FENOC
FirstEnergy Nuclear Operating Company

5501 North State Route 2
Oak Harbor, Ohio 43449

Mark B. Bezilla
Vice President - Nuclear

419-321-7676
Fax: 419-321-7582

September 11, 2018
L-18-188

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:
Davis-Besse Nuclear Power Station, Unit No. 1
Docket No. 50-346, License No. NPF-3
Response to Request for Additional Information and Supplemental Information Regarding License Amendment Request to Adopt National Fire Protection Association (NFPA) Standard 805 (CAC No. MF7190, EPID L-2015-LLF-0001)

By letter dated December 16, 2015 (ADAMS Accession No. ML15350A314), as supplemented by letters dated March 7, 2016, July 28, 2016, December 16, 2016, January 17, 2017, June 16, 2017, October 9, 2017, and April 2, 2018 (Accession Nos. ML16067A195, ML16210A422, ML16351A330, ML17017A504, ML17170A000, ML17284A190, and ML18094A798 respectively), FirstEnergy Nuclear Operating Company (FENOC) submitted a license amendment request (LAR) to change the Davis-Besse Nuclear Power Station (DBNPS), Unit No. 1 fire protection program to one based on the National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition.

On July 19, 2018, the Nuclear Regulatory Commission (NRC) staff requested additional information to complete its review. The FENOC response is included in Attachment 1 to this letter.

In response to the request for additional information, LAR Attachments S and W have been updated. Therefore, enclosures to this letter replace, in their entirety, the previously-submitted LAR Attachment S, Modifications and Implementation Items, and LAR Attachment W, Fire PRA Insights, provided in the April 2, 2018 submittal.

While preparing final documentation updates for the fire risk evaluations, FENOC discovered that some actions for resolving variations from deterministic requirements (VFDRs) were incorrectly classified as risk recovery actions when they should have been classified as defense in depth actions. Further investigation also found VFDRs that should have been identified as having risk recovery actions were not listed as such. Since the risk results were calculated at the safety function level, rather than for individual VFDRs, risk results were not impacted by these errors. However, updates to LAR Attachment G and Table B-2 of the PRA RAI 03 response (both provided in the April 2, 2018 submittal) were necessary. The enclosed LAR Attachment G has been

annotated to identify changes made consistent with the licensee-identified updates by FENOC (denoted by "LIC" in the right-hand margin). The updates are described in Attachment 2 to this letter. The updated Table B-2 of the PRA RAI 03 response is provided in Attachment 3 to this letter.

Additionally, FENOC determined that the disposition of VFDR DB-1931 in compartment AC-01 did not follow the convention of other, similar, VFDRs, so it has been revised. This resulted in a small change in the risk results for AC-01, which are reflected in the enclosed revision to LAR Attachment W. These issues have been entered into the FENOC Corrective Action Program.

The information provided by this submittal does not invalidate the significant hazards consideration analysis provided in the December 16, 2015 letter.

There are no regulatory commitments included in this submittal. If there are any questions or if additional information is required, please contact Mr. Phil H. Lashley, Acting Manager - Nuclear Licensing and Regulatory Affairs, at (330) 315-6808.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 11, 2018.

Sincerely,

Mark B. Bezilla

Attachments:
1. Response to RAI
2. Licensee-identified LAR Attachment G Update Descriptions
3. Updated Table B-2 From the PRA RAI 03 Response

Enclosures:
A. LAR Attachment G – Recovery Actions Transition
B. LAR Attachment S – Modifications and Implementation Items
C. LAR Attachment W – Fire PRA Insights

cc: NRC Regional Administrator - Region III
NRC Resident Inspector
NRC Project Manager
Executive Director, Ohio Emergency Management Agency,
State of Ohio (NRC Liaison)
Utility Radiological Safety Board

The NRC staff's request for additional information is provided in bold text followed by the FENOC response.

Fire Protection Engineering (FPE) RAI 01.02

In its letter dated April 2, 2018, the licensee submitted a revised version of LAR Attachment S, "Modifications and Implementation Items." In Table S-2, "Implementation Items," items DB-0779, DB-1900, DB-0540, DB-1912, DB-1838, and DB-2041 were grouped with the implementation items for pre-fire plan revisions. However, the description of these implementation items in Table B-1 of LAR Attachment A does not appear to be consistent with the description provided in Table S-2.

Confirm that implementation items DB-0779, DB-1900, DB-0540, DB-1912, DB-1838, and DB-2041 will be completed, as described in Table B-1 of LAR Attachment A, prior to the implementation of the new NFPA 805 fire protection program.

Response:

LAR Attachment S, Table S-2 implementation items DB-0779, DB-1900, DB-0540, DB-1912, DB-1838, and DB-2041 will be completed as described in Table B-1 of LAR Attachment A, prior to the implementation of the new NFPA 805 fire protection program. These implementation items were grouped with the pre-fire plan revisions and have been separated out in the revised LAR Attachment S included with this submittal.

Probabilistic Risk Assessment (PRA) RAI 03.01

The April 2, 2018, response to PRA RAI 03.e indicates that the licensee's modeling of main control room (MCR) abandonment scenarios due to loss of control (LOC) has changed. Instead of using a single fault tree that leads to an undefined core damage (CD) state, the fault tree was altered to represent abandonment contribution to three specific CD sequences:

- **Sequence TBQU – transient-induced loss-of-coolant accident, after a loss of decay heat removal and failure of makeup or high-pressure injection cooling;**
- **Sequence TBU – transient with loss of decay heat removal via steam generators and failure of makeup or high-pressure injection cooling; and**

- **Sequence TQU – transient-induced small loss-of-coolant accident with failure of high-pressure injection.**

The response also states that a human failure event for failing to abandon the MCR was incorporated into the fault tree for only one of the three CD sequences (i.e. TBQU). In addition, the response states that the alternate shutdown panel (ASP) model logic was "modified slightly" to credit handheld instruments to recover indications and maintain feedwater control given loss of power to the ASP.

a) Explain how the fire scenarios leading to MCR abandonment due to LOC were determined to contribute to only the three CD sequences identified in the response. If fire scenarios leading to MCR abandonment due to LOC can contribute to other CD sequences, then identify these sequences and either:

i. Justify not modeling these additional sequences; or

ii. Provide updated risk results, including the total transition core damage frequency (CDF), large early release frequency (LERF), change in CDF (ΔCDF), and change in LERF (ΔLERF), for the aggregate analysis, under the response to PRA RAI 03, that incorporates the additional CD sequences associated with MCR abandonment due to LCO into the fire PRA. Compare these results to the acceptance guidelines in Regulatory Guide (RG) 1.174, Revision 2, "An Approach For Using Probabilistic Risk Assessment In Risk-Informed Decisions On Plant-Specific Changes To The Licensing Basis," (ADAMS Accession No. ML100910006). Identify and justify the sequences that were added.

b) Explain why failure to abandon the MCR due to LOC is modeled for one sequence (i.e., TBQU) and not for the other sequences (i.e., TBU and TQU). If failure to abandon the MCR due to LOC can contribute to other sequences, either:

i. Justify not modeling this human failure event in the other sequences; or

ii. Provide updated risk results, including the total transition CDF, LERF, ΔCDF, and ΔLERF, for the aggregate analysis, under the response to PRA RAI 03, that incorporates the decision to abandon the MCR due to LOC into the appropriate sequences in the fire PRA. Compare these results to the acceptance guidelines in RG 1.174. Describe how the modeling was adjusted.

c) Describe the handheld instruments and justify their credit in the fire PRA to recover indications and maintain feedwater control given loss of power to the ASP. Also address the following:

i. Explain how the use of handheld instruments is supported by applicable

operating procedures.

ii. Justify the failure modes and failure probabilities (e.g., random failures, unavailability due to testing and maintenance) associated with the handheld instruments.

iii. Discuss the maintenance and testing (including calibration and testing frequency) performed on the handheld instruments to ensure their reliability supports the credited function.

Alternately, provide updated risk results, including the total transition CDF, LERF, ΔCDF, and ΔLERF, for the aggregate analysis, under the response to PRA RAI 03, that do not credit the use of handheld instruments to recover indications and maintain feedwater control given loss of power to the ASP. Compare these results to the acceptance guidelines in RG 1.174.

Response:

Since modeling of control room abandonment due to loss of control and loss of habitability are treated identically in the PRA model, the following discussions apply to both and will be referred to generically as control room abandonment modeling.

a) Control room abandonment modeling is simplified in that it makes some conservative assumptions. The modeling assumes that a reactor coolant system (RCS) leak is not recoverable from outside the control room and results in core damage. Similarly, if all feedwater is lost, feed and bleed cooling, also known as makeup/high pressure injection (HPI) cooling, is assumed to be unsuccessful from outside the control room. Both of these also assume that the contents of the borated water storage tank (BWST) are not injected into the containment building, and core cooling and/or RCS injection fails early in the sequence, rather than late in the sequence. Thus, sequences involving a late loss of core cooling or RCS injection (sequences ending in 'X') are not considered for control room abandonment modeling.

   Sequences involving initiators for loss of coolant accidents, steam generator tube ruptures, or interfacing system loss of coolant accidents were excluded from control room abandonment modeling since these initiators are not postulated to occur concurrently with a fire.

   Some sequences were excluded due to their low probability of occurrence. The probability of the reactor failing to trip in the PRA model is 1E-06. The total initiating event frequency of fires requiring control room abandonment is 5.43E-05 per year. Thus, if every abandonment scenario involving a failure of the reactor to trip led to core damage and a large early release, the maximum CDF and LERF contribution would be 5.43E-05 per year * 1.0E-06 = 5.43E-11 per year. This is several orders of magnitude less than the fire CDF or LERF (~E-05 or ~E-06, respectively), which is negligible. Similarly, sequence TBP, which is a transient with a loss of decay heat

removal and failure of RCS pressure release, requires the failure to open of both pressurizer safety valves (PSVs). The common cause failure probability for both PSVs failing to open is 8.32E-06, which is not impacted by any fire that can cause control room abandonment. Given the initiating event frequency cited above, the maximum possible CDF and LERF contribution of sequence TBP would be 8.32E-06 * 5.43E-05 per year = 4.52E-10 per year. Though negligible, the PRA model has been revised to include these sequences for completeness and in alignment with the decision to not exclude multiple compartment scenarios based on frequency of occurrence. The sequences were added to the fault tree modeling and are reflected in the revised risk results in the revised LAR Attachment W provided with this submittal.

The disposition of PRA accident sequences with respect to control room abandonment are shown in Table 1.

Table 1- MCR Abandonment Accident Sequence Dispositions

Sequence	Description	Abandonment Scenario Modeling Justification
AU	Large LOCA with failure of low pressure injection	By definition, fires are transient sequences that do not occur concurrently with other classes of initiators such as loss of cooling accidents (LOCAs), steam generator tube ruptures, or interfacing system LOCAs. Transient induced LOCAs are modeled in the sequences starting with T and containing Q. Therefore, fire induced control room abandonment scenarios are mutually exclusive with these initiators and cannot map to these sequences.
AV	Core damage due to reactor vessel rupture	
AX	Large LOCA with failure of low pressure recirculation	
MU	Core damage due to medium LOCA with failure of injection	
MX	Core damage due to medium LOCA with failure of recirculation	
SBU	Small LOCA with failure of decay heat removal (DHR) via once through steam generators (OTSGs) and failure of long-term cooling	
SBX	Small LOCA with failure of DHR via OTSGs and failure of long-term cooling	
SCX	Small LOCA with failure of long-term cooling after RCS cooldown	
SK	Small break LOCA with failure to trip	
SU	Small LOCA with failure of high pressure makeup	
SX	Small LOCA with failure of long-term cooling after RCS cooldown	
RBU	SGTR with failure to DHR via OTSGs and failure of makeup/HPI cooling	
RBX	SGTR with loss of feedwater and failure of long-term cooling	
RCILX	SGTR with failure to cool down via intact OTSG, leak from affected OTSG, LTC	
RCIX	SGTR with failure to cool down via intact OTSG and failure of long-term cooling	
RK	Steam generator tube rupture with failure to trip	
RLX	SGTR with steam leak and failure of long-term cooling	
RUCI	SGTR with failure of high pressure injection, failure to cool down on intact OTSG	
RUL	SGTR with failure of high pressure injection, failure to isolate affected OTSG	
VDID	ISLOCA due to rupture of DHR suction valves and failure to isolate break	
VHIH	ISLOCA due to rupture in HPI injection line and failure to isolate break	
VLIL	ISLOCA due to rupture of low pressure injection (LPI) line and failure to isolate break	

Table 1- MCR Abandonment Accident Sequence Dispositions

Sequence	Description	Abandonment Scenario Modeling Justification
TBLX	Transient with failure of DHR via steam generators (SGs) and failure of makeup/HPI cooling in the long-term	These sequences assume makeup/HPI cooling is successful, and the contents of the BWST have been transferred into containment. Makeup/HPI cooling is assumed to be impossible outside the control room, and it is assumed the contents of the BWST are not transferred into containment during control room abandonment scenarios. Therefore, these sequences are not applicable to control room abandonment scenarios.
TBQX	Transient-induced LOCA after loss of SG cooling and failure of long-term cooling	
TBWX	Transient-induced LOCA during makeup/HPI cooling and failure of long-term cooling	
TKBWX	Transient with failure to trip, maintain RCS integrity, and establish long-term cooling	
TBP	Transient with loss of DHR via SGs and failure of RCS pressure relief	As described in the RAI response, this sequence requires the failure to open of both PSVs. The probability of the common cause failure of both PSVs failing to open is 8.32E-06, which is not impacted by any fire that can cause control room abandonment. The maximum possible CDF (or LERF) of this sequence is 4.52E-10 per year. Though negligible, the PRA model has been revised to include TBP for completeness.
TKBL	Transient with failure to trip and failure to remove RCS heat	As described in the RAI response, the probability of the reactor failing to trip in the PRA model is 1E-06. The maximum possible CDF (or LERF) of this sequence is 5.43E-11 per year. Though negligible, the PRA model has been revised to include them for completeness.
TKBP	Transient with failure to trip and excessive peak RCS pressure	
TKBU	Transient with failure to trip and failure to achieve eventual shutdown	
TKU	Transient with failure to trip and failure to shutdown by emergency boration	This sequence requires the successful operation of main feedwater. Since main feedwater is assumed to be failed in all fire scenarios, sequence TKU is not applicable to any fire scenarios.
TQX	Transient with RCP seal LOCA and failure of long-term cooling	Since it is assumed that swapping the suction of emergency core cooling system pumps to the emergency sump is not possible from the auxiliary shutdown panel, it is assumed that if a RCS leak occurs during control room abandonment, core damage will result. Those situations are conservatively modeled as TQU sequences to maximize the impact on LERF, since TQX sequences assume the contents of the BWST are transferred into containment, while TQU sequences assume they are not. Therefore, mapping abandonment to the TQU sequence is conservative, and mapping to the TQX sequence would be redundant.
TBQU	Transient-induced LOCA after loss of DHR via SGs and failure of makeup/HPI cooling	Abandonment scenarios are currently mapped to these sequences.
TBU	Transient with loss of DHR via SGs and failure of makeup/HPI cooling	
TQU	Transient with RCP seal LOCA and failure of high pressure injection	

b) One of the simplifying assumptions in the modeling of MCR abandonment scenarios is that if abandonment is required, and operators fail to decide to do so, core damage occurs. From a CDF modeling standpoint, it does not matter if the cognitive human failure event (HFE) is assigned to all or just one of the core damage sequences, since the results will subsume to a single set of cutsets. Figure 1 illustrates this relationship. This represents the general form of the MCR abandonment modeling for all sequences. The 'INITIATORS' logic is identical for all of the MCR abandonment scenarios. The 'FLAG' event is specific to each scenario, but it is ignored by the software when subsuming cutsets. In the RAI 03 model, only the TBQU sequence contained a gate equivalent to the G006 gate, the others (TBU and TQU) simply had the sequence failure logic directly under the 'SEQUENCE' gate. The TBU and TQU sequences have been modified to include the G006 gate equivalent for the response to this RAI. The 'SEQUENCE_FAIL' logic is either loss of all feedwater (TBU), loss of RCS integrity (TQU) or both loss of all feedwater and loss of RCS integrity (TBQU). Along with general mutually exclusive events, the sequence-specific success logic represented by the 'MUX' logic contains loss of RCS integrity logic (TBU) or loss of all feedwater logic (TQU). If the HFE event is taken to be failed, all three of the sequences reduce to {HFE, FLAG, INITIATORS} as the solution to SEQUENCE. FLAG is ignored by the software when subsuming, so the solution becomes {HFE, INITIATORS}. The only difference between the sequences will be due to the success logic, which will delete cutsets that imply loss of feedwater from TQU cutsets and delete cutsets that imply loss of RCS integrity from TBU cutsets. If only CDF is being considered, TBQU adequately represents the CDF for abandonment scenarios related to the cognitive HFE for failure to abandon. However, the sequences are not equivalent with respect to LERF quantification, since RCS conditions at the time of core damage and reactor vessel breach will be different. Therefore, the TQU and TBU sequences were modified as indicated above to include the cognitive failure to abandon the control room.

