Perkins, Leslie

From: Doyle, Daniel
Sent: Wednesday, February 09, 2011 8:47 AM
To: Lehman, Bryce
Cc: Auluck, Rajender; Perkins, Leslie; Wentzel, Michael
Subject: FW: Salem/Hope Creek DSEIS Comments
Attachments: Salem SAMA Public Comments+ray.docx

Bryce,

Can you provide a brief response for this comment as well (or point me to someone else who can)?

Why is there no basemat system present at Hope Creek Generating Station? Is it related to the design of the HCGS BWR?

Thanks!

Dan Doyle

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(301) 415-3748

From: Gallucci, Ray
Sent: Wednesday, February 09, 2011 8:30 AM
To: Doyle, Daniel
Cc: Wentzel, Michael; Perkins, Leslie; Harrison, Donnie
Subject: RE: Salem/Hope Creek DSEIS Comments

Unfortunately, there is no discussion about a basemat for Hope Creek as there was for Salem in their submittal, other than the following: "DRYWELL (DW) SHELL MELT-THROUGH FAILURE DUE TO CONTAIMENT FAILURE - This event assumes immediate failure of containment due to core melt-through, which implies that as soon as molten corium contacts the DW inner liner, containment failure is guaranteed. There was no feasible SAMA identified for this event." This only explains why no SAMA was considered. The closest I could find as to why they might not have a basemat was their citing of the RHR system as effective against structural failure of containment, and I've inserted that in the attached. The answer may be related to the unique containment structure of a BWR, but I will have to punt that to someone else more familiar with the details of BWR structural integrity.

From: Doyle, Daniel
Sent: Wednesday, February 09, 2011 8:06 AM
To: Gallucci, Ray
Cc: Wentzel, Michael; Perkins, Leslie
Subject: RE: Salem/Hope Creek DSEIS Comments

Ray,

Can you take another look at comment number 2? The question is about Hope Creek (HCGS) but in your response, you refer to Salem. The other thing is that they were asking why there is no basemat system at Hope Creek but your answer talks about why basemat melt-through is unlikely (at Salem). Can you please revise this response? Thanks

Dan Doyle

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From: Gallucci, Ray
Sent: Tuesday, January 11, 2011 3:17 PM
To: Doyle, Daniel
Cc: Harrison, Donnie; Parillo, John
Subject: FW: Salem/Hope Creek DSEIS Comments

What I sent to Leslie. I do not know her plans for the two "halves" I did not answer.

From: Gallucci, Ray
Sent: Wednesday, January 05, 2011 3:46 PM
To: Perkins, Leslie
Cc: Harrison, Donnie; Parillo, John; 'Short, Steve M'; Coles, Garill A; Schmitt, Bruce E
Subject: RE: Salem/Hope Creek DSEIS Comments

I've attempted to answer the ones I can in the attached (in red), which leaves two "halves" (#1, comment 1; and #4, comment 2) to be answered (TBA). I'm not sure who could answer these. If you still want to meet with me, Donnie and John, let me know.

From: Perkins, Leslie
Sent: Wednesday, January 05, 2011 11:40 AM
To: Gallucci, Ray
Subject: Salem/Hope Creek DSEIS Comments

Hi Ray,

I received public comments on the Salem and Hope Creek DSEIS regarding SAMA. Attached are the comments for you to review I would to get to together to with you to discuss further. Let me know a good time that I can stop by.

Thanks

Leslie Perkins
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301-415-2375

1. SAMA – Breakdown of Population Dose by Containment Release Mode for Salem Generating Station / Table 5-4 / Page 5-6 / Line 10:

For the "Basemat Melt Through (BMT)", population dose is considered negligible. The BMT is a protection system for the basemat of reactor containment buildings in nuclear power stations. The system comprises a structure located in a cavity below the reactor vessel and submerged in water. The structure comprises staggered layers of stainless steel beams for intercepting molten material escaping from the reactor vessel during meltdown of the reactor core. The system is designed so that the molten material is distributed in thin layers over wings of the beams and transfers its heat to the surrounding water thus affording a rapid quenching of the molten core and safeguarding the integrity of the basemat.

