Appendix F Revision R Changes as of the 9/20 version

Page	Change Summary	Change Impact to Basis Document
F5	Added additional guidance to definition of Planned Maintenance to explain that it is set to a minimum value equal to the baseline value for calculation purposes.	NONE
F11	Added guidance to remove fail to run basis events from the set of events used to determine the UNAVAILABILITY Birnbaum.	Review events used to define FV/UA maximum value and remove fail to run events.
F12 – F13	Revised the method used to calculate the cooling water system correction factor for UNAVAILABILITY. Added in the more accurate method proposed by Don Wakefield.	Potential to recalculate the correction factor.
F14	Added clarification on using PRA analyses performed to document system success criteria.	
F15	Added the ability to exclude breakers for m the scope of monitoring based on Birnbaum values.	Option to revise MSPI equipment failures.
F24 – F26	Revised URI formulation to allow the use of different Birnbaum values for each failure mode for a component.	Some plants will have to implement this to remove the current conservatism in the methodology.
F26 – F27	Revised the method used to calculate the cooling water system correction factor for UNRELIABILITY. Added in the more accurate method proposed by Don Wakefield.	
F29 – F32	Table 3 – added normally running or *alternating.* Added breaker generic common cause.	
F35	Added clarification to be sure Birnbaum values used for excluding components included common cause correction.	

Attachment C

Page	Change Summary	Change Impact to Basis Document
F36 – F37	Section 2.3.4 completely rewritten to implement Birnbaum importance for each failure mode.	
F44 – F45	BRW RHR definition is redefined to exclude LPI function and shutdown cooling. Suppression Pool Cooling is the monitored function.	Affects BWR scope definition.
F48	Cooling water systems definition is revised to ensure the focus is on technical specification systems, not non-safety related systems that may supply cooling under normal conditions.	
F2	Removed examples from the text as they no longer are valid exampled due to other changes made in the guidance.	
F3	Bullet added for new section on segments that cannot be removed from service.	
F4	Added a section on trains or segments that cannot be removed from service. Monitoring segments of systems that cannot be removed from service would result in a non-conservative UAI calculation. They would never show planned or unplanned unavailability, but would be considered to have a baseline value. With the potential large importance associated with equipment that causes a plant trip, a large negative UAI value could unintentionally be calculated.	
F5	Clarified definitions for planned and unplanned maintenance based of feedback from the industry	
F6	Clarified language, added operational alignments in several places.	

Page	Change Summary	Change Impact to Basis Document
F7	Wording changed to put the emphasis on the need to change the baseline if maintenance practices change. Also to review prior to implementation.	
F8	The 25% change criteria for planned unavailability cannot be implemented because some trains have a baseline of zero or near zero planned unavailability. Thus the smallest absolute changes result in large percentage changes. Since there is no longer any benefit from actual values of planned maintenance being less that the baseline, this should have no impact to the calculation.	
F11	Added additional guidance on what event to use of the FV/UA ratio, use T&M events and those demand events that are logically equivalent.	
F11	Added a section on the treatment of modeling asymmetries for the UAI calculation. Many questions have been asked on this issue. It became a larger issue with the cooling water systems.	
F12 and F13	Added the option to use method 4 for the correction methodology to allow people who did it this way to keep it and not force them to change. This should be a conservative approach. Also corrected several typo's.	
F17-F18	Clarified that the 25% criteria for changes in the number of demands or run hours applies to the total for a group of components not an individual component to avoid unnecessary revisions to the basis document. This is justified because the data is pooled anyway.	

Page	Change Summary	Change Impact to Basis Document
F19	Added qualifier on run hours and demand estimates. "use best judgment" to split operational and test demand and run time data.	
F20 –F22	Revised the section on discovered conditions to address the question of annunciated failures and clarify the treatment of different failure modes.	
F26	Added a section on treatment of model asymmetries for URI calculation to address many questions.	
F27	Allow the use of method 4 for the cooling water correction	
F28	Added a warning to apply cooling water corrections prior to doing the common cause correction.	
F33	Added guidance that the common cause FV values for the Common cause correction should only include the mitigation contribution.	

Shaded items reviewed in the August ROP meeting
Un-shaded page numbering refers to version R1.

