PMSummerColpEM Resource

From: MONROE, AMY [AMONROE@scana.com]
Sent: Friday, May 21, 2010 9:19 AM
To: Sebrosky, Joseph; Habib, Donald
Cc: MONROE, AMY
Subject: SCEG 060201 Draft
Attachments: SCEG06020101.DOC

Joe/ Don,
Let's try this again. Appears it did not go yesterday. I am available to discuss at any time.
I apologize for the confusion.
Amy

Hearing Identifier: VCSummer_COL_Public
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Mail Envelope Properties (82591B6285A08F42AA28F8983E63676A07B00DBB23)

Subject: SCEG 060201 Draft
Sent Date: 5/21/2010 9:19:10 AM
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From: MONROE, AMY

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Recipients:
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Tracking Status: None
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MESSAGE	149	5/21/2010 9:19:17 AM
SCEG06020101.DOC	49216	

Options
Priority: Standard
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Request for Additional Information
Virgil C. Summer Nuclear Station, Units 2 and 3
South Carolina Electric and Gas Company
Docket No. 52-027 and 52-028
SRP Section: 06.02.01 - Containment Functional Design
Application Section: 6.2
QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

06.02.01-1 VCS DEP 2.0-2 increases the maximum noncoincident wet bulb temperature from 86.1°F to 87.3°F. The departure justification states that this increase does not change the maximum containment pressure value reported in the DCD. Please describe the analyses supporting this statement, including initial conditions, break locations, resulting peak pressure and pressure at 24 hours.

Response

The peak containment pressure wet bulb temperature sensitivity analysis was performed with the WGOTHIC AP1000 containment model, which had been updated from the DCD modeling to include significant design changes, particularly to the shield building. It was shown in Reference 2, that the design changes did not have a significant impact on the peak pressure over the DCD analysis.

The analysis was performed on the limiting peak pressure case, the cold leg LOCA, using the initial containment conditions assumed in the DCD containment peak pressure analysis. The containment pressure was initially +2 psig, the containment initial temperature of 120 °F and the containment initial relative humidity of 0%. The ambient wet bulb temperature was varied from 80°F (in the DCD, Rev. 15) up to 89°F for the sensitivity analysis as shown in Table 1.

Table 1
Dry-bulb/Wet-bulb Temperature Combinations, Relative Humidity and Pressure Ratio

Case Name	T_{db} °F	T_{wb} °F	Rel. Hum. %	P_{sat} @ T_{db} psia	PR_{st} -
ap1kloca	115	80.0	22.02	1.47	0.0220
ap1k_dcp	115	86.1	31.71	1.47	0.0317
wb87	115	87.4	33.95	1.47	0.0340
wb89	115	89.0	36.79	1.47	0.0368

** from Psychrometric Chart

The resulting peak pressures are shown in Table 2 and Figure 1.

Peak Pressure Sensitivity to the Dry and Wet-bulb Temperatures

Case Name	T_{db} °F	T_{wb} °F	Peak P psig
ap1kloca	115	80.0	57.8
ap1k_dcp (Ref. 2)	115	86.1	57.88
wb87	115	87.4	57.88

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wb89	115	89.0	57.90

The analyses were not run to 24 hours. However, from Figure 1 it can be determined that the ambient wet bulb temperature does not impact the long term containment pressure.
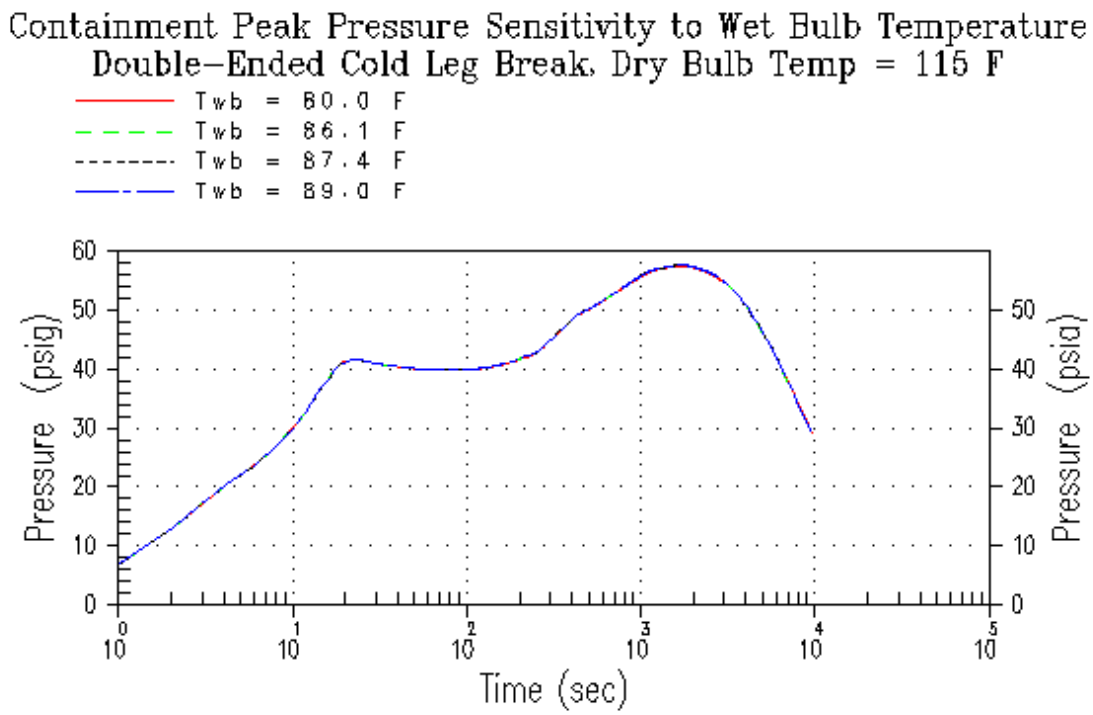
Figure 1