Comment 1: Would there be any chance, even within the basemat system of staggered layers of steel beams, of a flash to steam of the molten material and potential release to the atmosphere augmenting/causing a potential contribution to population dose? Have there been model studies done to confirm the report's claims of negligible contribution to population dose? The steam generated during this core melt must be relieved somewhere.

TBA

Comment 2: Why is there no basemat system present at HCGS? Is it related to the design of the HCGS BWR?

At Hope Creek, the Residual Heat Removal (RHR) system, operating in the suppression pool cooling mode, can maintain long term containment integrity through adequate containment heat removal if other failure modes can also be mitigated. With the RHR system operating during the course of a core melt accident, containment pressure and temperature can be maintained within the structural failure criteria of the containment. As a result, the consequences of a radioactive release to the environment can be prevented.

2. SAMA – Evaluation of Risk Reduction and Costs of Improvements / Section 5.3.4 / Page 5-9 Lines 20-22:

"PSEG evaluated the risk-reduction potential of the remaining 25 SAMA's for SGS, as well as four additional SAMA's that were added in response to an NRC staff request for additional information."

What were the four added SAMA's at SGS and the bases for their inclusion? Can they affect potential offsite individual or population dose during the relicensing period?

The additional four consisted of SAMA 5A ("Install Portable Diesel Generators to Charge Station Battery and Circulating Water Batteries"), added as a sensitivity case to SAMA 5 to provide a comprehensive, long term mitigation strategy for station blackout scenarios; and SAMAs 30 through 32 ("Automatic Start of Diesel-Powered Air Compressor;" "Fully Automate Swap-over to Sump Recirculation;" "Enhance Flood Detection for 100-foot Auxiliary Building and Enhance Procedural Guidance for Responding to Internal Floods;" respectively). While

each could reduce potential offsite individual or population dose during relicensing (by ~10% of the theoretical maximum for SAMA 5A; by less than 1% each for SAMAs 30 through 32), only SAMA 5A was shown to be potentially cost-effective. SAMA 5A will be considered for implementation through the established Salem Plant Health Committee process.

3. SAMA – Cost-Benefit Comparison / Section 5.3.5 / Page 5-10 Lines 14-15:

"SAMA 2 – Re-configure Salem 3 to provide a more expedient backup to AC power source for Salem 1 and 2"

A member of the public and/or casual reader should be made aware that "Salem 3" is fossil fuel back-up generator and not a third nuclear plant on the Salem footprint. A reference to the definition of Salem 3 could not be found in the document. It could lead to confusion.

Salem Unit 3 is an air-cooled combustion turbine peaking unit rated at approximately 40 MWe. Salem Unit 3 has two gas turbines, each of which has enough power for both Salem units.

4. SAMA – Cost-Benefit Comparison / Section 5.3.5 / Page 5-11

"SAMA 5A – Install portable diesel generators to charge station battery and circulating water barriers"

Comment 1: What is PDP and what is the sensitivity basis behind SAMA 5A? Both are based on the generic installation of the Portable Diesel Generator.

PDP = Positive Displacement Pump. "Sensitivity" for SAMA 5A refers to it being an alternate approach to mitigating SBOs to limit the scope of SAMA 5 to only address cases in which the reactor coolant pump (RCP) seals remain intact, which occurs in a majority of the station blackout (SBO) scenarios based on the assumptions used in the SGS probabilistic risk assessment (PRA). Due to the uncertainty related to RCP seal performance, the original SAMA 5 design is considered to be the most appropriate for SBO scenarios, but the PRA model will show that most of the benefit for SBO sequences can be achieved by prolonging the availability of secondary side heat removal and recovering offsite power. Adopting this approach to the SAMA design, however, places a large amount of importance on the assumptions related to RCP seal performance. In order to investigate the potential benefit of only prolonging secondary side heat removal and offsite power restoration capability, the air cooled PDP/centrifugal charging pump was removed from the SAMA 5 design and the size of the 460V AC generator was reduced to match the loads associated with turbine driven auxiliary feedwater operation (SAMA 5A).

Comment 2: From a Clean Air Act (CAA) standpoint, do the additional diesel generators, compressors, or any other fuel source equipment pose an issue with the existing Title V permit at the site – still maintaining a cost beneficial environment?

TBA