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Subject: **Transmittal of ESBWR DCD Tier 2 Markups Related to GEH
Corrective Action – Chapter 2**

The purpose of this letter is to submit markups to the ESBWR DCD Tier 2, Chapter 2, resulting from GEH corrective action.

The purpose of this corrective action item is to correct several instances in Chapter 2 where the term "plant grade" is misused. In these instances, the term "plant grade" is being replaced with the correct term "finished ground level grade."

Enclosure 1 provides the DCD Tier 2 markups, to be incorporated into the DCD Revision 8, to correct these errors.

If you have any questions or require additional information, please contact me.

Sincerely,

Richard E. Kingston
Vice President, ESBWR Licensing

DOAB
MRO

Enclosure:

1. Transmittal of ESBWR DCD Tier 2 Markup Related to GEH Corrective Action – Chapter 2 – DCD Markups

cc: AE Cubbage USNRC (with enclosure)
JG Head GEH/Wilmington (with enclosure)
DH Hinds GEH/Wilmington (with enclosure)
SR Andersen GEH/Wilmington (with enclosure)
eDRF Section 0000-0121-0425

Enclosure 1

MFN 10-212

**Transmittal of ESBWR DCD Tier 2 Markup Related to GEH
Corrective Action
Chapter 2**

DCD Markups

Table 2A-1

ARCON96 Assumed Inputs Used for the Determination of On-Site X/Q Values

Parameter	Source of Input (or Reasoning)	Value
Wind Speed Units Flag (1=m/s, 2=mph, 3=knots)	RG 1.194, App. A	Varies with input
Vertical Velocity (m/s)	RG 1.194, App. A (default value/conservatism)	0
Stack Flow (m/s)	RG 1.194, App. A (default value/conservatism)	0
Stack Radius (m)	RG 1.194, App. A (default value/conservatism)	0
Wind Direction Window (degrees)	RG 1.194, App. A (default value)	90
Elevation Difference (m)	RG 1.194, App. A (All information was normalized to the plant finished ground level grade elevation, therefore no adjustments for elevation differences are required for ARCON96 input)	0
Surface Roughness Length (m)	RG 1.194, App. A (default value)	0.2
Minimum Wind Speed (m/s)	RG 1.194, App. A (default value)	0.5
Averaging Sector Width Constant	RG 1.194, App. A (default value)	4.3
Hours in Averages	RG 1.194, App. A (default value)	ARCON96 Default
Minimum Number of Hours	RG 1.194, App. A (default value)	ARCON96 Default

Distance

These distances are the source-to-receptor distances and are the shortest horizontal distances between the release points and the intakes.

Release Height

For diffuse sources in Table 2A-3, the release height is set at the vertical center of the projected diffuse source plane above grade. For point sources the release heights are taken to be the vertical distance from plant finished ground level grade to the center of the release points.

Building Area

Areas are provided for the buildings that have the largest impact on the building wakes within the wind direction window for a given source/receptor pair.

Intake Height

The actual intake heights are provided in Table 2A-3, and are taken to be the vertical distance from plant finished ground level grade to the center of the intakes.

Total Height

The total heights are the above grade heights of the buildings where diffuse sources are modeled. Building heights are not directly used by ARCON96. They are used to calculate the initial vertical plume spread parameter (σ_{Y0}) as well as to determine the diffuse source area and release heights.

Total Width

The "total width" column of Table 2A-3 provides widths of the area sources that are the maximum horizontal dimensions of the above-grade building cross-sectional areas perpendicular to the lines of sight from the building centers to the receptors. For point sources this parameter is not applicable (N/A).

 σ_{Y0} and σ_{Z0}

These values are the initial lateral and vertical plume spread parameters calculated using Formulas 3 and 4 of RG 1.194.

2A.2.4 Confirmation of the ESBWR X/Q Values

When referencing the ESBWR DCD to confirm that site characteristics at a given site are bounded by the ESBWR DCD site parameter values per 10 CFR 52.79, the COL Applicant shall perform ARCON96 determinations for all source/receptor pairs listed in Tables 2A-3 and 2A-4 using site-specific meteorological data (as defined in Regulatory Guide 1.23, Reference 2A-2) (COL 2A.2-1-A). Figure 2A-1 shows the locations of the sources and receptors for ESBWR Control Room determinations. The dimensions of the diffuse source planes provided in Table 2A-3 were determined as directed by Regulatory Position 3.2.4.5 of Regulatory Guide 1.194 for the nearest receptor locations.

2A.2.5 Confirmation of the Fuel Building and Reactor Building X/Q Values

The COL applicant shall confirm that during movement of irradiated fuel bundles none of the doors or personnel air locks on the East sides of the Reactor Building or Fuel Building could act