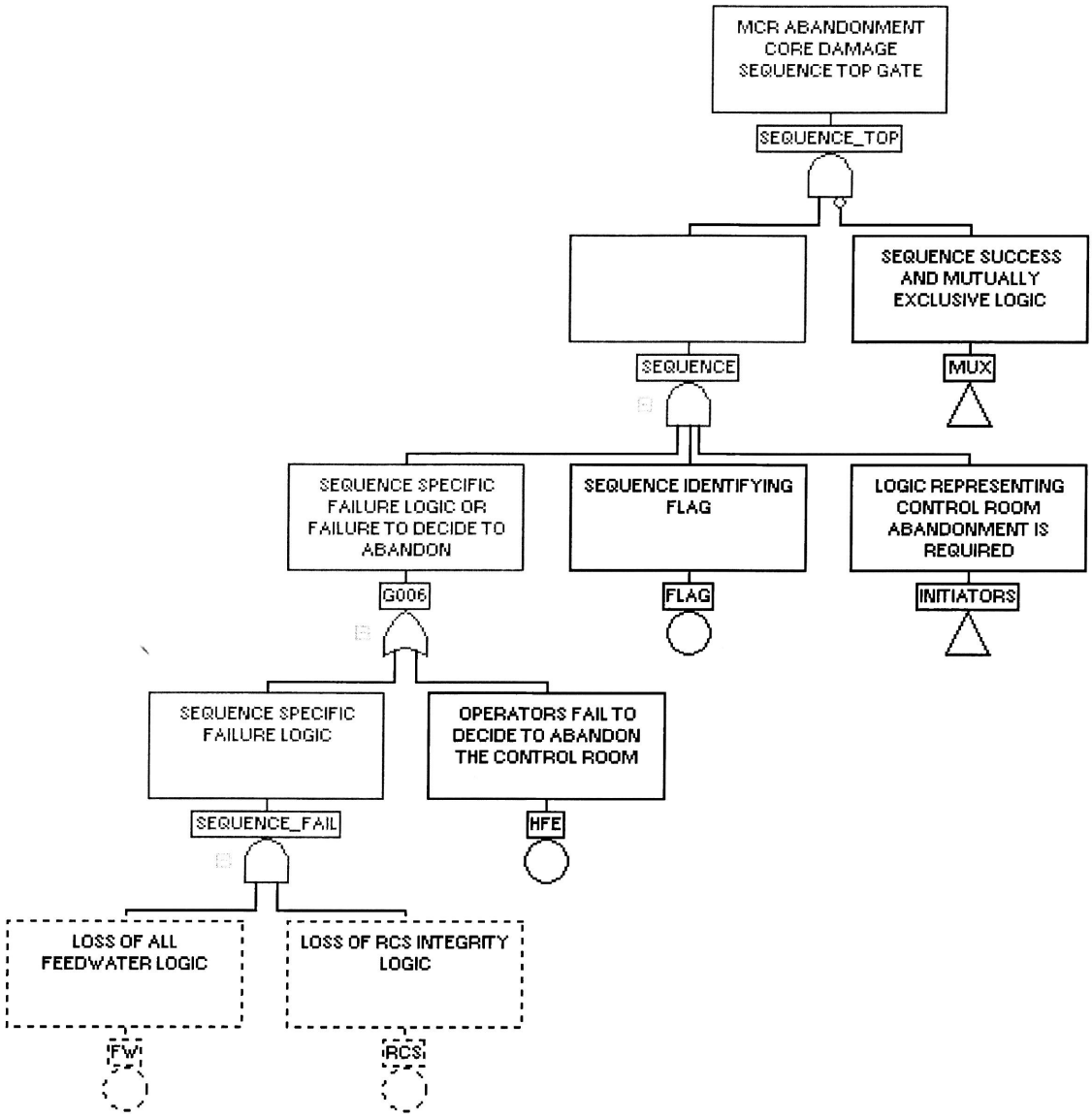

Figure 1 – General Form of MCR Abandonment Scenario Logic

As indicated in the response to part a), additional sequences were added to MCR abandonment modeling. Sequence TBP incorporates the cognitive HFE in the same manner as the sequences detailed above. The sequences involving failure of the reactor to trip (TKBP, TKBL, TKBU) do not incorporate the cognitive HFE. This is because it is assumed to not be possible to prevent core damage if the reactor fails to trip in a control room abandonment scenario. The decision to abandon the control room is therefore not relevant and is not considered in the fault tree. The three sequences are differentiated by the early failures that occur, which directs the path through the LERF trees, but a failure to trip in an abandonment scenario is assumed to lead to core damage.

Revised risk results are shown in the revised LAR Attachment W included with this submittal.

c) The handheld instrument used to recover SG level indications is the Practical Instrument Electronics (PIE) Model 535 calibrator. The instrument is used to supply power and read the 4-20 Milliamp (mA) signal from the applicable level transmitter at the containment penetration. The procedure used to do so provides a conversion from the 4-20 mA signal to steam generator level. Further information on the handheld instrument may be found on the manufacturer's website (http://www.pieinstruments.com/product/pie-model-535-voltage-current-calibrator).

i) The current draft revision of the Serious Control Room Fire procedure, (to be completed with the NFPA 805 transition) leads to abandoning the MCR. The Shift Manager reports to the ASP following Attachment 5 of the procedure. The Shift Manager is directed to Attachment 27 if at any time there is a loss of power to the C1 or E1 buses (loss of bus C1 or E1 would cause a loss of power to the battery chargers supplying the station batteries that power the ASP instruments). Attachment 27 directs the use of FLEX Support Guideline, Loss of DC Power to obtain SG level indications at local penetrations. Attachment 3, Section 1 of the FLEX Support Guideline, Loss of DC Power procedure contains instructions for obtaining the handheld instrument and connecting it to the level transmitter to be read. Section 2 contains a conversion table to convert the 4-20 mA signal to SG level.

The handheld instrument is stored in the FLEX storage cabinet within the control room envelope. While this cabinet may be accessible during abandonment scenarios due to loss of control, it would likely not be if the control room was abandoned due to loss of habitability. Therefore, LAR Attachment S, Table S-2, implementation item DB-2128 has been created to obtain an additional instrument to be stored outside the control room and to alter the appropriate procedures to reference the new storage location. The updated LAR Attachment S is included with this submittal.

ii) Equipment failures for the PIE 535 calibrator were not included in the PRA model. The rate of the human failure event (HFE) representing failure to obtain steam generator level indication is 1.53E-01. This greatly exceeds any probable failure rates or unavailability of the instrument itself. The high failure rate of the HFE, and its inherent uncertainty, bound any equipment related failures or unavailability related to this action.

Also, the PRA modeling of this event is conservative. If steam generator indication is not available, the control room abandonment procedure contains plots of feedwater flowrate as a function of time after trip that can be used to determine the required flowrate to remove decay heat from the RCS. The PRA does not credit use of these plots, however.

iii) The PIE 535 calibrator is maintained and calibrated under the Measurement and

Test Equipment program. The calibration interval is 12 months. The instrument is signed out to the FLEX program owner under an equipment traveler and stored in the control room FLEX storage. There are two instruments available, which allows the instrument in FLEX storage to be swapped on a staggered basis to maintain its one-year calibration frequency. There is therefore no unavailability due to test and maintenance for the instrument. Implementation item DB-2128 will implement a similar arrangement for the instrument stored outside the control room. The three instruments can then be rotated to maintain the availability of the two instruments stored in the field.

PRA RAI 03.02

The April 2, 2018, response to PRA RAI 03.e indicates a number of changes have been implemented in the fire PRA model used for the aggregate analysis.

a) **Numerous single compartment modeling updates (i.e., 29 updates) were made to the fire PRA used for the aggregate analysis, including adjustments of target sets and detection timing. The number of updates of this type suggests that there may have been a basic change in approach or methodology.**

   Discuss whether the single compartment modeling updates reflect a change in the underlying modeling approach or methodology. Identify if these updates constitute a PRA upgrade, as defined by American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) PRA standard RA-Sa-2009, "Addenda to ASME/ANS RA-S-2008 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications," as qualified by RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," (ADAMS Accession No. ML090410014). For those updates that constitute a PRA upgrade, provide an implementation item that will ensure these updates will be reviewed and any issues resolved in accordance with an NRC-accepted process (e.g., full-scope peer review, focused-scope peer review, facts and observations closure review) before self-approval of post-transition changes. Alternatively, justify that an implementation item is not needed.

b) **The fire modeling for fire compartments Q-01 and S-01 incorporated the guidance in NUREG-2178, "Refining and Characterizing Heat Release Rates From Electrical Enclosures During Fire (RACHELLE-FIRE), Volume 1: Peak Heat Release Rates and Effect of Obstructed Plume, Final Report," April 2016 (ADAMS Accession No. ML16110A140). NUREG-2178 provides updated heat release rates and guidance on obstructed plume modeling. According to NUREG-2178, the obstructed plume model is not applicable to cabinets in which the fire is modeled at elevations of less than one-half of the cabinet height.**

Identify if any electrical cabinets, to which the obstructed plume model of NUREG-2178 is applied, have the fire modeled at an elevation of less than one-half of the cabinet height. Justify any cases where the obstructed plume model is credited for a fire located at less than one-half of the cabinet's height. Alternatively, provide updated risk results, including the total transition CDF, LERF, ∆CDF, and ∆LERF, for the aggregate analysis, under the response to PRA RAI 03, that do not credit the obstructed plume mode for fires modeled at elevations less than one-half of the cabinet height. Compare the results with the acceptance guidelines in RG 1.174.

Response:

a) The single compartment fire modeling updates included in the response to PRA RAI 03.e were an accumulation of minor fire modeling refinements, incorporation of routine plant changes, and minor corrections identified from open items. These fire modeling updates were applied to approved fire modeling calculation methodologies. These updates represent maintenance, correction, and data updates only, with no changes to the existing methodology. The changes made by these fire modeling updates are not a new methodology or significant change in scope or capability that impact the significant accident sequences or the significant accident progression sequences, and therefore, do not constitute a PRA upgrade as defined in ASME/ANS RA-Sa-2009.

b) The fire modeling for fire compartments Q-01 and S-01 only incorporated the updated heat release rates and gamma distributions from NUREG-2178. The obstructed plume correlation was not applied to any cabinets in these compartments.

   The obstructed plume correlation may be incorporated during future fire modeling updates. These updates will ensure that the obstructed plume correlation is applied within the limitations identified in NUREG-2178.

PRA Question 02.d.01

The January 17, 2017, response to PRA RAI 02.d states that LAR Attachment S, Table S-2, implementation item DB-1695 would be revised to include following:

1) **Following completion of implementation items presented in LAR Attachment S, Table S-2, the fire PRA model will be updated as necessary to properly reflect the as-built, as-operated transitioning plant.**

2) **If the updated, transitioning fire PRA model results in risk estimates exceeding RG 1.174 risk acceptance guidelines, refinement of analytic estimates for the internal events and fire PRA will be made (that may include, but are not limited to, increased detailed fire modeling or circuit analysis, application of alternate**

NRC endorsed methodologies), or plant modification or procedure changes will be made, if necessary, prior to use of the model.

This revision was not incorporated into implementation item DB-1695 in the April 2, 2018, revised version of LAR Attachment S. Confirm that implementation item DB-1695 will be completed as described in the January 17, 2017, response to PRA RAI 02.d, prior to the implementation of the new NFPA 805 fire protection program, or explain why these actions do not need to be completed prior to implementation.

Response:

Implementation item DB-1695 will be completed as described in the response to PRA RAI 02.d, prior to the implementation of the new NFPA 805 fire protection program. LAR Attachment S, Table S-2, implementation item DB-1695 has been revised, and the updated LAR Attachment S is included with this submittal.

Attachment 2
L-18-188

Licensee-identified LAR Attachment G Update Descriptions

LIC (1): Not used.

LIC (2): Not used.

LIC (3): DB-1421 is not a VFDR. It is a risk reduction modification and therefore not a recovery action. Similar to safe shutdown analysis (SSA) RAI 10 response.

LIC (4): Corrected component name.

LIC (5): Deleted VFDR. No longer in System Assurance and Fire Protection Engineering (SAFE) software due to a more detailed analysis.

LIC (6): Added by defense-in-depth (DID) expert panel.

LIC (7): Added by fire PRA.

LIC (8): Updated component list based on SAFE.

LIC (9): Editorial change.

LIC (10): Not used for risk reduction (RR).

LIC (11): Every time the motor driven feedwater pump is required to be tripped is considered a RR in the fire PRA.

LIC (12): Updated component designations for auxiliary feedwater valves to be consistent with the control room operational schematic designations.

Attachment 3
L-18-188

Updated Table B-2 From the PRA RAI 03 Response

The following table replaces Table B-2 provided in the April 2, 2018 PRA RAI 03 response.

