NRR-PMDAPEm Resource

From: Feintuch, Karl
Sent: Sunday, December 23, 2012 9:29 PM
To: 'Swenzinski, Laura'
Cc: Dinsmore, Stephen; ONeal, Daniel; Hyslop, JS; Harrison, Donnie; Gallucci, Ray
Subject: Supplement to ML12355A072 (RAI issed as an email on 12/19/2012, at 4:08 PM ET)

Addition to the listed attendees

The following individual attended the 17 December 2013 conference call as a Duane Participant:
Usama Farradj affiliated with ERIN ENGINEERING

Revised RAI items

In an email containing request for additional information (RAI) items sent to you on December 19, 2012 at 4:08 PM ET (ADAMS Accession Number ML12355A072), certain items were identified as forthcoming when completed.

The missing information is provided below.

Revised FPE RAI 13, part "c"

The Transition Report stated that "the design will be based on FAQ 08-0046 (ADAMS Accession No. ML093220426) and will meet the FAQ guidance such as: sensitivity, equipment voltage restrictions, and fast versus slow acting devices in regard to fire growth." In light of your revised approach to not use FAQ 08-0046, describe how the application of an incipient detection system will be integrated with this revised approach (NUREG 6850 Appendix L, credit for defense in depth only, etc.).

Revised PRA RAI 11.01, part "a"

In your letter dated April 23, 2012, (ADAMS Accession No. ML12117A052) you responded to PRA RAI 11 citing Table O-2 of NUREG/CR-6850 where you referred to the values 5E-4 and 1E-5 as conditional catastrophic, non-suppressed fire probabilities. You then used these values to support your conditional estimates. In fact, these values are catastrophic, non-suppressed fire frequencies as denoted by their units of per year.

The fire ignition frequency for each of these values is the sum of turbine generator ignition frequencies from frequency bins 33, 34, and 35. Besides the ignition frequency, 5E-4/yr also includes the conditional probability of catastrophic damage, 0.025. 1E-5/yr further includes the failure of fixed suppression preventing catastrophic damage with a probability of 0.02.

I. To estimate your conditional catastrophic, non-suppressed fire probabilities, you take additional credit for manual suppression from the turbine generator (TG) manual suppression curves. These curves do not reflect the severity of the catastrophic TG fire scenario. For a catastrophic TG fire, the scenario that should be evaluated is rupture of the turbine generator, and the postulated damage is identified in Table O-2. The table cites widespread damage from several types of fires. For the oil fire scenario in particular, it should be postulated that hundreds of gallons of oil could be released immediately upon turbine generator rupture.

   Discuss your evaluation leading to your conditional catastrophic, non-suppressed fires. Should you desire to apply credit associated with a catastrophic turbine generator fire beyond that quantified in NUREG/CR-6850, provide your basis as related to fires of such severity. Discuss this extra credit also

in light of plant specific training and conditions, as appropriate. Tie these discussions directly to the quantification. Provide the CDF, LERF, and delta CDF, delta LERF for this scenario.

II. In addition to an oil fire itself causing widespread damage within the building, turbine building failure due to loss of structural integrity is not addressed in your RAI response. For assessing manual suppression with regard to preventing failure of the turbine building itself, scenarios from damage to the building structural integrity is governed by the ASME/ANS PRA Standard RA-Sa-2009, part 4, FSS-F requirement, and are important for areas of exposed structural steel in the location of a high hazard fire source.

Please summarize your evaluation and how it compares to the FSS-F requirement.

(Note: Based on the screening approach in NUREG/CR-6850, a bounding frequency for this scenario, which includes detection and suppression credit, is 1E-5/yr. Combined with an estimated CCDP value based on the considerations in Part II, this suggests a bounding frequency for this scenario of 1E-5/yr x CCDP.)

Revised PRA RAI 35.01

Below is a revision that deletes the words "a sensitivity analysis or" in the last sentence.

In your letter dated May 23, 2012, (ADAMS Accession No. ML12146A094) you responded to PRA RAI 35 and provided a sensitivity study using the FAQ 08-0046 (ADAMS Accession No. ML093220426) event tree even though this FAQ is not intended to be applied in the main control room (MCR). Given that a FAQ has not yet been established for incipient detection in the MCR and a basis for credit has not been established, provide the LAR results (CDF, LERF, ΔCDF, and ΔLERF) without crediting incipient detection in the MCR.

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