

Record of Review
Dispositions to Catawba Nuclear Station (CNS) Internal Events PRA Facts and
Observations (F&Os)

Finding ID (F&O) or Supporting Requirement (SR)		ACCEPTABLE TO STAFF VIA		
		Review of Plant Disposition (A/B/C)	RAI Response	
F&O ID	SR		Not Discussed in the SE	Discussed in the SE
AS-01	DA-C16 SY-A10	A		
AS-04	AS-A1 AS-A2 AS-A7 AS-A10 QU-B6	C		
AS-07	AS-A2 AS-A7 AS-A10 AS-B1 AS-B5 QU-B6 SC-A3 SC-A4 SY-B5	A		
DA-01	DA-B1 DA-B2 DA-C2 DA-E1 DA-E2	A		
DA-02	DA-A1 DA-A4 DA-C1 DA-C2 DA-C9			See PRA RAI 02.f.e in SE Section 3.4.2.1 regarding updating generic failure rate data.
DA-05	DA-A1 DA-C2 DA-C14 DA-C16	A		
DA-06	DA-A1 DA-A4 DA-C1 DA-C2 DA-C9 DA-D3 DA-E1 DA-E2	C		
DA-08	DA-D1	A		
DE-01	SY-C2	C		
DE-04	AS-B1 AS-B3 SY-A10 SY-B5		See response to PRA RAI 02.a (March 30, 2015 RAI responses) regarding loss of HVAC). Acceptable to the NRC staff because the licensee states that room heatup calculations were performed and a loss of HVAC for the switchgear rooms, battery rooms, and control room was determined to have no impact on the risk results during the 24- hour mission time of the PRA.	
HR-02	HR-B1 HR-B2 HR-D1 HR-D2	C		

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F&O ID	SR		Not Discussed in the SE	Discussed in the SE
	HR-D4			
HR-04	HR-E1 HR-E2 HR-E3 HR-E4 HR-F1 HR-F2 HR-G4 HR-G5 HR-H1 HR-H2	A		
HR-05	HR-E1 HR-E2 HR-E3 HR-F2 HR-G1 HR-G3 HR-H1 HR-H2 SC-A2 SC-A6 SC-B3 SC-C1 SC-C2	C		
HR-09	HR-G5	C		
IE-03	IE-A1 IE-A5 IE-A6 IE-A9	A		
IE-04	IE-C12 DA-C16	A		
IE-06	AS-B1 IE-A2 IE-C6		See response to PRA RAI 02.a (March 30, 2015 RAI responses) regarding loss of HVAC). Acceptable to the NRC staff because the licensee states that room heatup calculations were performed and a loss of HVAC for the switchgear rooms, battery rooms, and control room was determined to have no impact on the risk results during the 24-hour mission time of the PRA.	

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F&O ID	SR		Not Discussed in the SE	Discussed in the SE
IE-08	IE-C9 IE-C10		See response to PRA RAI 2.f.a (January 28, 2015 RAI responses) regarding treatment of common cause failure in the development of the frequency for loss of service water. Acceptable to the NRC staff because the licensee states that the loss of service water frequency was developed consistent with the guidance in EPRI TR 1016741, "Support System Initiating Events: Identification and Quantification Guideline" (December 2008).	
IFPP-A2-01	IFPP-A2		See response to PRA RAI 02.f.b (January 28, 2015 RAI responses) regarding disposition to internal flooding F&Os. Acceptable to the NRC staff because the licensee states that the modeling changes made to address the internal flooding F&Os were incorporated in the PRA model used to generate the risk results reported in the LAR.	
IFSN-A10-01	IFSN-A10		See response to PRA RAI 02.f.b (January 28, 2015 RAI responses) regarding disposition to internal flooding F&Os. Acceptable to the NRC staff because the licensee states that the modeling changes made to address the internal flooding F&Os were incorporated in the PRA model used to generate the risk results reported in the LAR.	
IFSN-A7-01	IFSN-A7		See response to PRA RAI 02.f.b (January 28, 2015 RAI responses) regarding disposition to internal flooding F&Os. Acceptable to the NRC	