Table B-2: PRA Recovery Actions Per Fire Compartment		
COMPARTMENT	**HFE**	**HFE Description**
A-01	XHACLDNE	Operators fail to take local manual control of AVV
A-02	XHACLDNE	Operators fail to take local manual control of AVV
A-03	XHACLDNE	Operators fail to take local manual control of AVV
A-04	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
A-04	XHACLDNE	Operators fail to take local manual control of AVV
A-05	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
A-05	XHACLDNE	Operators fail to take local manual control of AVV
A-06	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
A-06	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
A-06	XHACLDNE	Operators fail to take local manual control of AVV
A-07	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
A-07	XHACLDNE	Operators fail to take local manual control of AVV
A-08	QHAMDFOE-FIRE	Operators fail to stop spur started MDFP to prevent SG overfeed
A-08	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
A-08	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
A-08	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
A-08	XHACLDNE	Operators fail to take local manual control of AVV
A-09	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
A-09	XHACLDNE	Operators fail to take local manual control of AVV
AB-01	XHACLDNE	Operators fail to take local manual control of AVV
AB-02	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
AB-02	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
AB-02	XHACLDNE	Operators fail to take local manual control of AVV
AB-03	XHACLDNE	Operators fail to take local manual control of AVV
AB-04	XHACLDNE	Operators fail to take local manual control of AVV
AB-05	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
AB-05	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
AB-05	XHACLDNE	Operators fail to take local manual control of AVV
AB-06	XHACLDNE	Operators fail to take local manual control of AVV

Table B-2: PRA Recovery Actions Per Fire Compartment		
COMPARTMENT	**HFE**	**HFE Description**
AC-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
AC-01	XHACLDNE	Operators fail to take local manual control of AVV
AD-01	XHACLDNE	Operators fail to take local manual control of AVV
B-01	XHACLDNE	Operators fail to take local manual control of AVV
BD-01	XHACLDNE	Operators fail to take local manual control of AVV
BE-01	XHACLDNE	Operators fail to take local manual control of AVV
BF-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
BF-01	SHADILPE	Operators fail to recover SW using the dilution pump (prior to damage to LPI or HPI pumps)
BF-01	XHACLDNE	Operators fail to take local manual control of AVV
BG-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
BG-01	XHACLDNE	Operators fail to take local manual control of AVV
BH-01	XHACLDNE	Operators fail to take local manual control of AVV
BM-01	XHACLDNE	Operators fail to take local manual control of AVV
BN-01	XHACLDNE	Operators fail to take local manual control of AVV
CC-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
CC-01	XHACLDNE	Operators fail to take local manual control of AVV
D-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
D-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
D-01	XHACLDNE	Operators fail to take local manual control of AVV
DD-01	CHABANDF-AFW	Operators fail to take manual control of AFW/EFW to maintain SG level
DD-01	CHABANDF-EDG	Operators fail to restore CCW to EDG1 and repower C1/E1
DD-01	CHABANDF-LTDWN	Operators fail to isolate RCS letdown during CTRM abandonment.
DD-01	CHABANDF-OVRFL	Operators fail to prevent overfill of SGs during CTRM abandonment
DD-01	CHABANDF-PORV	Operators fail to close/isolate the PORV during CTRM abandonment
DD-01	CHABANDF-RCPS	Operators fail to trip the RCPs during CTRM abandonment
DD-01	FHAAVVCE	Operators fail to close AVV isolation valve MS875 or MS876 when AVV fails to reclose.
DD-01	QHAMDFOE-FIRE	Operators fail to stop spur started MDFP to prevent SG overfeed
DD-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG

Table B-2: PRA Recovery Actions Per Fire Compartment		
COMPARTMENT	**HFE**	**HFE Description**
DD-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
DD-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
DD-01	XHACLDNE	Operators fail to take local manual control of AVV
DF-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
DF-01	XHACLDNE	Operators fail to take local manual control of AVV
DG-01	XHACLDNE	Operators fail to take local manual control of AVV
DH-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
DH-01	XHACLDNE	Operators fail to take local manual control of AVV
E-01	XHACLDNE	Operators fail to take local manual control of AVV
EE-01	FHAAVVCE	Operators fail to close AVV isolation valve MS875 or MS876 when AVV fails to reclose.
EE-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
EE-01	XHACLDNE	Operators fail to take local manual control of AVV
EF-01	XHACLDNE	Operators fail to take local manual control of AVV
F-01	XHACLDNE	Operators fail to take local manual control of AVV
FF-01	CHABANDF-AFW	Operators fail to take manual control of AFW/EFW to maintain SG level
FF-01	CHABANDF-EDG	Operators fail to restore CCW to EDG1 and repower C1/E1
FF-01	CHABANDF-LTDWN	Operators fail to isolate RCS letdown during CTRM abandonment.
FF-01	CHABANDF-OVRFL	Operators fail to prevent overfill of SGs during CTRM abandonment
FF-01	CHABANDF-PORV	Operators fail to close/isolate the PORV during CTRM abandonment
FF-01	CHABANDF-RCPS	Operators fail to trip the RCPs during CTRM abandonment
FF-01	FHAAVVCE	Operators fail to close AVV isolation valve MS875 or MS876 when AVV fails to reclose.
FF-01	QHAMDFOE-FIRE	Operators fail to stop spur started MDFP to prevent SG overfeed
FF-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
FF-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
FF-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
FF-01	XHACLDNE	Operators fail to take local manual control of AVV
FF-02	XHACLDNE	Operators fail to take local manual control of AVV
FF-03	XHACLDNE	Operators fail to take local manual control of AVV

Table B-2: PRA Recovery Actions Per Fire Compartment		
COMPARTMENT	**HFE**	**HFE Description**
G-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
G-01	XHACLDNE	Operators fail to take local manual control of AVV
G-02	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
G-02	XHACLDNE	Operators fail to take local manual control of AVV
G-03	XHACLDNE	Operators fail to take local manual control of AVV
HH-01	XHACLDNE	Operators fail to take local manual control of AVV
II-01	QHAMDFOE-FIRE	Operators fail to stop spur started MDFP to prevent SG overfeed
II-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
II-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
II-01	XHACLDNE	Operators fail to take local manual control of AVV
II-02	XHACLDNE	Operators fail to take local manual control of AVV
II-03	XHACLDNE	Operators fail to take local manual control of AVV
II-04	XHACLDNE	Operators fail to take local manual control of AVV
II-05	XHACLDNE	Operators fail to take local manual control of AVV
II-06	XHACLDNE	Operators fail to take local manual control of AVV
II-07	XHACLDNE	Operators fail to take local manual control of AVV
II-08	XHACLDNE	Operators fail to take local manual control of AVV
II-09	XHACLDNE	Operators fail to take local manual control of AVV
J-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
J-01	XHACLDNE	Operators fail to take local manual control of AVV
J-02	XHACLDNE	Operators fail to take local manual control of AVV
K-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
K-01	XHACLDNE	Operators fail to take local manual control of AVV
K-02	XHACLDNE	Operators fail to take local manual control of AVV
MA-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
MA-01	XHACLDNE	Operators fail to take local manual control of AVV
MB-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
MB-01	XHACLDNE	Operators fail to take local manual control of AVV
MC-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
MC-01	XHACLDNE	Operators fail to take local manual control of AVV
ME-01	XHACLDNE	Operators fail to take local manual control of AVV
MF-01	XHACLDNE	Operators fail to take local manual control of AVV

Table B-2: PRA Recovery Actions Per Fire Compartment		
COMPARTMENT	**HFE**	**HFE Description**
MG-01	XHACLDNE	Operators fail to take local manual control of AVV
MH-01	XHACLDNE	Operators fail to take local manual control of AVV
OF-01	XHACLDNE	Operators fail to take local manual control of AVV
OS	XHACLDNE	Operators fail to take local manual control of AVV
P-01	XHACLDNE	Operators fail to take local manual control of AVV
P-02	XHACLDNE	Operators fail to take local manual control of AVV
P-03	QHAMDFOE-FIRE	Operators fail to stop spur started MDFP to prevent SG overfeed
P-03	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
P-03	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
P-03	XHACLDNE	Operators fail to take local manual control of AVV
Q-01	QHAMDFOE-FIRE	Operators fail to stop spur started MDFP to prevent SG overfeed
Q-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
Q-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
Q-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
Q-01	XHACLDNE	Operators fail to take local manual control of AVV
R-01	XHACLDNE	Operators fail to take local manual control of AVV
S-01	QHAMDFOE-FIRE	Operators fail to stop spur started MDFP to prevent SG overfeed
S-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
S-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
S-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
S-01	XHACLDNE	Operators fail to take local manual control of AVV
T-01	XHACLDNE	Operators fail to take local manual control of AVV
U-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
U-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
U-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
U-01	WHASPREE	Operators fail to recover CCW using spare CCW train (prior to damage to LPI or HPI Pump)
U-01	XHACLDNE	Operators fail to take local manual control of AVV
UU-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG

Table B-2: PRA Recovery Actions Per Fire Compartment		
COMPARTMENT	**HFE**	**HFE Description**
UU-01	XHACLDNE	Operators fail to take local manual control of AVV
V-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
V-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
V-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
V-01	XHACLDNE	Operators fail to take local manual control of AVV
VA-01	XHACLDNE	Operators fail to take local manual control of AVV
X-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
X-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
X-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
X-01	XHACLDNE	Operators fail to take local manual control of AVV
X-02	XHACLDNE	Operators fail to take local manual control of AVV
Y-01	QHAOVF1E	Operators fail to take local manual control of AFW turbine 1 or 2 to prevent overfeeding SG
Y-01	QHARCP3E-FIELD	Operators fail to trip RCPs from HVSGR after a loss of Seal return or CCW & Seal Injection
Y-01	QHARCPCE-FIELD	Operators fail to trip RCPs from HVSGR after a loss of CCW
Y-01	XHACLDNE	Operators fail to take local manual control of AVV
Y-02	XHACLDNE	Operators fail to take local manual control of AVV

Enclosure A
L-18-188

LAR Attachment G – Recovery Actions Transition
(85 pages follow)

G. Recovery Actions Transition

84 Pages Attached

In accordance with guidance provided in NEI 04-02, FAQ 07-0030, Revision 5, and RG 1.205, the following methodology was used to determine recovery actions required for compliance (i.e., determining the population of post-transition recovery actions). The methodology consisted of the following steps:

- Step 1: Define the primary control station(s) and determine which pre-transition OMAs are taken at primary control station(s) (Activities that occur in the Main Control Room are not considered pre-transition OMAs). Activities that take place at primary control station(s) or in the Main Control Room are not recovery actions, by definition.
- Step 2: Determine the population of recovery actions that are required to resolve VFDRs (to meet the risk acceptance criteria or maintain a sufficient level of defense in depth).
- Step 3: Evaluate the additional risk presented by the use of recovery actions required to demonstrate the availability of a success path
- Step 4: Evaluate the feasibility of the recovery actions
- Step 5: Evaluate the reliability of the recovery actions

An overview of these steps and the results of their implementation are provided below.

Step 1 - Clearly define the primary control station(s) and determine which pre-transition OMAs are taken at primary control station(s)

The first task in the process of determining the post-transition population of recovery actions was to apply the NFPA 805 definition of recovery action and the RG 1.205 definition of primary control station to determine those activities that are taken at primary control stations. The primary control station was determined based on the definition provided in RG 1.205 and by following the additional guidance in FAQ 07-0030.

Results of Step 1:

Based on the definition provided in RG 1.205 and the additional guidance provided in FAQ 07-0030, the following locations are considered primary control stations:

- Auxiliary Shutdown Panel (ASP) located in Fire Compartment R-01, Auxiliary Shutdown Panel Room.

  Transfer switches are installed on the ASP to transfer control or instrument signals from their normal circuit to the ASP. With the control circuit or instrument loop transferred to the ASP, the circuit is disconnected from any cables leading to the Control Room or process racks and is therefore independent of the original fire areas of concern. The ASP is powered through two redundant sources (one from each train – Y108 or Y208) through an automatic bus transfer switch.

Table G-1 – “Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station” identify the activities that occur at the primary control stations. The activities performed at the primary control stations do not require the analysis of additional risk and are compliant with NFPA 805, Section 4.2.3.1.

The ASP is a primary control station only for a fire that requires Main Control Room (MCR) evacuation.

Step 2 – Determine the population of recovery actions that are required to resolve VFDRs (to meet the risk or defense in depth criteria)

On a fire compartment basis all VFDRs were identified in the NEI 04-02 Table B-3 (See Attachment C). Each VFDR not brought into compliance with the deterministic approach was evaluated using the performance-based approach of NFPA 805 Section 4.2.4. The performance-based evaluations resulted in the need for recovery actions to meet the risk acceptance criteria or maintain a sufficient level of defense in depth.

Results of Step 2:

The final set of recovery actions is provided in Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station. The VFDRs associated with risk reduction recovery actions are designated ‘RR’ and the defense in depth recovery action are designated ‘DID’ in Table G-1. A third category of actions performed at the defined primary control stations are designated are designated 'PCS' in Table G-1 when command and control is not in the Main Control Room.

Step 3 – Evaluate the Additional Risk of the Use of Recovery Actions

Results were determined after consulting NFPA 805 Section 4.2.3.1 and NFPA 805 Section 4.2.4. Although NFPA 805 Section 4.2.3.1 does not allow recovery actions when using the deterministic approach, NFPA 805 Section 4.2.4 allows a risk-informed, performance-based approach, provided that the additional risk is evaluated in accordance with this section of NFPA 805.

Results of Step 3:

The set of recovery actions necessary to demonstrate the availability of a success path for the nuclear safety performance criteria was evaluated for additional risk using the process described in NEI 04-02, FAQ 07-0030, and RG 1.205 and compared against the guidelines of RG 1.174 and RG 1.205.

A discussion of the additional risk of recovery actions is provided in LAR Attachment W. Assessment of potential adverse effects of operator actions is addressed in the development of operator actions in the fire compartment specific Fire Risk Evaluations.

Recovery actions necessary to demonstrate the availability of a success path for the nuclear safety performance criteria were found to be acceptable.

Step 4 – Evaluate the Feasibility of Recovery Actions

Recovery actions were evaluated against the feasibility criteria provided in the NEI 04-02, FAQ 07-0030, Revision 5, and RG 1.205. Note that since actions taken at the primary control station are not recovery actions their feasibility is evaluated in accordance with procedures for validation of off normal procedures.

Results of Step 4:

Each of the feasibility criteria in FAQ 07-0030 were assessed for the recovery actions listed in Tables G-1. This NFPA 805 recovery action feasibility assessment is included in Davis-Besse Nuclear Power Station PRA Notebook 10-03: Fire PRA Human Reliability Analysis. The assessment addresses the post-fire operator actions credited as recovery actions required to resolve VFDRs to meet risk or required to meet defense in depth criteria. The defense in depth recovery actions have been conservatively retained to provide plant operations with written guidance where such actions will enhance Echelon #3 of defense in depth, to provide additional assurance that one success path of safe shutdown capability can be restored in the event that Echelon #1 and Echelon #2 of defense in depth become degraded or rendered ineffective.

Recovery actions in existing procedures have been identified. Credit was taken for previous completed procedure reviews that assessed feasibility for the recovery actions. The feasibility of the recovery actions currently in plant procedures was also assessed against NFPA 805 acceptance criteria and documented in a feasibility assessment report.

Recovery actions not currently in existing Appendix R response procedures have been identified. For recovery action compliance strategies, recovery actions have been reviewed for feasibility by site personnel during Defense in Depth (DID) Expert Panel meetings conducted as part of the Fire Risk Evaluation process. The DID Expert Panel considered/discussed recovery actions deemed necessary to place the plant in a safe and stable condition. In addition to the DID Expert Panel Review, the feasibility of the recovery actions not currently in plant procedures was assessed against NFPA 805 acceptance criteria using plant Operations Department personnel. This was documented in a feasibility assessment report.

