

Record of Review
Dispositions to VC Summer Internal Events PRA Facts and Observations (F&Os)

FINDING/SUGGESTION (F&O) ID OR SUPPORTING REQUIREMENT (SR)	ACCEPTABLE TO STAFF VIA		
	Review of Plant Disposition (A/B/C)	RAI Response	
		Not Discussed in SE	Discussed in SE
IE-03	A		
IE-06		See the NRC staff evaluation of the licensee's disposition to F&O IE-01-GA.	
AS-01		In response to PRA RAI 62, the licensee stated that the ISLOCA model has been revised to address the issues identified in the F&O and that the revised model was used in the Fire PRA. The licensee also provided a discussion of the improvements made to the ISLOCA model. Based on the response to the RAI, the NRC staff finds the licensee's disposition responsive to the finding.	
AS-03	A		
AS-08	A		
SY-01		In response to PRA RAI 81, the licensee explains that instrument air is not modeled in the PRA as a support system for CCW because none of the functions for which CCW is modeled in the PRA depends on instrument air. Based on the response to the RAI, the NRC staff finds the licensee's disposition responsive to the finding.	
SY-05	A		
SY-07		In response to PRA RAI 63 regarding insufficient CST capacity for a 24-hour mission time, the licensee explains that, while the minimum volume (179,848 gallons) in the CST ensures sufficient EFW is available to maintain the RCS in hot standby for 11 hours, the CST level is normally maintained at over 400,000 gallons so that there is no need to refill the CST during an SBO or a transient. Also, the licensee stated that there are several makeup sources that could be modeled in the PRA but are not currently and that the EFW pumps have an automatic swap to SW on low	

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		suction pressure which is also not currently modeled in the PRA. Based on the response to the RAI, the NRC staff finds the licensee's disposition responsive to the finding.	
DA-02		In response to PRA RAI 42, the licensee provided the results of a sensitivity analysis in which the at power internal events model was re-quantified with the parameter values for the three cases replaced with Bayesian updated values.. The change in CDF for the 3 cases was an increase of 2.7E-07 per year. Based on this small contribution to internal event CDF, the NRC staff finds that the resolution of the F&O would have a negligible effect on the evaluations relied upon to support fire risk evaluations and has no impact on the conclusions of the risk assessment and therefore the resolution of the F&O is acceptable for this application..	
DA-03		In response to PRA RAI 43, the licensee stated that common cause was modeled at the component level to ensure that both fatal and non-fatal combinations are captured. Based on the response to the RAI that CCF was modeled at the component level, the NRC staff finds the licensee's disposition responsive to the finding.	
DA-08		In response to PRA RAI 44, the licensee described the changes made to the CCF modeling to address the four issues identified in the F&O. In each case, the licensee implemented the CCW modeling changes recommended by the peer reviewer. Based on the response to the RAI that the CCF modeling addresses the four issues identified in the F&O, the NRC staff finds the	

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		Not Discussed in SE	Discussed in SE
		licensee's disposition responsive to the finding.	
HR-02		In response to PRA RAI 45, the licensee confirmed that the mis-calibration common cause events were added to the model. Based on the response to the RAI that mis-calibration common cause events were added to the model, the NRC staff finds the licensee's disposition responsive to the finding.	
HR-03		In response to PRA RAI 46, the licensee provided the times used for feed and bleed operator actions, which is credited for LOCA, SGTR, and loss of main feedwater initiating events, and the technical basis for the timing, which is based on thermal hydraulic calculations. Based on the response to the RAI that feed and bleed operator action timings are based on thermal hydraulic calculations, the NRC staff finds the licensee's disposition responsive to the finding.	
HR-05		In response to PRA RAI 47, the licensee provided a table of explanations for the level of dependencies assumed for post-initiator HRA events. Based on the response to the RAI that each post-initiator HRA events was reviewed for dependency, and the dependency level documented for each, the NRC staff finds the licensee's disposition responsive to the finding. The NRC staff also notes that, per Table U of the LAR, the licensee re-evaluated the dependency levels as part of the Fire PRA development and concludes that resolution of this F&O has no impact on the Fire PRA.	

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HR-06		In response to PRA RAI 48, the licensee identified the initiators in which concurrent operator actions involving multiple procedures may be credited in the PRA, which were then reviewed with the operators. The licensee also identified the human actions that were reviewed for potential dependency and the results of those reviews that were incorporated in the PRA. Based on the response to the RAI that events having the potential for plant-wide impacts were reviewed with plant operators for potential dependency, and that the results of this review were incorporated in the PRA, the NRC staff finds the licensee's disposition responsive to the finding. The NRC staff also notes that, per Table U of the LAR, the licensee re-evaluated the dependency levels as part of the Fire PRA development and concludes that resolution of this F&O has no impact on the Fire PRA.	
HR-08		In response to PRA RAI 49, the licensee stated that this F&O only affected ATWS related actions and that ATWS was not included in the fire model. Based on the guidance in NUREG/CR-6850 that ATWS need not be considered for fire events, the NRC staff agrees that resolution of this F&O has no impact on the Fire PRA.	
DE-03	C		
DE-04	A		
DE-05	A		
QU-04		In response to PRA RAI 51, the licensee provided an excerpt from the plant PRA HRA procedure (PSA-04) that specifies that multiple operator action strings be evaluated for dependencies. Based on the response to the RAI that the plant	