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		Review of Plant Disposition (A/B/C)	RAI Response	
F&O ID	SR		Not Discussed in the SE	Discussed in the SE
			staff because the licensee states that the modeling changes made to address the internal flooding F&Os were incorporated in the PRA model used to generate the risk results reported in the LAR.	
IFSN-B1-01	IFSO-B1 IFSN-B1 IFEV-B1	A		
IFSO-A 1-01	IFSO-A1 IFEV-A5 IFSN-A10		See response to PRA RAI 02.f.b (January 28, 2015 RAI responses) regarding disposition to internal flooding F&Os. Acceptable to the NRC staff because the licensee states that the modeling changes made to address the internal flooding F&Os were incorporated in the PRA model used to generate the risk results reported in the LAR.	
IFSO-A2-01	IFSO-A2 IFSN-A11 IFEV-A4	A		
IFSO-A5-01	IFSO-A5	A		
IFSO-A6-01	IFPP-A5 IFSO-A6	C		
IFSO-B3-01	IFPP-B3 IFSO-B3	C		
2012 Focused- scope Peer Review	LE-B2 LE-C1 LE-C3 LE-C4 LE-C9 LE-C11 LE-D2 LE-D3 LE-D6	A		
LE-E2-01	LE-E2	C		
LE-G3-01	LE-F1 LE-G3	C		
LE-G6-01	LE-G6	C		
LAR	DA-C8	C		
LAR	DA-C9	C		
LAR	DA-C11 DA-C12 DA-C13	C		
LAR	DA-D3	C		
LAR	DA-D4	C		
LAR	DA-D5	C		

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F&O ID	SR		Not Discussed in the SE	Discussed in the SE
LAR	DA-D6	C		
LAR	DA-E3	C		
2008 Self-assessment	IE-A8	C		
2008 Self-assessment	IE-B2	C		
LAR	IE-C14	C	See response to PRA RAI 02.f.c (January 28, 2015 RAI responses) regarding crediting of motor operated valves (MOV) under differential pressure conditions. Acceptable to the NRC staff because the licensee states that crediting these MOVs has an insignificant impact to the PRA results reported in the LAR.	
LAR	QU-E4	C		
LAR	QU-F6	C		
LAR	SY-A11	A		
2008 Self-assessment	SY-A15	C		
2008 Self-assessment	SY-A4	C		
QU-01	QU-B2 QU-B3	A		
QU-02	AS-B5 QU-A4 QU-C1 QU-C2 SC-A3 SC-A4 SY-B5	A		
QU-04	QU-F2	A		
QU-05	HR-G6 QU-A5 DA-C16		See response to PRA RAI 02.b (January 28, 2015 RAI responses) regarding post-initiator human error probability quantification. Acceptable to the NRC staff because the licensee states that a consistency check of the post-initiator human error probability quantifications have been completed with no changes to the PRA model.	
QU-08	QU-A5 QU-B7 QU-B8	A		
QU-12	QU-A2 QU-A4 QU-D4 QU-D6		See response to PRA RAI 02.f.d (January 28, 2015 RAI responses) regarding the conditional core damage probabilities (CCDPs) for small loss of coolant accident (LOCA), steam generator tube rupture (SGTR), loss of instrument air, and	

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F&O ID	SR		Not Discussed in the SE	Discussed in the SE
			inadvertent safety injection system (SS) actuation. Acceptable to the NRC staff because the licensee explains the reason for the differences between the small LOCA and SGTR initiating events CCDPs, and explains that the CCDPs for the loss of instrument air and inadvertent SS actuation initiating events is coincidental.	
SY-03	SC-A3 SC-B1 SC-C1 SC-C2 SY-B7 SY-C1 SY-C2 SY-A10 SY-A13 SY-A18 SY-A21 AS-A3		See response to PRA RAI 02.c (January 28, 2015 RAI responses) regarding the the impact on the PRA results of the new success criteria. Acceptable to the NRC staff because the licensee states that the success criteria applied in the LAR PRA model are bounding of the new success criteria or the new success criteria did not result in a change to the PRA model.	
SY-04	SY-A13 SY-A22		See response to PRA RAI 02.e (January 28, 2015 RAI responses) regarding excluding the failure to isolate the Non-Essential Reactor Building Header from the PRA model. Acceptable to the NRC staff because the licensee states that the MSO evaluation performed for the Fire PRA was performed consistent with the guidance in NEI 00-01 to evaluate plant-specific MSO considerations, which included evaluating many scenarios not originally included in the Internal Events PRA.	
SY-06	AS-B3 SY-A18 SY-A21 SY-A22 SY-B14	A		
TH-01	SC-A2 SC-B1 SC-B3 SC-B4 SC-B5 SY-B7		See response to PRA RAI 02.c (January 28, 2015 RAI responses) regarding the the impact on the PRA results of the new success criteria. Acceptable to the NRC staff because the licensee states that the success criteria applied in the LAR PRA model are bounding of the new success criteria or the new success criteria did not result in a change to the PRA model. Also see response to PRA RAI 02.d (January 13, 2015 RAI responses) regarding the meaning of negligible impact. Acceptable to the NRC staff because the licensee states that there is no impact on the PRA results if core damage is defined as 2000 degrees F because there is no change in the success criteria and a new plant-specific HRA timing	