The DID Expert Panel has determined that all recovery actions listed in Table G-1 are acceptable. Procedure updates for the credited NFPA 805 recovery actions and fire area analysis results will be completed as part of LAR implementation (see Attachment S, Table S-2, DB-1941). Confirmatory demonstration of the feasibility for the credited NFPA 805 recovery actions will be performed after procedures are updated and documented as part of LAR implementation (see Attachment S, Table S-2, DB-1941). Training will be updated after completion of the procedures (see Attachment S, Table S-2, DB-1941). Fire brigade drills will be updated after completion of the procedures and training (see Attachment S, Table S-2, DB-1941).

The overall results of the feasibility assessment demonstrate that NFPA 805 recovery actions are creditable and feasible.

Step 5 – Evaluate the Reliability of Recovery Actions

The reliability of recovery actions modeled specifically in the Fire PRA was addressed using Fire PRA methods. The evaluation of the reliability of recovery actions depends upon its characterization.

- The reliability of recovery actions that are modeled specifically in the Fire PRA will be addressed using Fire PRA methods (i.e., Human Reliability Analysis - HRA).

- The reliability of recovery actions not modeled specifically in the Fire PRA is bounded by the treatment of additional risk associated with the applicable VFDR. In calculating the additional risk of the VFDR, the compliant case recovers the fire-induced failures as if the variant condition no longer exists. The resulting delta risk between the variant and compliant condition bounds any additional risk for the recovery action even if that recovery action were not modeled.

Results of Step 5:

The reliability of recovery actions modeled specifically in the Fire PRA was addressed in Davis-Besse Nuclear Power Station PRA Notebook 10-03: Fire PRA Human Reliability Analysis.

An implementation item is identified to review and update (if needed) the Fire HRA upon completion of the procedure updates, modifications and training (see Attachment S, Table S-2, DB-1943).

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-01 A-02 A-03 A-04 A-05 A-06 A-07 A-08 A-09 AB-01 AB-02 AB-03 AB-04 AB-05 AB-06 AC-01 AD-01 B-01 BD-01 BE-01 BF-01 BG-01 BH-01 BM-01 BN-01 CC-01 D-01 DD-01 DF-01 DG-01 DH-01 E-01 EE-01 EF-01 F-01 FF-01 FF-02	ICS11A ICS11B	MS Line 2 Atmospheric Vent MS Line 1 Atmospheric Vent	Locally operate the valves with the reach rod for ICS11A or ICS11B.	DB-1318[1]	RR	LIC (6 & 8)

[1] Due to the potential loss of instrument air, manual operation of the AVVs could be necessary in all fire compartments.

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-03 G-01 G-02 G-03 HH-01 II-01 II-02 II-03 II-04 II-05 II-06 II-07 II-08 II-09 J-01 J-02 K-01 K-02 MA-01 MB-01 MC-01 ME-01 MF-01 MG-01 MH-01 OF-01 OS P-01 P-02 P-03 Q-01 R-01 S-01 T-01 U-01 UU-01 V-01 VA-01	ICS11A ICS11B ~~(cont.)~~	MS Line 2 Atmospheric Vent MS Line 1 Atmospheric Vent ~~(cont.)~~	Locally operate the valves with the reach rod for ICS11A or ICS11B. ~~(cont.)~~	DB-1318[1] ~~(cont.)~~	RR ~~(cont.)~~	LIC (6 & 8)

[1] Due to the potential loss of instrument air, manual operation of the AVVs could be necessary in all fire compartments.

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
X-01 X-02 Y-01 Y-02	ICS11A ICS11B ~~(cont.)~~	MS Line 2 Atmospheric Vent MS Line 1 Atmospheric Vent ~~(cont.)~~	Locally operate the valves with the reach rod for ICS11A or ICS11B. ~~(cont.)~~	DB-1318[1] ~~(cont.)~~	RR ~~(cont.)~~	LIC (6 & 8)
~~A-01~~ ~~A-02~~ ~~A-03~~ ~~A-04~~ ~~A-05~~ ~~A-06~~ ~~A-07~~ ~~A-08~~ ~~A-09~~ ~~AB-01~~ ~~AB-02~~ ~~AB-03~~ ~~AB-04~~ ~~AB-05~~ ~~AB-06~~ ~~AC-01~~ ~~AD-01~~ ~~B-01~~ ~~BD-01~~ ~~BE-01~~ ~~BF-01~~ ~~BG-01~~ ~~BH-01~~ ~~BM-01~~ ~~BN-01~~ ~~CC-01~~ ~~D-01~~ ~~DD-01~~ ~~DF-01~~ ~~DG-01~~ ~~DH-01~~ ~~E-01~~	~~P296-1~~ ~~P296-2~~	~~FLEX Charging Pump 1~~ ~~FLEX Charging Pump 2~~	~~Deploy 480VAC Generator. Manually align FLEX RCS Charging Pump.~~	~~DB-2012[2]~~	~~RR~~	SSA RAI 10

[1] Due to the potential loss of instrument air, manual operation of the AVVs could be necessary in all fire compartments.

~~[2] A FLEX RCS Charging Pumps modification will be installed to reduce risk in all fire compartments. (ECP 13-0463)~~ SSA RAI 10

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID
~~EE-01~~ ~~F-01~~ ~~FF-01~~ ~~FF-02~~ ~~FF-03~~ ~~G-01~~ ~~G-02~~ ~~G-03~~ ~~HH-01~~ ~~II-01~~ ~~II-02~~ ~~II-03~~ ~~II-04~~ ~~II-05~~ ~~II-06~~ ~~II-07~~ ~~II-08~~ ~~II-09~~ ~~J-01~~ ~~J-02~~ ~~K-01~~ ~~K-02~~ ~~MA-01~~ ~~MB-01~~ ~~MC-01~~ ~~ME-01~~ ~~MF-01~~ ~~MG-01~~ ~~MH-01~~ ~~OS~~ ~~P-01~~ ~~P-02~~ ~~P-03~~ ~~Q-01~~ ~~R-01~~ ~~S-01~~ ~~T-01~~	~~P296-1~~ ~~P296-2~~ ~~(cont.)~~	~~FLEX Charging Pump 1~~ ~~FLEX Charging Pump 2~~ ~~(cont.)~~	~~Deploy 480VAC Generator.~~ ~~Manually align FLEX RCS Charging Pump.~~ ~~(cont.)~~	~~DB-2012~~[(2]) ~~(cont.)~~	~~RR~~ ~~(cont.)~~

SSA RAI 10

[(2]) ~~A FLEX RCS Charging Pumps modification will be installed to reduce risk in all fire compartments. (ECP 13-0463)~~

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
~~U-01~~ ~~UU-01~~ ~~V-01~~ ~~VA-01~~ ~~X-01~~ ~~X-02~~ ~~Y-01~~ ~~Y-02~~	~~P296-1~~ ~~P296-2~~ ~~(cont.)~~	~~FLEX Charging Pump 1~~ ~~FLEX Charging Pump 2~~ ~~(cont.)~~	~~Deploy 480VAC Generator.~~ ~~Manually align FLEX RCS Charging Pump.~~ ~~(cont.)~~	~~DB-2012~~[(2]) ~~(cont.)~~	~~RR~~ ~~(cont.)~~	SSA RAI 10
A-04	MS107A-ISOL	Main Steam Line 1 to AFPT 2 Isolation	Trip or control AFPT-2 locally.	DB-0916	~~RR~~ DID	LIC (6 & 8)
A-04	MS107-ISOL	Main Steam Line 2 to AFPT 2 Isolation	Trip or control AFPT-2 locally.	DB-0925	~~DID~~ RR	LIC (6 & 8)
A-04	MU66A MU66D CC4200	RCP 1-1-1 Seal Inlet RCP 1-2-2 Seal Inlet Reactor Coolant Pump 1-2 Pump Seal Cooler	Within 8 hours: Manually align seal injection flow to all RCP seals. OR Manually align CCW flow to all RCP thermal barriers. OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1380	~~RR~~ DID	LIC (10)
A-04	MU1A MU3 WC1747 CC1407B CC1411B	Reactor Coolant Letdown Cooler 1 Inlet Letdown Stop CWRT 2 Inlet Flow Control CCW from Containment Isolation CCW to Containment Isolation	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1464	DID	

~~(2) A FLEX RCS Charging Pumps modification will be installed to reduce risk in all fire compartments. (ECP 13-0463)~~ SSA RAI 10

