 D^2 movements per year. Thus, the aircraft hazard probability does not need to be calculated because it is considered to be less than an order of magnitude of 1.0E-7 per year.	1.8E-07 (general aviation) <1.0E-7 (commercial aircraft)