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		Review of Plant Disposition (A/B/C)	RAI Response	
F&O ID	SR		Not Discussed in the SE	Discussed in the SE
			analysis showed that the HRA timing used in the Fire PRA supported the HEPs used in the PRA.	
TH-02	AS-A8 SC-A1 SC-A2		See response to PRA RAI 2.d (January 13, 2015 RAI responses) regarding the meaning of negligible impact. Acceptable to the NRC staff because the licensee states that there is no impact on the PRA results if core damage is defined as 2000 degrees F because there is no change in the success criteria and a new plant-specific HRA timing analysis showed that the HRA timing used in the Fire PRA supported the HEPs used in the PRA.	
TH-03	AS-A3 AS-A5 AS-A9 SC-A2 SC-A3 SC-A6 SC-B1 SC-B2 SC-B3 SC-B4 SC-C1 SC-C2 SY-A10 SY-A13 SY-A18 SY-A21 SY-B7		See response to PRA RAI 02.c (January 28, 2015 RAI responses) regarding the the impact on the PRA results of the new success criteria. Acceptable to the NRC staff because the licensee states that the success criteria applied in the LAR PRA model are bounding of the new success criteria or the new success criteria did not result in a change to the PRA model.	
TH-05	HR-F2 HR-G4 SC-A2 SC-A3 SC-A6 SC-B3 SC-B5 SC-C1 SC-C2		See response to PRA RAI 02.c (January 28, 2015 RAI responses) regarding the the impact on the PRA results of the new success criteria. Acceptable to the NRC staff because the licensee states that the success criteria applied in the LAR PRA model are bounding of the new success criteria or the new success criteria did not result in a change to the PRA model.	
TH-06	AS-B3 SY-B7 SY-B8 SY-A18 SY-A21		See response to PRA RAI 02.a (March 30, 2015 RAI responses) regarding loss of HVAC). Acceptable to the NRC staff because the licensee states that room heatup calculations were performed and a loss of HVAC for the switchgear rooms,	

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F&O ID	SR		Not Discussed in the SE	Discussed in the SE
	SY-A22 SC-A3 SC-A6 SC-B2 SC-B5 SC-C1 SC-C2		battery rooms, and control room was determined to have no impact on the risk results during the 24-hour mission time of the PRA.	

A: The NRC staff finds that the licensee's disposition for the capability category of the SR as described by the licensee in the LAR provides confidence that the requirements of the SR have been addressed and, if needed, the PRA has been modified, and therefore the PRA quality with respect to the SR is acceptable for this application. Examples of acceptable CC-I SRs are modeling methods that yield conservative FRE and change evaluation results.

B: The NRC staff finds that the licensee's disposition of the capability category of the SR as described by the licensee in the LAR and further clarified during the audit provides confidence that requirements of the SR have been addressed and, if needed, the PRA has been modified, and therefore the PRA quality with respect to the SR is acceptable for this application. Examples of acceptable CC-I SRs are modeling methods that yield conservative FRE and change evaluation results.

C: The NRC staff finds that the licensee's disposition for the capability category of the SR, 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 PRA quality with respect to the SR is acceptable for this application. Examples are those SRs that don't affect the fire PRA.

Record of Review
Dispositions to Catawba Nuclear Station (CNS) Fire 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	
F&O	SR		Not Discussed in the SE	Discussed in the SE
CS-A11-01	CS-A11	A		
CS-B1-01	CS-B1	A		
ES-C1-01	ES-C1	A		
ES-C2-01	ES-C2	A		
FQ-A2-01	FQ-A2	A		
FQ-F1-01	FQ-F1	C		
FQ-F1-02	FQ-F1	B		
FSS-A1-01	FSS-A1	A	See response to PRA RAI 01.a (February 27, 2015) regarding screening of non-propagating fixed and transient ignition sources. Acceptable to the NRC staff because the licensee states that fixed ignition sources excluded from quantification of the Fire PRA model were done consistent with the criteria in Section 8.5.3 of NUREG/CR-6850 and that the only instances where the non-severe portion of a fire scenario was excluded involved components that were not credited in the Fire PRA. The licensee also stated that the Fire PRA documentation will be updated accordingly.	
FSS-A2-01	FSS-A2	A		
FSS-H10-01	FSS-H10	A		
HRA-A2-01	HRA-A2			See PRA RAI 12 and 12.01 in SE Section 3.4.4 regarding identification and classification of abandonment actions.
HRA-A4-01	HRA-A4		See response to PRA RAI 01.b.iv (January 28, 2015 RAI responses) regarding talk throughs. Acceptable to the NRC staff because the licensee states that all operator actions with risk	