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-04	C5755D C5756D	SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following: RCP Seal Injection, Letdown, AND CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1710	~~RR~~/DID	LIC (6)
A-04	~~AF3870~~ AF3872-ISOL	~~Auxiliary Feed Pump 1 to SG 1-1~~ Auxiliary Feed Pump 2 to SG 1-2	Trip or control AFPT-2 locally.	DB-1880	RR	LIC (6 & 8)
A-04	MS106-ISOL MS106A-ISOL OR MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation OR Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-2003	RR	LIC (6 & 8)
A-05	MS106	Main Steam Line 1 to AFPT 1 Isolation	~~Locally de-energize and manually align credited AFW pump to credited S/G. Close both "A" valves and non-credited S/G supply (MS106 or MS107).~~ De-energize (DC Disconnect D135) MS106 and Open MS106.	DB-1175	DID	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-05	AF3869-ISOL AF3872-ISOL AF599 AFFV6451 AF3870-ISOL	Auxiliary Feed Pump 1 to Steam Generator 1-2 Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Train 1: Trip or control AFPT-2 locally. OR Train 2: Trip or control AFPT-1 locally. ~~OR~~ ~~Trip AFPT-2 locally.~~	DB-1182	RR	LIC (6, 8, & 12)
A-05	~~FV~~AF6451 ~~FV~~AF6452 HIS6403 HIS6404 AF3871-ISOL AF608 AF3869-ISOL AF3870-ISOL	Aux FP 1-2 Solenoid Control Valve Aux FP 1-1 Solenoid Control Valve SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Init. AFP2 to SG2 & 1 Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-2 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	~~De-energize AF6452.~~ ~~OR~~ ~~Trip AFPT-1 locally.~~ ~~De-energize AF6451.~~ Train 1: Trip or control AFPT-2 locally. OR Train 2: Trip or control AFPT-1 locally.	DB-1189	RR	LIC (6, 8, & 12)
A-05	AF3869 AF3870 ~~FV~~AF6451 ~~FV~~AF6452 AF3872	Auxiliary Feed Pump 1 To SG 1-2 Auxiliary Feed Pump 1 to SG 1-1 AUX FP 1-2 Solenoid Control Valve AUX FP 1-1 Solenoid Control Valve Auxiliary Feed Pump 2 to SG 1-2	~~Trip AFPT-2 locally.~~ ~~De-energize AF6452.~~ ~~OR~~ ~~Trip AFPT-1 locally.~~ ~~De-energize AF6451.~~ Train 1: De-energize AF6452 locally and control AFPT speed from the control room to control SG level. OR Train 2: De-energize AF6451 locally and control AFPT speed from the control room to control SG level.	DB-1198	DID	LIC (6 & 12)
A-05	MS106-ISOL MS106A-ISOL OR MS107-ISOL MS107A-ISOL	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation OR Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation	Trip or control AFPT-1 locally. OR Trip or control AFPT-2 locally.	DB-1529	~~RR~~DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-05	MS106-ISOL MS106A-ISOL MS107-ISOL MS107A-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally. OR Trip or control AFPT-2 locally.	DB-1562	~~DID~~ RR	LIC (6 & 8)
A-05	C5762D C5763D OR C5755D C5756D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel OR SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	~~DB-1711~~ DB-1710	~~RR~~ DID	LIC (6)
A-05	MS106-ISOL MS106A-ISOL OR MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation OR Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Train 1: Trip or control AFPT-2 locally. OR Train 2: Trip or control AFPT-1 locally.	DB-2003	RR	LIC (6 & 8)
A-06	HA01 HB01	RCP 1-2-2 RCP 1-2-1	Trip RCP 1-2-2 and 1-2-1 breakers at the switchgear.	DB-1117	RR	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
~~A-06~~ ~~A-08~~ ~~AB-02~~ ~~AB-05~~ ~~AC-01~~ ~~CC-01~~ ~~D-01~~ ~~DD-01~~ ~~DF-01~~ ~~EE-01~~ ~~FF-01~~ ~~FF-02~~ ~~MC-01~~ ~~U-01~~ ~~V-01~~ ~~X-01~~ ~~Y-01~~	~~Diesel Driven Emergency Feedwater Pump~~	~~Diesel Driven Emergency Feedwater Pump~~	~~Manually initiate and align Diesel Driven Emergency Feedwater Pump System.~~	~~DB-1421~~[3]	~~RR~~	LIC (3)
A-06	MU1A CC1409 MU1B CC1410	Reactor Coolant Letdown Cooler 1 Inlet Letdown Cooler 1 CCW Inlet Reactor Coolant Letdown Cooler 2 Inlet Letdown Cooler 2 CCW Inlet	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1906	DID	
A-07	MS107-ISOL ICS38A	Main Steam Line 2 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-0994	RR ~~DID~~	LIC (6 & 8)
A-07	MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1162	RR	LIC (6 & 8)
A-07	AF3869-ISOL AF3872-ISOL AF599 AFFV6451 AF3870-ISOL	Auxiliary Feed Pump 1 to Steam Generator 1-2 Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Trip or control AFPT-2 locally.	DB-1182	RR	LIC (6, 8, & 12)
A-07	MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1531	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-07	C5755D C5756D	SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1712	~~RR~~/DID	LIC (6)
~~(3) A diesel-driven Emergency Feedwater (EFW) Pump modification will be installed to reduce risk in all fire compartments. The fire compartments listed will have components or cables that could require recovery actions to manually start the EFW Pump. (ECP 13-0195 & 13-0196)~~						SSA RAI 10
A-08	AC105-P AD105-P MU19 MU32 MU6406 MU6408 MU66A MU66D MU6420 MU6422	Make-Up Pump 1-1 Breaker Make-Up Pump 1-2 Breaker Seal Injection Inlet Isolation Valve Make-Up Flow Controller Make-Up Pump 2 Recirculation Isol Make-Up Pump 2 to Seal Injection Cross-X RCP 1-1-1 Seal Inlet RCP 1-2-2 Seal Inlet Normal Make-up Flow Controller Normal Make-up to Reactor Coolant System	Remove control power fuses and trip the AD105 breaker at the switchgear.	DB-1023	DID	LIC (8)
A-08	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1024	~~DID~~ RR	LIC (8 & 11)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-08	HA01 HA03 HB01 HB03	RCP 1-2-2 RCP 1-1-1 RCP 1-2-1 RCP 1-1-2	Trip RCP 1-2-2, 1-1-1, 1-2-1 and 1-1-2 breakers at switchgear.	DB-1027	RR	LIC (4)
A-08	MU19 MU208 MU66A MU66D CC4100 CC4200 CC4300 CC4400	Seal Injection Inlet Isolation Valve Seal Injection Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-2-2 Seal Inlet Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 1-2 Pump Seal Cooler Reactor Coolant Pump 2-1 Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler	Trip RCPs Within 8 hours: Manually align seal injection flow to all RCP seals. OR Manually align CCW flow to all RCP thermal barriers. OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1029	RR/DID	LIC (7)
A-08	MS107-ISOL	Main Steam Line 2 to AFPT 2 Isolation	Trip or control AFPT-2 locally.	DB-1030	RR	LIC (6 & 8)
A-08	MU1A CC1409 MU1B CC1410 MU2A ~~MU2B~~ MU3 MU4 MU10A MU11 CC1407B CC1411A CC1411B CC5095 CC5097	Reactor Coolant Letdown Cooler 1 Inlet Letdown Cooler 1 CCW Inlet Reactor Coolant Letdown Cooler 2 Inlet Letdown Cooler 2 CCW Inlet Letdown Coolers Outlet Isolation ~~Letdown Coolers Inlet Isolation~~ Letdown Stop Letdown Block Orifice Isolation Mixed Bed 1 Letdown Inlet Three-Way Letdown to Radwaste Drain CCW from Containment Isolation CCW to Containment Isolation CCW to Containment Isolation CCW Line 1 Discharge Isolation CCW Line 1 Return Isolation	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1031	DID	LIC (8)
A-08	RC2 RC10	Pressurizer Spray Valve Pressurizer Spray Motor Isolation	Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.	DB-1033	DID	
A-08	SW1356 SW1366	Ctmt Air Cooler 1 Outlet Temp Control Containment Air Cooler 1 Inlet Isolation	Place Containment Air Cooler 1 in service after the fire is extinguished (within 120 minutes).	DB-1034	DID	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-08	MS106	Main Steam Line 1 to AFPT 1 Isolation	De-energize MS106 and manually open.	DB-1178	~~RR~~ DID	LIC (10)
A-08	AF~~F~~V6452 HIS6403 HIS6404 AF3871-ISOL AF608 AF3870-ISOL	Aux FP 1-1 Solenoid Control Valve SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Initiation AFP2 to SG2 & 1 Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Trip or control AFPT-2 locally. ~~De-energize FV6452.~~ ~~De-energize AF3870 and manually open.~~ Control AFPT-1 using ICS38B from Control Room.	DB-1185	RR	LIC (6, 8, & 12
A-08	AF~~F~~V6452 AF3870 AF608 HIS6403 HIS6404	Auxiliary Feed Pump 1-1 Discharge Control Solenoid Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Init. AFP2 to SG2 & 1	Control AFPT-1 using ICS38B from the Control room. Trip AFPT-2 locally. De-energize ~~FV6452~~ AF6452.	DB-1199	DID	LIC (6, 8, & 12)
A-08	P56-2 CS1531	Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump(s) at switchgear. Disable auto start of any non-running containment spray pump.	DB-1227	DID	LIC (9rip
A-08	P56-2 CS1531	Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump(s) at switchgear. Disable auto start of any non-running containment spray pump.	DB-1268	DID	LIC (9)
A-08	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1403	~~DID~~ RR	LIC (8 & 11)
A-08	LRSRC14 LTRC14-2	Pressurizer Level Inches Compensated RC Pressurizer Level Transmitter	Recover D1 EA bus.	DB-1409	DID	FPE RAI 01.01
A-08	MS107A-ISOL	Main Steam Line 1 to AFPT 2 Isolation	~~Trip AFPT-2 locally~~. Locally de-energize and manually close MS107A.	DB-1532	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-08	C5762D C5763D OR C5755D C5756D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel OR SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Trip RCPs. Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Cooling,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1711	RR/DID	LIC (6)
A-08	~~AF3870-ISOL~~ AF3872-ISOL	~~Auxiliary Feed Pump 1 to SG 1-1~~ Auxiliary Feed Pump 2 to SG 1-2	Trip or control AFPT-2 locally.	DB-1880	RR	LIC (6 & 8)
A-08	MS106-ISOL MS106A-ISOL OR MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation OR Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-2003	RR	LIC (6 & 8)
A-08	K5-2	EDG 2	Manually start and load #2 EDG.	DB-2034	DID	LIC (9)
A-09	AD111-P HP2A HP2B	High Pressure Injection Pump 1-2 Breaker High Pressure Injection Line 1-1 Isolation High Pressure Injection Line 1-2 Isolation	Remove control power fuses and trip AD111 breaker at the switchgear.	DB-0992	DID	LIC (8)
A-09	MS107-ISOL ICS38A	Main Steam Line 2 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-0994	~~DID~~ RR	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-09	MS107-ISOL MS107A-ISOL MS5889B ICS38A	Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation Steam Admission to AFPT 2 AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1163	RR	LIC (6 & 8)
A-09	AF3872-ISOL AF599 ~~FV~~AF6451	Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	Trip or control AFPT-2 locally.	DB-1183	RR	LIC (6, 8, & 12
A-09	AF~~FV~~6452 HIS6403 HIS6404 AF3871-ISOL AF608 AF3870-ISOL	Aux FP 1-1 Solenoid Control Valve SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Initiation AFP2 to SG2 & 1 Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Trip or control AFPT-2 locally. ~~and de-energize FV6452. De-energize AF3870 and manually open~~. Control AFPT-1 using ICS38B from Control Room.	DB-1185	RR	LIC (6, 8, & 12
A-09	P56-2 CS1531	Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1227	DID	
A-09	P56-2 CS1531	Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1268	DID	
A-09	MU19 MU66A MU66D CC4200 CC4300	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-2-2 Seal Inlet Reactor Coolant Pump 1-2 Pump Seal Cooler Reactor Coolant Pump 1-2- Pump Seal Cooler	Within 8 hours: Manually align seal injection flow to all RCP seals. OR Manually align CCW flow to all RCP thermal barriers. OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1381	~~RR~~ DID	LIC (6)
A-09	MU1A ~~MU2B~~ MU3 MU11 WC1743 CC1411B	Reactor Coolant Letdown Cooler 1 Inlet ~~Letdown Coolers Inlet Isolation~~ Letdown Stop Three-Way Letdown to Radwaste Drain CWRT 1 Inlet Flow Control CCW to Containment Isolation	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1392	DID	LIC (8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
A-09	MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1531	~~RR~~ DID	LIC (6 & 8)
~~A-09~~	~~RC2~~ ~~RC10~~	~~Pressurizer Spray Valve~~ ~~Pressurizer Spray Motor Isolation~~	~~Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.~~	~~DB-1656~~	~~DID~~	LIC (5)
A-09	PISP12B PISP12B2 PTSP12B1 PTSP12B2	Steam Generator 1 Pressure Indicator Pressure Indicator for Steam Gen Steam Generator 1 Outlet Steam Pressure Steam Generator 1 Outlet Steam Pressure	Utilize PISP12B1 indication at the ASP.	DB-1707	DID	
A-09	C5762D C5763D OR C5755D C5756D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel OR SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	~~DB-1711~~ DB-1710	~~RR~~ DID	LIC (6)
~~A-09~~	~~LISP9B1~~	~~SG 1 Startup Range Level~~	~~Utilize LISP9B3 indication at the ASP~~	~~DB-1750~~	~~DID~~	LIC (5)
AB-01	AC111-P HP2C HP2D	High Pressure Injection Pump 1-1 Breaker High Pressure Injection Line 1-1 Isolation High Pressure Injection Line 1-2 Isolation	Remove control power fuses and trip breaker at the switchgear.	DB-1013	DID	LIC (8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
AB-01	AD105-OCT	Make-Up Pump 1-2 Breaker	Remove control power fuses and open AD105 breaker. Re-energize D1_EA bus.	DB-1014	~~RR~~ DID	LIC (8 & 10)
AB-01	MU2A MU2B	Letdown Coolers Outlet Isolation Letdown Coolers Inlet Isolation	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1119	DID	
AB-01	AC105-P MU6419-P MU6421-P	Make-Up Pump 1-1 Breaker Make-Up Alternate Injection Throttle Make-Up to Reactor Coolant System Train	Remove control power fuses and trip AC105 breaker at the switchgear.	DB-1476	DID	LIC (8)
AB-01	MS106A-ISOL	Main Steam Line 2 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-1534	~~RR~~ DID	LIC (6 & 8)
AB-01	C5762D C5763D ~~PTRC2B3~~ ~~PTRC2B4~~	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel ~~RCS Pressure~~ ~~RCS Pressure~~	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1713	~~RR~~/DID	LIC (6 & 8)
AB-02	MU2A MU2B CC1407A CC1411A	Letdown Coolers Outlet Isolation Letdown Coolers Inlet Isolation CCW From Containment Isolation CCW to Containment Isolation	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1119	DID	LIC (8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
AB-02	HA03 HB03	RCP 1-1-1 RCP 1-1-2	~~Operate~~ Trip RCP 1-1-1 and 1-1-2 breakers at switchgear.	DB-1120	RR	LIC (9)
AB-03	MU19 MU66A MU66B MU66C MU66D CC4100 CC4400	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler	Within 8 hours: Manually align seal injection flow to all RCP seals. OR Manually align CCW flow to all RCP thermal barriers. OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1127	~~RR~~ DID	LIC (10)
AB-03	MU38 MU59A MU59B MU59C MU59D	RCP Seal Return Isolation RCP 2-1 Seal Return RCP 2-2 Seal Return RCP 1-1 Seal Return RCP 1-2 Seal Return	Isolate instrument air to MU38 and vent to fail closed.	DB-1128	DID	
AB-03	MS101-1	Main Steam Line 1 MSIV Bypass (Train 1)	~~De-energize SFRCS to prevent MSIV bypass valves from spuriously opening.~~ Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1234	DID	LIC (6)
AB-03	MU2A MU2B MU3 MU4 MU11	Letdown Coolers Outlet Isolation Letdown Coolers Inlet Isolation Letdown Stop Letdown Block Orifice Isolation Three-Way Letdown to Radwaste Drain	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1466	DID	
