Note: RG = Ray Gallucci
JC = Jeff Circle
SL = Steve Laur

FPIP-0122 Expert Panel Review of Multiple Spurious Actuations

(1) 9.1. The expert panel review may be the only one of the three inputs (SSD analysis and internal events PSA reviews are the others) that can identify previously unknown or dismissed circuit failure combinations. The guidance from RIS 2004-03 (note incorrect reference to RIS 2003-04) is intended for inspection purposes and not as a limiting factor for fire PSA. The expert panel should consider combinations of >2 cables if the "3-4 circuit failures" are possible, as well as intercable thermosets. (RG)

(2) Att. 3, 1.2. Under Phase 2, while it is appropriate to discuss regulatory guidance, note that the fire PSA is not limited in scope by regulatory guidance for MSOs (see above). (RG)

(3) Att. 3, 1.2.1. In light of Duke's recent armored cable tests, you may want to remove the armored cable example under the second bullet. (RG)

(4) It would aid my understanding if the term "required cable" was defined, similar to the RIS 2004-03 sentence: *If damage to the circuits or cables under consideration would have a direct impact on the operation of equipment or systems that are relied on to perform an essential shutdown function, the circuits and cables are considered "required circuits."* (SL)

(5) Definition 3.10, "Risk Significant," is not about risk but likelihood. Since we use risk as a defined term, I think they should change this to something like "Candidate Spurious Actuations" or delete the definition. (SL)

(6) In Section 9.3, there is no requirement for how much experience the "experts" need to have. Further, the quorum specifies a number of members, but does not ensure key individuals are present - for example, I would say that an electrical or I&C engineer who is very familiar with the plant wiring diagrams and schematics would be a "must" for any such meeting. (SL)

(7) In Section 9.4 - I do not agree that no training is necessary. I would say that training on the definitions ("required cable;" "Bin 1," etc.) and on the meaning of the criteria would be necessary. (SL)

(8) Section 3.10, Risk Significant.: Guidance is for selection of concurrent multiple spurious actuations based on RIS-2004-03 classification of "most risk significant". What are the actual criteria for that assessment? (JC)

(9) Section 9.1 Background. Circuit Analysis.: Focuses the expert panel on reviewing "high risk", potential two cable failures per scenario. There may be combinations that are overlooked using that approach. Has the licensee considered other means to achieve this goal? (JC)

FPIP-0202 Fire PRA Component Selection

(1) 9.2.2. Ensure that initiators, although not mapped to specific basic events in the internal events PSA, cannot be caused by equipment failures that would otherwise have been excluded from mapping if such equipment were fire affected. E.g., if an automatic turbine (reactor) trip could be caused by a fire-induced faulty signal on some instrument(s) that would not normally be part of the internal events PSA, ensure that such instrument(s) is identified as potentially relevant for fire-induced turbine (reactor) trip. (RG)

(2) 9.3. Again, do not limit inclusion of an SSEL component only to those whose fire-induced failure would affect mitigation capability - include any that could induce initiators. (RG)

(3) 9.4.6. RAW is only one measure of risk importance. Fussell-Vesely (F-V) should also be considered, and the list of potentially risk-significant components should be drawn from the union of the two sets. (RG)

(4) 9.4.7. In conjunction with above, assign an "L" only if both RAW and F-V indicate low risk-significance. (RG)

(5) In section 9.4, plan to start equipment list with SSEL and non-App R equipment that has the potential to be highly risk significant. This is fine as it's a start. Curious to know how they intend to establish risk significance prior to doing the analysis. Note that this is a Standard issue. General assumptions regarding existence of highly redundant trains could be an approach, but the procedure doesn't say. Curious to know licensees thoughts, as it may be relevant to our resolution of this issue in the Standard.

(6) 9.4.7 says cannot have a fire induced Large Break LOCA. For a BWR, we have identified inspection findings, i.e. potential spuriously multiple stuck open MSRVs, which could be a large break LOCA. I presume this can occur with a PWR. Right?

(7) Section 9.1, Overview: Is there any guidance on the need to reconcile internal event PRA components which might have been screened out on low probability such as flow diversion paths? (JC)

FPIP-0104, Safe Shutdown Equipment List and Fault Tree Logics

(1) Item 4.1.8: Why is the shutdown engineer directed to have fault tree database files be revised by individuals familiar with IRRAS/MAR-D text files since Progress Energy uses CAFTA? Note that the name IRRAS has been SAPHIRE for the last 14 years. (JC)

(2) Section 9.1.2, Safe Shutdown Component Selection Criteria, Item 17: Shouldn't guidance on interlocking circuitry should also include CWDs (or elementaries) which will model the actual transmitters and their associated power supplies? An important interaction might be overlooked if only P&IDs ("instrument schematics") were employed. (JC)

(3) Attachment 1 on Fluid System Modeling Rules: Assuming that this is set up for modular fault trees however, there is no key to the module top gates. It might be cryptic for licensee personnel to use. (JC)