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		procedures specify that multiple operator action strings be evaluated for dependency, the NRC staff finds the licensee's disposition responsive to the finding.	
QU-06		In response to PRA RAI 52, the licensee stated that performing updates to the sensitivity and parametric uncertainty analyses will have no impact on the Fire PRA. The NRC staff agrees that resolution of this F&O has no impact on the Fire PRA.	
QU-07		In response to PRA RAI 53, the licensee stated that the insights gained from the sensitivity and uncertainty analyses are provided in the plant calculation report that documents each PRA revision. Based on the response to the RAI, the NRC staff finds the licensee's disposition responsive to the finding.	
L2-02			See PRA RAI 54 (both October 10, 2012 and November 26, 2013 RAI responses)
IE-01-GA			See PRA RAI 64 and 64.01
IE-02-GA	A		
AS-01-GA		See the NRC staff evaluation of the licensee's disposition to F&O SY-07.	
AS-02-GA	C		
HR-01-GA	B		
HR-02-GA	B		
HR-03-GA	B		
HR-04-GA		In response to PRA RAI 55, the licensee provided the factors considered when evaluating dependence between actions, which included time available based on the EPRI HRA calculator and	

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		Not Discussed in SE	Discussed in SE
		success or failure of operator actions relative to other actions. Based on the response to the RAI, the NRC staff finds the licensee's disposition responsive to the finding.	
DA-01-GA		In response to PRA RAI 56, the licensee clarified that PSA-05 was not updated in response to this F&O due to the difficulty of using a fixed formula or process for using plant specific data. Based on the response to RAI, the NRC staff does not find that the licensee's disposition is responsive to the issue. However, the NRC staff considers the resolution to this F&O to be a documentation issue only and, hence, finds that the resolution of the F&O would have a negligible effect on the evaluations relied upon to support fire risk evaluations and has no impact on the conclusions of the risk assessment and therefore the resolution of the F&O is acceptable for this application.	
DA-02-GA	B		
QU-01-GA		In response to PRA RAI 58, the licensee stated that inappropriate combinations of multiple maintenance actions are excluded by mutual exclusive logic in the VCSNS PRA fault trees. Based on the response to the RAI that the PRA logic excludes multiple maintenance actions, the NRC staff finds the licensee's disposition responsive to the finding.	
QU-02-GA	B		
QU-03-GA	B		
QU-04-GA	B		
QU-05-GA		In response to PRA RAI 61, the licensee stated that the definitions in plant procedures for "significant" cutsets,	

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		accident sequences, accident progression, and basic events are based on the guidance in the ASME PRA Standard and that incorporating this definition in the plant procedures did not change the results of the reviews performed on the quantified PRA results. Based on the response to the RAI that the reviews of the quantified PRA results is performed consistent with the ASME PRA standard definition of "significant," the NRC staff finds the licensee's disposition responsive to the finding.	
QU-06-GA	A		
SY-01-GA		In response to PRA RAI 65, the licensee stated that the original F&O was a suggestion (which was provided in the RAI response), and that only long term reliability of equipment is affected by room heatup in the affected rooms, not short term operability of equipment. Based on the response to the RAI, the NRC staff finds that the resolution of the F&O would have a negligible effect on the evaluations relied upon to support fire risk evaluations and has no impact on the conclusions of the risk assessment and therefore the resolution of the F&O is acceptable for this application.	
IS-01-GA	C		
AS-01-2007	C		
HR-01-2007		In response to PRA RAI 50, the licensee stated that corrective action has been written to add performing an internal consistency review to the PRA guideline for human reliability and that this action will be completed by the end of 2012. In response to PRA RAI 50.01, the	

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		licensee further stated that this internal consistency review had been completed. Based on the licensee's response to PRA RAI 50.01, the NRC staff finds the licensee's disposition responsive to the finding.	

- A: The NRC staff finds that the disposition of the F&O as described by the licensee in the LAR provides confidence that the issues raised by the F&O have been addressed and, if needed, the PRA has been modified, and therefore the resolution of the F&O is acceptable for this application.
- B: The NRC staff finds that the disposition of the F&O as described by the licensee in the LAR and further clarified during the audit provides confidence that the issues raised by the F&O have been addressed and, if needed, the PRA has been modified, and therefore the resolution of the F&O is acceptable for this application.
- C: The NRC staff finds that the resolution of the F&O, as described by the licensee in the LAR, would have a negligible effect on the evaluations relied upon to support fire risk evaluations and has no impact on the conclusions of the risk assessment and therefore the resolution of the F&O is acceptable for this application. Examples of such F&Os may be suggestions, as well as those F&Os that don't affect the fire PRA. Documentation issues may fall into this category as well.