AB-04	AD105-OCT	Make-Up Pump 1-2 Breaker	Remove control power fuses and open AD105 breaker. Re-energize D1_EA bus.	DB-1305	DID	LIC (8)
AB-04	MU2A MU2B MU3 MU11	Letdown Coolers Outlet Isolation Letdown Coolers Inlet Isolation Letdown Stop Three-Way Letdown to Radwaste Drain	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1467	DID	
AB-04	MS106A-ISOL	Main Steam Line 2 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-1534	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
AB-04	~~C5755D~~C5762D ~~C5756D~~C5763D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1714	~~RR~~ DID	LIC (6 & 8)
AB-04	AC105-P AD105-P MU6408 MU6409 MU66A MU66B MU66C MU66D	Make-Up Pump 1-1 Breaker Make-Up Pump 1-2 Breaker Make-Up Pump 2 to Seal Injection Cross-X Make-Up Pump 1 to Seal Injection Cross-X RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet	Remove control power fuses and trip AC105 breaker and AD105 breakers at the switchgear. ~~Remove control power fuses and trip AD105 breaker at the switchgear.~~	DB-2004	DID	LIC (8)
AB-05	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1217	DID	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
AB-05	MS101-1	Main Steam Line 1 MSIV Bypass (Train 1)	~~De-energize SFRCS to prevent MSIV bypass valves from spuriously opening.~~ Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1235	DID	LIC (6)
AB-05	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1258	DID	
AB-05	HA03 HB03	RCP 1-1-1 RCP 1-1-2	Trip RCP 1-1-1 and 1-1-2 breakers at the switchgear.	DB-1290	RR	
AB-05	C71-1 HV5305A HV5305B	Low Voltage Switchgear Room 1 Vent Fan Low Voltage Switchgear Room 429 Vent Damper Low Voltage Switchgear Room 429 Vent Damper	Provide temporary ventilation to prevent loss of E1 bus.	DB-1342	DID	
AB-05	MU19 MU66A MU66B MU66C MU66D CC1407A CC1411A CC4100 CC4400	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet CCW From Containment Isolation CCW to Containment Isolation Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler	Trip RCPs Within 8 hours: Manually align seal injection flow to all RCP seals. OR Manually align CCW flow to all RCP thermal barriers. OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1383	RR/DID	LIC (7)
AB-05	~~MU1A~~ CC1407A ~~CC1409~~ ~~MU1B~~ ~~CC1410~~ CC1411A MU2A MU2B MU3	~~Reactor Coolant Letdown Cooler 1 Inlet~~ CCW From Containment Isolation ~~Letdown Cooler 1 CCW Inlet~~ ~~Reactor Coolant Letdown Cooler 2 Inlet~~ ~~Letdown Cooler 2 CCW Inlet~~ CCW to Containment Isolation Letdown Coolers Outlet Isolation Letdown Coolers Inlet Isolation Letdown Stop	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1468	DID	LIC (8)
AB-05	MS106A-ISOL	Main Steam Line 2 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-1534	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
~~AB-05~~	~~RC2~~ ~~RC10~~	~~Pressurizer Spray Valve~~ ~~Pressurizer Spray Motor Isolation~~	~~Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.~~	~~DB-1659~~	~~DID~~	LIC (5)
~~AB-05~~	~~MU1A~~ ~~CC1409~~ ~~MU1B~~ ~~CC1410~~ ~~MU2A~~ ~~MU2B~~ ~~MU3~~	~~Reactor Coolant Letdown Cooler 1 Inlet~~ ~~Letdown Cooler 1 CCW Inlet~~ ~~Reactor Coolant Letdown Cooler 2 Inlet~~ ~~Letdown Cooler 2 CCW Inlet~~ ~~Letdown Coolers Outlet Isolation~~ ~~Letdown Coolers Outlet Isolation~~ ~~Letdown Stop~~	~~Isolate instrument air to MU3 and vent to fail closed.~~	~~DB-1682~~	~~DID~~	LIC (5)
AB-05	C5762D C5763D OR C5755D C5756D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel OR SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Trip RCPs. Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Cooling,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment~~. When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1711	RR/DID	LIC (6)
AB-05	MU38 MU59A MU59B MU59C MU59D	RCP Seal Return Isolation RCP 2-1 Seal Return RCP 2-2 Seal Return RCP 1-1 Seal Return RCP 1-2 Seal Return	Isolate instrument air to MU38 and vent to fail closed.	DB-1873	DID	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
AC-01	MS107A-ISOL	Main Steam Line 1 to AFPT 2 Isolation	Locally trip or control AFPT-2 otherwise de-energize MS107A and manually close.	DB-1931	RR	LIC (6, 8)
BF-01	~~AC107~~ ~~AD107~~ ~~AC109~~ SW1399 P3-1 P3-2 P3-3	~~SW Pump 1-1 Breaker~~ ~~SW Pump 1-2 Breaker~~ ~~SW Pump 1-3 Breaker~~ TPCW Heat Exchanger Inlet Header Isolation SW Pump 1-1 SW Pump 1-2 SW Pump 1-3	Manually close SW45. Place Backup Service Water Pump 1-1 (P180) in-service.	DB-0914	RR	LIC (8)
BF-01	AC107-OCT	SW PMP 1-1 BREAKER	Remove control power fuses and trip AC107 at switchgear. Re-energize C1 bus. Place Backup Service Water Pump 1-1 (P180) in-service.	DB-0915	DID	LIC (8)
BF-01	MS107A-ISOL	Main Steam Line 1 to AFPT 2 Isolation	Trip or control AFPT-2 locally.	DB-0916	~~RR~~ DID	LIC (6 & 8)
BF-01	MS107-ISOL	Main Steam Line 2 to AFPT 2 Isolation	Trip or control AFPT-2 locally.	DB-0925	~~DID~~ RR	LIC (6 & 8)
BF-01	AC202-OCT	CLNG TWR MU Pump 1-1 Breaker	Remove control power fuses and trip AC202 breaker at the switchgear. Re-energize C2 bus. Place Backup Service Water Pump 1-1 (P180) in service.	DB-1289	DID	LIC (8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
BF-01	C5755D C5756D	SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1710	~~RR~~ DID	LIC (6)
BF-01	AF3870-ISOL AF3872-ISOL	Auxiliary Feed Pump 1 to SG 1-1 Auxiliary Feed Pump 2 to SG 1-2	Trip or control AFPT-1 locally.	DB-1879	RR	LIC (6 & 8)
BF-01	MS106-ISOL MS106A-ISOL OR MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation OR Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-2003	RR	LIC (6 & 8)
BG-01	MS107A-ISOL	Main Steam Line 1 to AFPT 2 Isolation	Trip or control AFPT-2 locally.	DB-0916	~~RR~~ DID	LIC (6 & 8)
BG-01	SW1399	TPCW Heat Exchanger Inlet Header Isolation	Manually close SW54. Manually close SW55. Manually close SW56.	DB-0924	DID	
BG-01	MS107-ISOL	Main Steam Line 2 to AFPT 2 Isolation	Trip or control AFPT-2 locally.	DB-0925	~~DID~~ RR	LIC (6, 7, & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
BG-01	C5755D C5756D	SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1716	~~RR~~ DID	LIC (6)
BG-01	AF3870-ISOL AF3872-ISOL	Auxiliary Feed Pump 1 to SG 1-1 Auxiliary Feed Pump 2 to SG 1-2	Trip or control AFPT-1 locally.	DB-1879	RR	LIC (6 & 8)
BG-01	MS106-ISOL MS106A-ISOL OR MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation OR Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-2003	RR	LIC (6 & 8)
CC-01	AC111-P HP2C HP2D	High Pressure Injection Pump 1-1 Breaker High Pressure Injection Line 1-1 Isolation High Pressure Injection Line 1-2 Isolation	Remove control power fuses and trip AC111 breaker at the switchgear.	DB-1013	DID	LIC (8)
CC-01	MS106-ISOL MS106A-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1164	RR	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
CC-01	AF3870-ISOL ~~FV~~AF6452	Auxiliary Feed Pump 1 to SG 1-1 AUX FP 1-1 Solenoid Control Valve	Trip or control AFPT-1 locally.	DB-1184	RR	LIC (6, 8, & 12
CC-01	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1217	DID	
CC-01	MS101-1	Main Steam Line 1 MSIV Bypass (Train 1)	~~De-energize SFRCS to prevent MSIV bypass valves from spuriously opening.~~ Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1236	DID	LIC (6)
CC-01	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1258	DID	
CC-01	MU38 MU59A MU59B MU59C MU59D	RCP Seal Return Isolation RCP 2-1 Seal Return RCP 2-2 Seal Return RCP 1-1 Seal Return RCP 1-2 Seal Return	Isolate instrument air to MU38 and vent to fail closed.	DB-1296	DID	
CC-01	MU19 MU66A MU66B MU66C MU66D CC4100 CC4200 CC4300 CC4400	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 1-2 Pump Seal Cooler Reactor Coolant Pump 2-1 Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler	Within 8 hours: Manually align seal injection flow to all RCP seals. OR Manually align CCW flow to all RCP thermal barriers. OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1384	~~RR~~ DID	LIC (10)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
CC-01	~~MU1A~~ ~~CC1409~~ ~~MU1B~~ ~~CC1410~~ MU2A MU2B MU3 MU4 MU10B MU11 WC1453 WC1747 WC3560 CC1407A CC1411A	~~Reactor Coolant Letdown Cooler 1 Inlet~~ ~~Letdown Cooler 1 CCW Inlet~~ ~~Reactor Coolant Letdown Cooler 2 Inlet~~ ~~Letdown Cooler 2 CCW Inlet~~ Letdown Coolers Outlet Isolation Letdown Coolers Outlet Isolation Letdown Stop Letdown Block Orifice Isolation Mixed Bed 2 Letdown Inlet Three-Way Letdown To Radwaste Drain Primary Demineralizer Inlet Temperature CWRT 2 Inlet Flow Control Degasifier Bypass Flow Control CCW from Containment Isolation CCW to Containment Isolation	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1469	DID	LIC (8)
CC-01	AC105-P MU6419-P MU6421-P MU6409 MU66A MU66B MU66C MU66D	Make-Up Pump 1-1 Breaker Make-Up Alternate Injection Throttle Make-Up to Reactor Coolant System Train Make-Up Pump 1 to Seal Injection Cross-X RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet	Remove control power fuses and trip AC105 breaker at the switchgear.	DB-1477	DID	LIC (8)
CC-01	DC-PZR-HTR-ESS-1	PZR-HTR-ESS-1	~~Operate~~ Trip pressurizer heaters ~~power supply~~ breakers at switchgear.	DB-1484	DID	LIC (6)
CC-01	MS106A-ISOL ICS38B	Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1538	~~RR~~ DID	LIC (6 & 8)
CC-01	MS106-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1539	~~DID~~ RR	LIC (6 & 8)
~~CC-01~~	~~RC2~~ ~~RC10~~	~~Pressurizer Spray Valve~~ ~~Pressurizer Spray Motor Isolation~~	~~Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.~~	~~DB-1675~~	~~DID~~	LIC (5)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
~~CC-01~~	~~MU1A~~ ~~CC1409~~ ~~MU1B~~ ~~CC1410~~ ~~MU2A~~ ~~MU2B~~ ~~MU3~~	~~Reactor Coolant Letdown Cooler 1 Inlet~~ ~~Letdown Cooler 1 CCW Inlet~~ ~~Reactor Coolant Letdown Cooler 2 Inlet~~ ~~Letdown Cooler 2 CCW Inlet~~ ~~Letdown Coolers Outlet Isolation~~ ~~Letdown Coolers Outlet Isolation~~ ~~Letdown Stop~~	~~Isolate instrument air to MU3 and vent to fail closed.~~	~~DB-1683~~	~~DID~~	LIC (5)
~~CC-01~~	~~DC-TURB-TRIP-1~~ ~~DC-TURB-TRIP-2~~	~~DC-TRUB-TRIP-1~~ ~~DC-TRUB-TRIP-2~~	~~Manually trip the turbine using the manual trip pushbutton at the front standard.~~	~~DB-1923~~	~~DID~~	SSA RAI 09.01
CC-01	PT2003 ~~Pwr Supply~~ Y1 ~~for channel 1~~	Containment Pressure Transmitter Power supply Y1 for Channel 1	Remove control power fuses and stop the containment spray pumps at switchgear. Locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment. Take local control of credited train components at switchgear or locally Remove SFAS power to valves at D1P to allow restoration of required components.	DB-1924	~~RR/~~DID	LIC (6)
CC-01	~~FV~~AF6452 AF3869-ISOL	Aux FP 1-1 Solenoid Control Valve Auxiliary Feed Pump 1 to Steam Generator 1-2	Trip or control AFPT-1 locally.	DB-1925	RR	LIC (6, 8, & 12
D-01	HA01 HA03 HB01 H03	RCP 1-2-2 RCP 1-1-1 RCP 1-2-1 RCP 1-1-2	Trip RCP 1-2-2, 1-1-1, 1-2-1 and 1-1-2 breakers at switchgear.	DB-1286	RR	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
D-01	MU1A MU2A MU2B MU3 MU4 MU10A MU11 WC1743 CC1407A CC1411A ~~CC1411B~~	Reactor Coolant Letdown Cooler 1 Inlet Letdown Coolers Outlet Isolation Letdown Coolers Inlet Isolation Letdown Stop Letdown Block Orifice Isolation Mixed Bed 1 Letdown Inlet Three-Way Letdown to Radwaste Drain CWRT 1 Inlet Flow Control CCW from Containment Isolation CCW to Containment Isolation ~~CCW to Containment Isolation~~	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1470	DID	LIC (8)
D-01	CC4100 CC4200 CC4300 CC4400 CC1407A CC1411A	Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 2-1 Pump Seal Cooler Reactor Coolant Pump 1-2- Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler CCW from Containment Isolation CCW to Containment Isolation	Trip RCPs Within 8 hours: Manually align seal injection flow to all RCP seals. OR Manually align CCW flow to all RCP thermal barriers. OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1639	RR/DID	LIC (7)
D-01	C1-1 C1-2	Containment Air Cooler Fan 1 Containment Air Cooler Fan 2	Return one of the Containment Air Coolers to service as soon as possible.	DB-1887	DID	
DD-01	MS106-ISOL MS106A-ISOL MS5889A ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Steam Admission to AFPT 1 AFPT 1 Governor	Control AFPT-1 using ICS38B from ASP.	DB-1160	PCS	LIC (8)
DD-01	MS106-ISOL MS106A-ISOL MS5889A ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Steam Admission to AFPT 1 AFPT 1 Governor	~~De-energize MS106 and manually open.~~ Trip or control AFPT-2 locally. De-energize MS106A and manually close.	DB-1160	RR	LIC (8)
DD-01	MS107-ISOL MS107A-ISOL MS5889B ICS38A	Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation Steam Admission to AFPT 2 AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1165	~~DID~~ RR	LIC (6, 7, & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DD-01	MS106 MS106A MS5889A ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Steam Admission to AFPT 1 AFPT 1 Governor	Control AFPT-1 using ICS38B from ASP.	DB-1179	PCS	
DD-01	MS106 MS106A MS5889A ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Steam Admission to AFPT 1 AFPT 1 Governor	De-energize MS106 and manually open. Open and vent MS5889A. ~~Trip AFPT-2 locally.~~	DB-1179	RR/DID	LIC (6)
DD-01	AF~~F~~V6452 HIS6403 HIS6404 AF3871-ISOL AF608 AF3870-ISOL	Aux FP 1-1 Solenoid Control Valve SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Initiation AFP2 to SG2 & 1 Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Control AFPT-1 using ICS38B from ASP.	DB-1185	PCS	LIC (6, 8, & 12
DD-01	AF~~F~~V6452 HIS6403 HIS6404 AF3871-ISOL AF608 AF3870-ISOL	Aux FP 1-1 Solenoid Control Valve SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Initiation AFP2 to SG2 & 1 Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Trip AFPT-2 locally. ~~De-energize FV6452~~ ~~De-energize AF3870 and manually open.~~	DB-1185	RR	LIC (8 & 12)
DD-01	~~FV~~AF6452 AF3870 AF608 HIS6403 HIS6404	Auxiliary Feed Pump 1-1 Discharge Control Solenoid Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Init. AFP2 to SG2 & 1	~~Trip AFPT-2 locally and~~ De-energize ~~FV~~AF6452. De-energize AF3870 and manually open. De-energize AF608 and manually open.	DB-1199	RR/DID	LIC (7 & 12)
DD-01	~~FV~~AF6452 AF3870 AF608 HIS6403 HIS6404	Auxiliary Feed Pump 1-1 Discharge Control Solenoid Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Init. AFP2 to SG2 & 1	Control AFPT-1 using ICS38B from ~~Control Room~~ ASP.	DB-1199	PCS	LIC (7)
DD-01	CC1467 CC1495	CCW from Decay Heat Cooler 1 Solenoid CCW to Auxiliary Building Non-essentials	Close CC42.	DB-1207	DID	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DD-01	P56-1 CS1530 P56-2 CS1531	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump(s). Disable auto start of any non-running containment spray pump.	DB-1218	DID	LIC (9)
DD-01	C1_41 AC101 AC110 E1	4.16KV Essential Switchgear Bus "C1" DG 1-1 Breaker Bus Tie C2 Breaker E1 480V Bus	Procedurally driven actions being taken away from the primary control station to establish power.	DB-1229	~~DID~~ RR	LIC (7)