Appendix F Revision R Changes as of the 9/20 version

Page	Change Summary	Change Impact to Basis Document
F5	Added additional guidance to definition of Planned Maintenance to explain that it is set to a minimum value equal to the baseline value for calculation purposes.	NONE
F11	Added guidance to remove fail to run basis events from the set of events used to determine the UNAVAILABILITY Birnbaum.	Review events used to define FV/UA maximum value and remove fail to run events.
F12 – F13	Revised the method used to calculate the cooling water system correction factor for UNAVAILABILITY. Added in the more accurate method proposed by Don Wakefield.	Potential to recalculate the correction factor.
F14	Added clarification on using PRA analyses performed to document system success criteria.	
F15	Added the ability to exclude breakers for m the scope of monitoring based on Birnbaum values.	Option to revise MSPI equipment failures.
F24 – F26	Revised URI formulation to allow the use of different Birnbaum values for each failure mode for a component.	Some plants will have to implement this to remove the current conservatism in the methodology.
F26 – F27	Revised the method used to calculate the cooling water system correction factor for UNRELIABILITY. Added in the more accurate method proposed by Don Wakefield.	
F29 – F32	Table 3 – added normally running or *alternating.* Added breaker generic common cause.	
F35	Added clarification to be sure Birnbaum values used for excluding components included common cause correction.	

Page	Change Summary	Change Impact to Basis Document
F36 – F37	Section 2.3.4 completely rewritten to implement Birnbaum importance for each failure mode.	
F44 – F45	BRW RHR definition is redefined to exclude LPI function and shutdown cooling. Suppression Pool Cooling is the monitored function.	Affects BWR scope definition.
F48	Cooling water systems definition is revised to ensure the focus is on technical specification systems, not non-safety related systems that may supply cooling under normal conditions.	
F2	Removed examples from the text as they no longer are valid exampled due to other changes made in the guidance.	
F3	Bullet added for new section on segments that cannot be removed from service.	
F4	Added a section on trains or segments that cannot be removed from service. Monitoring segments of systems that cannot be removed from service would result in a non-conservative UAI calculation. They would never show planned or unplanned unavailability, but would be considered to have a baseline value. With the potential large importance associated with equipment that causes a plant trip, a large negative UAI value could unintentionally be calculated.	
F5	Clarified definitions for planned and unplanned maintenance based of feedback from the industry	
F6	Clarified language, added operational alignments in several places.	

Page	Change Summary	Change Impact to Basis Document
F7	Wording changed to put the emphasis on the need to change the baseline if maintenance practices change. Also to review prior to implementation.	
F8	The 25% change criteria for planned unavailability cannot be implemented because some trains have a baseline of zero or near zero planned unavailability. Thus the smallest absolute changes result in large percentage changes. Since there is no longer any benefit from actual values of planned maintenance being less that the baseline, this should have no impact to the calculation.	
F11	Added additional guidance on what event to use of the FV/UA ratio, use T&M events and those demand events that are logically equivalent.	
F11	Added a section on the treatment of modeling asymmetries for the UAI calculation. Many questions have been asked on this issue. It became a larger issue with the cooling water systems.	
F12 and F13	Added the option to use method 4 for the correction methodology to allow people who did it this way to keep it and not force them to change. This should be a conservative approach. Also corrected several typo's.	
F17-F18	Clarified that the 25% criteria for changes in the number of demands or run hours applies to the total for a group of components not an individual component to avoid unnecessary revisions to the basis document. This is justified because the data is pooled anyway.	

Page	Change Summary	Change Impact to Basis Document
F19	Added qualifier on run hours and demand estimates. "use best judgment" to split operational and test demand and run time data.	
F20 –F22	Revised the section on discovered conditions to address the question of annunciated failures and clarify the treatment of different failure modes.	
F26	Added a section on treatment of model asymmetries for URI calculation to address many questions.	
F27	Allow the use of method 4 for the cooling water correction	
F28	Added a warning to apply cooling water corrections prior to doing the common cause correction.	
F33	Added guidance that the common cause FV values for the Common cause correction should only include the mitigation contribution.	

Shaded items reviewed in the August ROP meeting
Un-shaded page numbering refers to version R1.