

PMSTPCOL PEmails

From: Foster, Rocky
Sent: Monday, February 07, 2011 5:20 AM
To: Hilsmeier, Todd; Mrowca, Lynn; Fuller, Edward; Pohida, Marie
Cc: STPCOL
Subject: FW: Summary paper
Attachments: Hurricane and High Wind-summary.pdf

FYI

From: Stillwell, Daniel [<mailto:dwstillwell@STPEGS.COM>]
Sent: Friday, February 04, 2011 4:49 PM
To: Foster, Rocky
Subject: Summary paper

Rocky,

Scott asked that I send the attached to you prior to the meeting on Tuesday.

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Hearing Identifier: SouthTexas34Public_EX
Email Number: 2571

Mail Envelope Properties (26E42474DB238C408C94990815A02F0939860DDE16)

Subject: FW: Summary paper
Sent Date: 2/7/2011 5:20:24 AM
Received Date: 2/7/2011 5:20:26 AM
From: Foster, Rocky

Created By: Rocky.Foster@nrc.gov

Recipients:

"STPCOL" <STP.COL@nrc.gov>
Tracking Status: None
"Hilsmeier, Todd" <Todd.Hilsmeier@nrc.gov>
Tracking Status: None
"Mrowca, Lynn" <Lynn.Mrowca@nrc.gov>
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Tracking Status: None
"Pohida, Marie" <Marie.Pohida@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

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MESSAGE	368	2/7/2011 5:20:26 AM
Hurricane and High Wind-summary.pdf		44239

Options

Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Problem Statement

The latest sensitivity evaluation of hurricanes presented in the response to Request for Additional Information (RAI) 19.01-31, does not include an evaluation of Large Release Frequency.

Response

Large Release

The Conditional Containment Failure Probability (CCFP), if determined for this sensitivity study or the previous evaluation of core damage frequency for the hurricane effects on the as-designed plant, would be the same as the CCFP for Accident Class IB-2 determined in the original SSAR.

IB-2 Station blackout events with RCIC available for core cooling for approximately 8 hours, Core Damage Frequency – $1.6E-08$ per year; from Figure 19D.5-3 for Sequence SBRC (IB-2) Release through COPS $8.0E-10$ ($7.97E-10$). CCFP is determined by dividing Large Release Frequency (LRF) by Core Damage Frequency (CDF).

$$\text{CCFP} = 8.0E-10 / 1.6E-08 \approx 0.05$$

LRF for this sensitivity case can be obtained by multiplying the CCFP by the CDF.

$$\text{LRF} = 0.05 * 4.6E-07 = 2.3E-08 \text{ per year}$$

Additional Considerations

The sensitivity study performed for hurricane winds in excess of 134 mph did not consider use of the portable diesel driven fire pump. This pump will be staged in a protected Category I building prior to the hurricane. From the SSAR, failure of the AC Independent Water Addition Function is dominated by operator action, at 0.01. If the portable pump has a failure rate of 0.01, core damage frequency for the sensitivity study would be approximately

$$\begin{aligned} \text{CDF} &= (0.01+0.01) * 4.6E-07 = 9.2E-09 \\ \text{LRF} &= 9.2E-09 * 0.05 = 4.6E-10 \end{aligned}$$

Conclusion

Comparing to the safety goals, the sensitivity evaluation meets the defined criteria.

CDF $1E-04$ per year - Meet

LRF $1E-06$ per year – Meet

CCFP < 0.1 [approximately 0.05 for Station Blackout Events from the SSAR] - Meet