DD-01	MS100 MS101 MS100-1 MS101-1	Main Steam Line 2 Isolation (Train 2) Main Steam Line 1 Isolation (Train 1) Main Steam Line 2 MSIV Bypass (Train 2) Main Steam Line 1 MSIV Bypass (Train 1)	~~De-energize SFRCS to close MSIVs and prevent bypass valves from spuriously opening.~~ De-energize solenoids to close MSIVs. Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1237	DID	LIC (6)
DD-01	PS3687A PS3687C PS3689B PS3689D PS3687E PS3687G PS3689F PS3689H	Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS	Verify AFPT-2 tripped, de-energize ~~FV~~AF6452, and manually align AFPT-1 to feed the credited SG.	DB-1242	DID	LIC (12)
DD-01	ACB34560 ACB34561	Generator Output Breaker Generator Output Breaker	Manually trip the ~~Locally open the main~~ generator output breakers. Identify and respond to adverse plant conditions associated with not automatically tripping the main generator.	DB-1246	DID	LIC (6)
DD-01	P56-1 CS1530 P56-2 CS1531	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump(s). Disable auto start of any non-running containment spray pump.	DB-1260	DID	LIC (9)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DD-01	C1-1 SW1356 SW1366	Containment Air Cooler Fan 1 Ctmt Air Cooler 1 Outlet Temp Control Containment Air Cooler 1 Inlet Isolation	Place Containment Air Cooler 1 in service.	DB-1293	DID	
DD-01	K5-1	EDG 1	Manually start and load EDG.	DB-1303	~~DID~~ RR	LIC (6)
DD-01	P3-1 P43-1 AC107 AC113	SW Pump 1-1 CCW Pump 1-1 SW PMP 1-1 Breaker CC PMP 1-1 Breaker	Start or verify CC pump in service. Restore service water flow to the CCW coolers.	DB-1306	RR	LIC (6)
DD-01	HV5305A HV5305B	Low Voltage Switchgear Room 429 Vent Damper Low Voltage Switchgear Room 429 Vent Damper	Provide temporary ventilation to prevent loss of E1 bus.	DB-1343	DID	
DD-01	MU19 MU66A MU66B MU66C MU66D CC4100 CC4200 CC4300 CC4400 CC5095 CC5096 CC5097 CC5098 CC1407A CC1407B CC1411A CC1411B	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 1-2 Pump Seal Cooler Reactor Coolant Pump 2-1 Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler CCW Line 1 Discharge Isolation CCW Line 2 Discharge Isolation CCW Line 1 Return Isolation CCW Line 2 Return Isolation CCW from Containment Isolation CCW from Containment Isolation CCW to Containment Isolation CCW to Containment Isolation	Trip RCPs. Within 8 hours: Manually align seal injection flow to all RCP seals, OR Manually align CCW flow to all RCP thermal barriers, OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1385	RR/DID	LIC (7)
DD-01	RC11 RC2A	PORV Block RC11 Pressurizer Power Relief	Place disconnect switch in LOCAL. Close RC11 at switchgear.	DB-1393	~~DID~~ RR	LIC (7)
DD-01	IIMU24A MU6420-P MU6419 MU6421	RCS Makeup Pump 1 Amps (ammeter) Normal Make-Up Flow Controller Bypass Make-up Alternate Injection Throttle Make-up to reactor Coolant Train	Manually close MU6419 OR MU6421. Manually close HP32. Monitor and maintain pressurizer level by manual control of MU6420.	DB-1399	DID	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DD-01	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1404	~~DID~~ RR	LIC (11 & 8)
DD-01	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1406	~~DID~~ RR	LIC (11 & 8)
DD-01	AC111-P AD111-P HP2A HP2B HP2C HP2D	High Pressure Injection Pump 1-1 Breaker High Pressure Injection Pump 1-2 Breaker High Pressure Injection Line 1-1 Isolation High Pressure Injection Line 1-2 Isolation High Pressure Injection Line 1-1 Isolation High Pressure Injection Line 1-2 Isolation	Remove control power fuses and trip AC111 breaker at the switchgear and de-energize D1 bus. ~~Remove control power fuses and trip AD111 breaker at the switchgear.~~	DB-1460	DID	LIC (6 & 8)
DD-01	MU1A CC1409 MU1B CC1410 MU2A MU2B MU3 MU4 MU11	Reactor Coolant Letdown Cooler 1 Inlet Letdown Cooler 1 CCW Inlet Reactor Coolant Letdown Cooler 2 Inlet Letdown Cooler 2 CCW Inlet Reactor Coolant Letdown Cooler 1 Inlet Letdown Coolers Outlet Isolation Letdown Stop Letdown Block Orifice Isolation Three-Way Letdown to Radwaste Drain	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1471	DID	
DD-01	MU6409 MU6419 MU6420-P MU6421 MU6422 AC105-P AD105-P MU66A MU66B MU66C MU66D MU6408	Make-up Pump 1 to Seal Injection Cross Make-up Alternate Injection Throttle Normal Make-up Flow Controller Bypass Make-up to reactor Coolant Train Normal Make-up to Reactor Coolant System Make Up Pump 1-1 Breaker Makeup Pump 1-2 Breaker RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet Make-Up Pump 2 to Seal Injection Cross-X	Remove control power fuses and trip AC105 breaker at the switchgear and de-energize D1 bus. ~~Remove control power fuses and trip AD105 breaker at the switchgear.~~	DB-1478	DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DD-01	DC-PZR-HTR-1 DC-PZR-HTR-2 DC-PZR-HTR-3 DC-PZR-HTR-4 DC-PZR-HTR-ESS-1 DC-PZR-HTR-ESS-2	PZR-HTR-1 PZR-HTR-2 PZR-HTR-3 PZR-HTR-4 PZR-HTR-ESS-1 PZR-HTR-ESS-2	~~Operate~~ De-energize Train 2 heaters, AND Trip Train 1 pressurizer heaters from ASP or power supply breakers at switchgear.	DB-1486	DID	LIC (6)
DD-01	SW1399	TPCW Heat Exchanger Inlet Header Isolation	Manually close SW54. Manually close SW55. Manually close SW56.	DB-1491	DID	
DD-01	ICS11A-P ICS11B-P	MS Line 2 Atmospheric Vent MS Line 1 Atmospheric Vent	~~Close the valve that spuriously opens with the reach rod for ICS11A or ICS11B.~~ Fail AVV closed by closing IA450 which isolates operating air to the AVVs and vent to fail AVV valves closed. OR Close MS875 and MS876.	DB-1493	~~DID~~ RR	LIC (6 & 8)
DD-01	C5662D C5663D C5755D C5756D PT2000 PT2001 PT2002 PT2003 PTRC2A3 PTRC2A4 PTRC2B3 PTRC2B4	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel Containment Pressure Transmitter Containment Pressure Transmitter Containment Pressure Transmitter Containment Pressure Transmitter RCS Pressure RCS Pressure RCS Pressure RCS Pressure	Trip RCPs. Remove control power fuses and stop the containment spray pumps at switchgear. Locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment. Take local control of credited train components at switchgear or locally ~~Remove SFAS power to valves at D1P~~ to allow restoration of required components.	DB-1496	RR/DID	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DD-01	ICS38B LISP9A3 LISP9B3 PI6365B1 PISP12A1 PISP12B1 SW1382 FI6425 LIRC14-1	AFPT 1 Governor Steam Generator 1-2 Start-up Level Ind. Steam Generator 1-1 Start-up Level Ind. RC Extended Range Pressure Indicator Steam Generator 1-2 Outlet Steam Pressure Steam Generator 1-1 Outlet Steam Pressure Service Water Supply to Auxiliary Feed Makeup Flow Indication Reactor Coolant Pressurizer Channel 1 Level	Procedurally driven actions being taken away from the primary control station to maintain plant operations.	DB-1526	RR	
DD-01	MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1540	~~RR~~ DID	LIC (6 & 8)
DD-01	MS106A-ISOL MS107-ISOL ICS38A ICS38B	Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation AFPT 2 Governor AFPT 1 Governor	Trip or control AFPT-2 locally. De-energize MS106A and manually close.	DB-1573	RR/DID	LIC (6 & 8)
DD-01	P37-1 P371B P371D MU6405 MU6407 MU6409 MU6420-P MU6422	Make-up Pump 1-1 Main Lube Oil Pump for P37-1 Auxiliary Gear Lube Oil Pump For P37-1 Makeup Pump 1 Recirculation Isol-3 WAY Makeup Pump 1 Recirculation Isol Makeup Pump 1 to Seal Injection Cross Normal Make-up Flow Controller Bypass Normal Make-up to Reactor Coolant System	Locally start credited Makeup Pump, locally align credited Makeup Pump auxiliaries. Manually control makeup flow.	DB-1616	DID	LIC (8)
DD-01	MU38 MU59A MU59B MU59C MU59D	RCP Seal Return Isolation RCP 2-1 Seal Return RCP 2-2 Seal Return RCP 1-1 Seal Return RCP 1-2 Seal Return	Isolate instrument air to MU38 and vent to fail closed.	DB-1620	DID	
DD-01	RC2 RC10	Pressurizer Spray Valve Pressurizer Spray Motor Isolation	Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.	DB-1676	DID	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DD-01	MU1A CC1409 MU1B CC1410 MU2A MU2B MU3	Reactor Coolant Letdown Cooler 1 Inlet Letdown Cooler 1 CCW Inlet Reactor Coolant Letdown Cooler 2 Inlet Letdown Cooler 2 CCW Inlet Reactor Coolant Letdown Cooler 1 Inlet Letdown Coolers Outlet Isolation Letdown Stop	Isolate instrument air to MU3 and vent to fail closed.	DB-1684	~~DID~~ RR	LIC (7)
DD-01	HA01 HA03 HB01 HB03	RCP 1-2-2 RCP 1-1-1 RCP 1-2-1 RCP 1-1-2	Trip RCP 1-2-2, 1-1-1, ~~1-2-1 and 1-1-2~~ breakers at switchgear. AND Trip RCPs 1-2-1 and 1-1-2 by de-energizing B Bus by opening HX11B, HX01B and HX02B.	DB-1826	RR	LIC (6)
DD-01	C6708 C6709 C6714 C6715 C21-1 S33-1 SW2927 SV4823A	MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR EMERG SYS Supply Fan CREVS 1 Condensing Unit Control Room Emergency Condenser 1 Temp Control Room Emergency Ventilation System	Provide temporary ventilation for the MCR.	DB-1828	DID	
DD-01	Emergency Trip push button	Emergency Trip push button	Manually trip the turbine using the manual trip pushbutton at the front standard.	DB-1829	DID	
DD-01	NI5874C-1 TERC3A6 TERC3B5 TERC4A2 TERC4B3	Nuclear Instrumentation RC Loop 2 HLG WR Temp Element RC Loop 1 HLG WR Temp Element RCP 2-1 DISCH CLG WR Temp Element RCP 1-2 DISCH CLG NR Temp Element	Locally monitor reactivity and RCS parameters.	DB-1831	DID	
DD-01	ABDC1	Bus Tie Xfmer BD	Trip all B bus supply breakers. At C1 bus, disconnect control room from bus breakers.	DB-1832	~~DID~~ RR	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DD-01	DH2735 DH2736	DH Auxiliary Spray Stop DH Auxiliary Spray Throttle	~~At MCC E11B,~~ Place disconnect switch to LOCAL. ~~and~~ Close DH2735 at MCC E11B. OR De-energize DH2736 and manually close.	DB-1833	DID	LIC (6)
DD-01	AF3869-ISOL AF3872-ISOL AF599 ~~FV~~AF6451	Auxiliary Feed Pump 1 to Steam Generator 1-2 Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	Control AFPT-1 using ~~ICS38A~~ ICS38B from ASP.	DB-2009	PCS	LIC (8 & 12)
DD-01	AF3869-ISOL AF3872-ISOL AF599 ~~FV~~AF6451	Auxiliary Feed Pump 1 to Steam Generator 1-2 Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	Trip or control AFPT-2 locally. Manually close AF599.	DB-2009	RR	LIC (8 & 12)
DF-01	MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1166	RR	LIC (6 & 8)
DF-01	MS106	Main Steam Line 1 to AFPT 1 Isolation	De-energize MS106 and manually open.	DB-1180	DID	
DF-01	AF3872-ISOL AF599 AF~~FV~~6451	Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	Trip or control AFPT-2 locally.	DB-1186	RR	LIC (6, 8, & 12
DF-01	P56-2 CS1531	Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump at switchgear. Disable auto start of non-running containment spray pump.	DB-1227	DID	
DF-01	~~MS100~~ MS100-1	~~Main Steam Line 2 Isolation (Train 2)~~ Main Steam Line 2 MSIV Bypass (Train 2)	~~De-energize SFRCS to close MSIVs and prevent bypass valves from spuriously opening.~~ Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1231	DID	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DF-01	P56-2 CS1531	Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump at switchgear. Disable auto start of non-running containment spray pump.	DB-1268	DID	LIC (6)
DF-01	C21-1	CTRM EMERG SYS Supply Fan	~~Remove control power and start fan at the MCC.~~ Provide temporary ventilation for the MCR.	DB-1300	DID	LIC (6)
DF-01	MU1A MU3 MU11 WC1743 CC1407B CC1411B	Reactor Coolant Letdown Cooler 1 Inlet Letdown Stop Three-Way Letdown To Radwaste Drain CWRT 1 Inlet Flow Control CCW from Containment Isolation CCW to Containment Isolation	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1472	DID	LIC (6)
DF-01	AD105-P MU6420-P MU6422 MU32 MU6408 MU19 MU66A MU66D	Make-Up Pump 1-2 Breaker Normal Make-Up Flow Controller Bypass Normal Make-Up to Reactor Coolant System Make-Up Flow Controller Make-Up Pump 2 to Seal Injection Cross-X Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-2-2 Seal Inlet	Remove control power fuses and trip AD105 at the switchgear.	DB-1479	DID	LIC (6 & 8)
DF-01	DC-PZR-HTR-1 DC-PZR-HTR-2 DC-PZR-HTR-3 DC-PZR-HTR-4 DC-PZR-HTR-ESS-2	PZR-HTR-1 PZR-HTR-2 PZR-HTR-3 PZR-HTR-4 PZR-HTR-ESS-2	~~Operate~~ Trip pressurizer heaters power supply breakers at switchgear.	DB-1487	DID	LIC (9)
DF-01	MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1541	~~RR~~ DID	LIC (6 & 8)
DF-01	MS107-ISOL ICS38A	Main Steam Line 2 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1574	~~DID~~ RR	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DF-01	MU19 MU66A MU66D CC1407B CC1411B	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-2-2 Seal Inlet CCW From Containment Isolation CCW to Containment Isolation	Within 8 hours: Manually align seal injection flow to all RCP seals. OR Manually align CCW flow to all RCP thermal barriers. OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1640	~~RR~~ DID	LIC (10)
DF-01	AF3871-ISOL AF608 AF3870-ISOL	Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Trip or control AFPT-2 locally.	DB-1914	RR	LIC (6 & 8)
~~DF-01~~	~~DC-TURB-TRIP-1~~ ~~DC-TURB-TRIP-2~~	~~DC-TRUB-TRIP-1~~ ~~DC-TRUB-TRIP-2~~	~~Manually trip the turbine using the manual trip pushbutton at the front standard.~~	~~DB-1923~~	~~DID~~	SSA RAI 09.01
DF-01	DC-SFAS-L2-CH2 DC-SFAS-L4-CH4	SFAS Level 2 Channel 2 SFAS Level 2 Channel 4	Remove control power fuses and stop the containment spray pumps at switchgear. Locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment. Take local control of credited train components at switchgear or locally ~~Remove SFAS power to valves at D1P~~ to allow restoration of required components.	DB-1927	~~RR~~ DID	LIC (6)
~~DF-01~~	~~RC2~~ ~~RC10~~	~~Pressurizer Spray Valve~~ ~~Pressurizer Spray Motor Isolation~~	~~Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.~~	~~DB-2026~~	~~DID~~	LIC (5)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
DH-01	ICS11A-P ICS11B-P	MS Line 2 Atmospheric Vent MS Line 1 Atmospheric Vent	~~Close the valve that spuriously opens with the reach rod for ICS11A or ICS11B.~~ Fail AVV closed by closing IA450 which isolates operating air to the AVVs and vent to fail AVV valves closed.	DB-1130	DID	LIC (6 & 8)
DH-01	MS106 MS107	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation	De-energize and manually align credited steam supply valves to credited AFPT.	DB-1176	DID	
DH-01	MS100 MS101 MS100-1 MS101-1	Main Steam Line 2 Isolation (Train 2) Main Steam Line 1 Isolation (Train 1) Main Steam Line 2 MSIV Bypass (Train 2) Main Steam Line 1 MSIV Bypass (Train 1)	~~De-energize SFRCS to close MSIVs and prevent bypass valves from spuriously opening.~~ De-energize solenoids to close MSIVs. Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1232	DID	LIC (6)
DH-01	MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1541	~~RR~~ DID	LIC (6 & 8)
DH-01	MS106-ISOL MS107-ISOL MS107A-ISOL	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation	Trip or control AFPT-2 locally.	DB-1564	RR	LIC (7 & 8)
E-01	MS106-ISOL MS106A-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	De-energize MS106 and manually close. De-energize MS106A and manually close.	DB-1167	~~RR~~ DID	LIC (8 & 10)