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		Review of Plant Disposition (A/B/C)	RAI Response	
F&O	SR		Not Discussed in the SE	Discussed in the SE
			achievement worth greater than 1.02 or which were considered risk significant actions were reviewed with operators, and additional operator actions credited in the Fire PRA were also talked through with operators.	
HRA-B3-01	HRA-B3		See response to PRA RAI 01.c.iii (January 28, 2015 RAI responses) regarding use of JHEPs less than 1E-05. Acceptable to the NRC staff because the licensee identified that the fire PRA applies several JHEPs less than 1E-05 and justifies the lower JHEPs based on 1) large time window between actions, 2) actions are taken based on different cues, and 3) there are intervening successes between some of the actions.	See PRA RAI 01.b.i and ii in SE Section 3.4.2.2 regarding updating HEPs using the NUREG-1921 methodology.
HRA-C1-02	HRA-C1	A		
HRA-D2-01	HRA-H2		See response to PRA RAI 01.c (January 28, 2015 RAI responses) regarding crediting non-proceduralized operator actions. Acceptable to the NRC staff because the licensee identifies just one additional action beyond that identified by the peer review and determined that it does not impact the risk results.	
PRM-B2-01	PRM-B2	See NRC Staff Evaluation in IEPRA Record of Review		
PRM-B5-01	PRM-B5	A		
PRM-B6-01	PRM-B6		See response to PRA RAI 01.c (January 28, 2015 RAI responses) regarding crediting non-proceduralized operator actions. Acceptable to the NRC staff	

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		Review of Plant Disposition (A/B/C)	RAI Response	
F&O	SR		Not Discussed in the SE	Discussed in the SE
			because the licensee identifies just one additional action beyond that identified by the peer review and determined that it does not impact the risk results.	
PRM-B7-01	PRM-B7	B		
PRM-B11 (no F&O)	PRM-B11		See responses to PRA RAIs 01.b and 01.c discussed previously in this table (i.e., F&Os HRA-A4-01, HRA-B4-01, HRA-D2-01, PRM-B6-01)	
SF-A3-01	SF-A3	A		
SF-A5-01	SF-A5	A		

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.

Record of Review
Dispositions to Supporting Requirements (SRs) for CNS Fire PRA Met at Capability
Category I

Supporting Requirement (SR)	F&O ID	ACCEPTABLE TO STAFF VIA		
		Review of Plant Disposition (A/B/C)	RAI Response	
			Not Discussed in the SE	Discussed in the SE
PP-B3	PRM-B3-01	A		
PP-B5	PRM-B5-01	A		
CS-B1	CS-B1-01	A		
FSS-B2	FSS-B2-01			See PRA RAI 11 and 11.01 in SE Section 3.4.2.2 regarding the MCR abandonment analysis.
FSS-C1	FSS-C1-01	A		
FSS-C2	FSS-C2-01	A		
FSS-C3	FSS-C3-01	A		
FSS-F2	FSS-F2-01	A		
FSS-F3	FSS-F3-01	A		
FSS-G4	FSS-G4-01	A		
FSS-H2	FSS-H2-01	A		
HRA-A3	ES-C2-01	A		
HRA-A4	HRA-A4-01		See response to PRA RAI 01.b.iv (January 28, 2015 RAI responses) regarding talk throughs. Acceptable to the NRC staff because the licensee states that all operator actions with risk achievement worth greater than 1.02 or which were considered risk significant actions were reviewed with operators, and additional operator actions credited in the Fire PRA were also talked through with operators.	
HRA-B4	ES-C1-01	A		
HRA-C1	HRA-C1-02			See PRA RAI 01.b.i and ii in SE Section 3.4.2.2 regarding updating HEPs

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Category I

Supporting Requirement (SR)	F&O ID	ACCEPTABLE TO STAFF VIA		
		Review of Plant Disposition (A/B/C)	RAI Response	
			Not Discussed in the SE	Discussed in the SE
				using the NUREG-1921 methodology.
HRA-D1	PRM-B6-01			See PRA RAI 01.b.i and ii in SE Section 3.4.2.2 regarding updating HEPs using the NUREG-1921 methodology.

A: The NRC staff finds that the licensee's disposition for the capability category of the SR as described by the licensee in the LAR provides confidence that the requirements of the SR have been addressed and, if needed, the PRA has been modified, and therefore the PRA quality with respect to the SR is acceptable for this application. Examples of acceptable CC-I SRs are modeling methods that yield conservative FRE and change evaluation results.

B: The NRC staff finds that the licensee's disposition of the capability category of the SR as described by the licensee in the LAR and further clarified during the audit provides confidence that requirements of the SR have been addressed and, if needed, the PRA has been modified, and therefore the PRA quality with respect to the SR is acceptable for this application. Examples of acceptable CC-I SRs are modeling methods that yield conservative FRE and change evaluation results.

C: The NRC staff finds that the licensee's disposition for the capability category of the SR, 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 PRA quality with respect to the SR is acceptable for this application. Examples are those SRs that don't affect the fire PRA.