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To: Rosenberg, Stacey <slr1@nrc.gov>
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Subject: KPRA

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Satcey,

Here are the responses to your questions of 2/23/96.

1) Can the roving watch operator recover from all proceduralized actions credited in the Keowee PRA? What is his training? Is he a normal Keowee operator? Is he/she periodically trained in the Keowee abnormal procedures?

Response:

Event ABPOPRCDHE, 6Operators Fail to Close Air Circuit Breaker 46 (to align the OH unit to the UG path) is a credited action that is normally performed from the Oconee control room. The roving watch would not perform this action. It is noteworthy that a pending plant modification at Keowee (expected to be completed March 9th) will make this action an automatic action that will no longer require operator response.

Event FKOFISHREC is a recovery from Keowee service water strainer clogging. This would require a series of strainer swaps and strainer basket cleanings to accomplish. The roving watch may require help from an Oconee NLO to accomplish this task.

With the above exceptions, the roving watches can accomplish all proceduralized actions credited in the Keowee PRA.

Roving watches are trained with classroom and on the job training. The frequency of this training varies according to the importance of the task.

The roving watches are normal Keowee operators (the on call operator is a technical specialist with special training).

A roving watch receives annual training on critical tasks in the Keowee Abnormal Procedures.

2) For RHEs it seems that the HRA depends on the skills of the on-call technical specialist. The window of time available and time required are the same. Any comments on the justification? Conversations with INEL suggested 0.5 may be a bit optimistic.

Response:

For the event to recover Keowee auxiliary buses by manual breaker manipulation, the writeup describes that the Keowee on call operator can be contacted within an hour and that it would take about an hour before the loss of governor oil causes the Keowee wicket gates to fail as is. This gives the appearance of equal time windows for available and required time. However, since one hour is an upper bound for response time for the on call operator, actual time required for this operator to arrive at Keowee should be somewhat less than an hour.

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The time reliability model used for Revision 1 of the McGuire, Catawba and Oconee PRAs (the original HCR model) gives a value of 0.5 for actions that have an equal time available and time required regardless of their characterization (as either SKILL, RULE or KNOWLEDGE based).

In some cases, a Keowee operator qualified as on call technician would be present at Keowee during the event. The evaluation of this same recovery in NUREG/CR-4674, Volume 18, page B-82 assumed that adequate resources were available at Keowee to recover the failure during the day shift. Based on this consideration, a value of 0.43 was assigned to this recovery event in the NUREG/CR.

Finally, the action to manually manipulate Keowee breakers if necessary is now a proceduralized action for the roving watch. The roving watch can now perform this action without contacting the on call technical specialist. Therefore, the time required to complete the action is now considerably less than one hour.

3) For a few of the DHEs it is assumed that Oconee NLOs could respond within 10 minutes. The time seems reasonable, however, will any NLOs actually be available to respond to Keowee? What if they are needed to respond at Oconee for other actions given that at least one Oconee Unit will have tripped? Was this a consideration?

Response:

NLO use at Oconee was not explicitly considered during the Keowee PRA. However, Technical Specifications require 4 NLOs to be on duty if one Oconee unit is at power or 5 to be on duty if more than one unit is at power. The LOOP scenarios of concern require an NLO to be dispatched to the SSF. Also one NLO would initially be tied up for 10 to 15 minutes at Oconee starting the diesel air compressor. This would normally leave 2 or 3 NLOs to respond to Keowee if needed (and one more after the diesel air compressor is started in about 15 minutes). Oconee personnel are trained to dispatch NLOs to Keowee in the event of trouble there.

4) In the table of importance measures, one column is called CRITIC and its values are essentially the same as Fussel-Vessely. I am not familiar with Critic. would you explain the definition of this importance measure?

Response:

I reviewed the CAFTA users manual and found no description as to what the importance measure is. We can pursue this with SAIC but I wanted to get this response back to you.

Let me know if you need anything else.

Mike

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