E-01	AF3870-ISOL AF608 AFF~~V~~6452	Auxiliary Feed Pump 1 to SG 1-1 Auxiliary Feedwater to Steam Generator AUX FP 1-1 Solenoid Control Valve	De-energize MS106 and manually close. De-energize MS106A and manually close.	DB-1187	~~RR~~ DID	LIC (8, 10, & 12)
E-01	MS106A-ISOL ICS38B	Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	De-energize MS106A and manually close.	DB-1538	~~RR~~ DID	LIC (8 & 10)
E-01	MS106-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation AFPT 1 Governor	De-energize MS106 and manually close.	DB-1539	DID	LIC (8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
E-01	C5762D C5763D ~~PTRC2B3~~ ~~PTRC2B4~~	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel ~~RCS Pressure~~ ~~RCS Pressure~~	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Cooling,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1717	~~RR~~ DID	LIC (6)
E-01	~~FV~~AF6452 AF3869-ISOL	Aux FP 1-1 Solenoid Control Valve Auxiliary Feed Pump 1 to Steam Generator 1-2	De-energize MS106 and manually close. De-energize MS106A and manually close.	DB-1925	~~RR~~ DID	LIC (8, 10, & 12)
EE-01	P56-1 CS1530 P56-2 CS1531	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump(s). Disable auto start of any non-running containment spray pump.	DB-1218	DID	LIC (9)
EE-01	MS100 MS101 MS100-1	Main Steam Line 2 Isolation (Train 2) Main Steam Line 1 Isolation (Train 1) Main Steam Line 2 MSIV Bypass (Train 2)	~~De-energize SFRCS to close MSIVs and prevent bypass valves from spuriously opening.~~ De-energize solenoids to close MSIVs. Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1233	DID	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
EE-01	PS3687A PS3687C PS3689B PS3689D PS3687E PS3687G PS3689F PS3689H	Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS	Trip or control AFPT-1 locally. Trip or control AFPT-2 locally. Manually align MDFP to feed the credited ~~S/G~~steam generator (aligned from control room).	DB-1243	~~RR~~DID	LIC (6)
EE-01	P56-1 CS1530 P56-2 CS1531	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump(s). Disable auto start of any non-running containment spray pump.	DB-1260	DID	LIC (9)
EE-01	CC5095 CC5097 CC1407B CC1411B CC1411A	CCW Line 1 Discharge Isolation CCW Line 1 Return Isolation CCW from Containment Isolation CCW to Containment Isolation CCW to Containment Isolation	Within 8 hours: Manually align seal injection flow to all RCP seals. OR Manually align CCW flow to all RCP thermal barriers. OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1411	~~RR~~ DID	LIC (10)
EE-01	ICS11A-P ICS11B-P	MS Line 2 Atmospheric Vent MS Line 1 Atmospheric Vent	~~Close the valve that spuriously opens with the reach rod for ICS11A or ICS11B.~~ Fail AVV closed by closing IA450 which isolates operating air to the AVVs and vent to fail AVV valves closed. OR Close MS875 and MS876.	DB-1494	~~DID~~ RR	LIC (6, 7, & 8)
EE-01	MS107A-ISOL MS106-ISOL	Main Steam Line 1 to AFPT 2 Isolation Main Steam Line 1 to AFPT 1 Isolation	Trip or control AFPT-1 locally. Trip or control AFPT-2 locally. Manually align MDFP to feed the credited ~~S/G~~steam generator (aligned from control room).	DB-1543	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
EE-01	MS106A-ISOL MS107-ISOL	Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation	Trip or control AFPT-1 locally. Trip or control AFPT-2 locally. Manually align MDFP to feed the credited ~~S/G~~SG. (Aligned from control room).	DB-1576	~~DID~~ RR	LIC (6, 7, & 8)
EE-01	C133 HV5314 FD1062	Low Voltage Switchgear Room 2 Vent Fan Low Voltage Switchgear 2 Ventilation Fan 2 Discharge Damper Fire Damper	Provide temporary ventilation to prevent loss of F1 bus.	DB-1609	DID	
~~EE-01~~	~~RC2~~ ~~RC10~~	~~Pressurizer Spray Valve~~ ~~Pressurizer Spray Motor Isolation~~	~~Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.~~	~~DB-1656~~	~~DID~~	LIC (6)
EE-01	PT2001 PT2002	Containment Pressure Transmitter Containment Pressure Transmitter	Remove control power fuses and stop the containment spray pumps at switchgear. Locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment. Take local control of credited train components at switchgear or locally ~~Remove SFAS power to valves at D1P~~ to allow restoration of required components.	DB-1871	~~RR~~ DID	LIC (6)
EE-01	MS106-ISOL MS106A-ISOL MS107-ISOL MS107A-ISOL	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation	Trip or control AFPT-1 locally. Trip or control AFPT-2 locally. Manually align MDFP to feed the credited ~~S/G~~ steam generator (aligned from control room).	DB-1872	~~RR~~ DID	LIC (6 & 10)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
EE-01	MS106-ISOL MS106A-ISOL MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally. Trip or control AFPT-2 locally. Manually align MDFP to feed the credited ~~S/G~~ SG. (Aligned from control room).	DB-2006	RR	LIC (6, 8, &10)
EE-01	MS106-ISOL MS106A-ISOL MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-1 locally. Trip or control AFPT-2 locally. Manually align MDFP to feed the credited SG. (Aligned from control room).	DB-2007	RR	LIC (6, 8, & 10)
F-01	MS107-ISOL MS107A-ISOL MS5889B ICS38A	Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation Steam Admission to AFPT 2 AFPT 2 Governor	De-energize MS107 and manually close. De-energize MS107A and manually close.	DB-0965	~~RR~~ DID	LIC (8 & 10)
F-01	MS107-ISOL ICS38A	Main Steam Line 2 to AFPT 2 Isolation AFPT 2 Governor	De-energize MS107 and manually close.	DB-0994	DID	LIC (8)
F-01	AF3872-ISOL AF599 ~~FV~~AF6451	Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	De-energize MS107 and manually close. De-energize MS107A and manually close.	DB-1188	~~RR~~ DID	LIC (8, 10, & 12
F-01	MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	De-energize MS107A and manually close.	DB-1531	~~RR~~ DID	LIC (8 & 10)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
F-01	C5755D C5756D	SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1718	~~RR~~ DID	LIC (6)
F-01	AF3871-ISOL AF608 AF3870-ISOL	Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	De-energize MS107 and manually close. De-energize MS107A and manually close.	DB-1914	~~RR~~ DID	LIC (8 & 10)
FF-01	MS106-ISOL MS106A-ISOL MS5889A ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Steam Admission to AFPT 1 AFPT 1 Governor	Control AFPT-1 using ICS38B from ASP.	DB-1161	PCS	LIC (8)
FF-01	MS106-ISOL MS106A-ISOL MS5889A ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Steam Admission to AFPT 1 AFPT 1 Governor	~~De-energize MS106 and manually open.~~ Trip or control AFPT-2 locally De-energize MS106A and manually close.	DB-1161	RR	LIC (8)
FF-01	MS107-ISOL MS107A-ISOL MS5889B ICS38A	Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation Steam Admission to AFPT 2 AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1168	RR	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-01	MS106 MS106A MS5889A ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Steam Admission to AFPT 1 AFPT 1 Governor	~~Trip AFPT-2 locally.~~ De-energize and manually open MS106. Open and vent MS5889A.	DB-1181	~~DID~~ RR/DID	LIC (7)
FF-01	MS106 MS106A MS5889A ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Steam Admission to AFPT 1 AFPT 1 Governor	Control AFPT-1 using ICS38B from ASP.	DB-1181	PCS	
FF-01	~~FV~~AF6451 ~~FV~~AF6452 HIS6403 HIS6404 AF3871-ISOL AF608 AF3869-ISOL AF3870-ISOL	Aux FP 1-2 Solenoid Control Valve Aux FP 1-1 Solenoid Control Valve SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Init. AFP2 to SG2 & 1 Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-2 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Control AFPT-1 using ICS38B from ASP.	DB-1189	PCS	LIC (8 & 12)
FF-01	~~FV~~AF6451 ~~FV~~AF6452 HIS6403 HIS6404 AF3871-ISOL AF608 AF3869-ISOL AF3870-ISOL	Aux FP 1-2 Solenoid Control Valve Aux FP 1-1 Solenoid Control Valve SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Init. AFP2 to SG2 & 1 Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-2 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Trip AFPT-2 locally. ~~De-energize FV6452 AF6452.~~ ~~De-energize AF3870 and manually open.~~	DB-1189	RR	LIC (6, 8, & 12 LIC (7 & 12)
FF-01	AF~~F~~V6452 AF3870 AF608 HIS6403 HIS6404	Auxiliary Feed Pump 1-1 Discharge Control Solenoid Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Init. AFP2 to SG2 & 1	~~Trip or control AFPT-2 locally.~~ De-energize ~~FV6452~~ AF6452. De-energize AF3870 and manually open. De-energize AF608 and manually open.	DB-1200	RR/DID	
FF-01	AF~~F~~V6452 AF3870 AF608 HIS6403 HIS6404	Auxiliary Feed Pump 1-1 Discharge Control Solenoid Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 SFRCS Manual Init. AFP1 to SG1 and Isolate SFRCS Manual Init. AFP2 to SG2 & 1	Control AFPT-1 using ICS38B from ASP.	DB-1200	PCS	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-01	CC1467 CC1495	CCW from Decay Heat Cooler 1 Solenoid CCW to Auxiliary Building Non-essentials	Close CC42.	DB-1208	DID	
FF-01	P56-1 CS1530 P56-2 CS1531	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump(s). Disable auto start of any non-running containment spray pump.	DB-1221	DID	LIC (9)
FF-01	C1_41 AC101 AC110 E1	4.16KV Essential Switchgear Bus "C1" DG 1-1 Breaker Bus Tie C2 Breaker E1 480V Bus	Procedurally driven actions being taken away from the primary control station to establish power.	DB-1230	~~DID~~ RR	LIC (7)
FF-01	MS100 MS101 MS100-1 MS101-1	Main Steam Line 2 Isolation (Train 2) Main Steam Line 1 Isolation (Train 1) Main Steam Line 2 MSIV Bypass (Train 2) Main Steam Line 1 MSIV Bypass (Train 1)	~~De-energize SFRCS to close MSIVs and prevent bypass valves from spuriously opening.~~ De-energize solenoids to close MSIVs. Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1238	DID	LIC (6)
FF-01	PS3687A PS3687C PS3689B PS3689D PS3687E PS3687G PS3689F PS3689H	Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 2 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS Main Steam Line 1 Pressure Low to SFRCS	Verify AFPT-2 tripped. De-energize ~~FV6452~~ AF6452. Manually align AFPT-1 to feed the credited ~~S/G~~ SG.	DB-1244	DID	LIC (7 & 12)
FF-01	ACB34560 ACB34561	Generator Output Breaker Generator Output Breaker	Locally open the main generator output breakers. Identify and respond to adverse plant conditions associated with not automatically tripping the main generator.	DB-1247	DID	
FF-01	P56-1 CS1530 P56-2 CS1531	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump(s). Disable auto start of any non-running containment spray pump.	DB-1262	DID	LIC (9)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-01	C1-1 SW1356 SW1366	Containment Air Cooler Fan 1 Ctmt Air Cooler 1 Outlet Temp Control Containment Air Cooler 1 Inlet Isolation	Place Containment Air Cooler 1 in service.	DB-1294	DID	
FF-01	K5-1	EDG 1	Manually start and load EDG.	DB-1304	~~DID~~ RR	LIC (7)
FF-01	P3-1 P43-1 AC107 AC113	SW Pump 1-1 CCW Pump 1-1 SW PMP 1-1 Breaker CC PMP 1-1 Breaker	Start or verify CC pump in service. Restore service water flow to the CCW coolers.	DB-1307	~~DID~~ RR	LIC (7)
FF-01	MU19 MU66A MU66B MU66C MU66D CC4100 CC4200 CC4300 CC4400 CC5095 CC5096 CC5097 CC5098 CC1407A CC1407B CC1411A CC1411B	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 1-2 Pump Seal Cooler Reactor Coolant Pump 2-1 Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler CCW Line 1 Discharge Isolation CCW Line 2 Discharge Isolation CCW Line 1 Return Isolation CCW Line 2 Return Isolation CCW from Containment Isolation CCW from Containment Isolation CCW to Containment Isolation CCW to Containment Isolation	Trip RCPs Within 8 hours: Manually align seal injection flow to all RCP seals, OR Manually align CCW flow to all RCP thermal barriers, OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1386	RR/DID	LIC (7)
FF-01	RC11 RC2A	PORV Block RC11 Pressurizer Power Relief	Place disconnect switch in LOCAL. Close RC11 at switchgear.	DB-1391	~~DID~~ RR	LIC (7)
FF-01	IIMU24A MU6420-P MU6419 MU6421	RCS Makeup Pump 1 Amps (ammeter) Normal Make-Up Flow Controller Bypass Make-up Alternate Injection Throttle Make-up to Reactor Coolant Train	~~Monitor and maintain pressurizer level by manual control of MU6420.~~ Manually close MU6419 OR MU6421. Manually close HP32. Monitor and maintain pressurizer level by manual control of MU6420.	DB-1400	DID	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-01	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1405	~~DID~~ RR	LIC (11)
FF-01	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1407	~~DID~~ RR	LIC (11)
FF-01	MU1A CC1409 MU1B CC1410 MU2A MU2B MU3 MU4 MU11	Reactor Coolant Letdown Cooler 1 Inlet Letdown Cooler 1 CCW Inlet Reactor Coolant Letdown Cooler 2 Inlet Letdown Cooler 2 CCW Inlet Reactor Coolant Letdown Cooler 2 Inlet Letdown Coolers Outlet Isolation Letdown Stop Letdown Block Orifice Isolation Three-Way Letdown to Radwaste Drain	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1419	DID	
FF-01	DC-PZR-HTR-1 DC-PZR-HTR-2 DC-PZR-HTR-3 DC-PZR-HTR-4 DC-PZR-HTR-ESS-1 DC-PZR-HTR-ESS-2	PZR-HTR-1 PZR-HTR-2 PZR-HTR-3 PZR-HTR-4 PZR-HTR-ESS-1 PZR-HTR-ESS-2	~~Operate pressurizer heaters power supply breakers at switchgear.~~ De-energize Train 2 heaters, AND Trip Train 1 pressurizer heaters from ASP or power supply breakers at switchgear.	DB-1420	DID	LIC (6)
FF-01	AC111-P AD111-P HP2A HP2B HP2C HP2D	High Pressure Injection Pump 1-1 Breaker High Pressure Injection Pump 1-2 Breaker High Pressure Injection Line 1-1 Isolation High Pressure Injection Line 1-2 Isolation High Pressure Injection Line 1-1 Isolation High Pressure Injection Line 1-2 Isolation	Remove control power fuses and trip AC111 breaker at the switchgear, AND De-energize D1 bus. ~~Remove control power fuses and trip AD111 breaker at the switchgear.~~	DB-1462	DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-01	MU6409 MU6419 MU6420-P MU6421 MU6422 MU32 AC105-P AD105-P MU19 MU66A MU66B MU66C MU66D MU6408	Make-up Pump 1 to Seal Injection Cross Make-up Alternate Injection Throttle Normal Make-up Flow Controller Bypass Make-up to reactor Coolant Train Normal Make-up to Reactor Coolant System Make-Up Flow Controller Make Up Pump 1-1 Breaker Makeup Pump 1-2 Breaker Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet Make-Up Pump 2 to Seal Injection Cross-X	Remove control power fuses and trip AC105 breaker at the switchgear, AND De-energize D1 bus.<br~~Remove control power fuses and trip AD105 breaker at the switchgear.~~	DB-1480	DID	LIC (6 & 8)
FF-01	SW1399	TPCW Heat Exchanger Inlet Header Isolation	Manually close SW54. Manually close SW55. Manually close SW56.	DB-1492	DID	
FF-01	ICS11A-P ICS11B-P	MS Line 2 Atmospheric Vent MS Line 1 Atmospheric Vent	~~Close the valve that spuriously opens with the reach rod for ICS11A or ICS11B.~~ Fail AVV closed by closing IA450 which isolates operating air to the AVVs, and vent to fail AVV valves closed. OR Close MS875 and MS876.	DB-1495	~~DID~~ RR	LIC (6, & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-01	C5762C C5762D C5755D C5756D PT2000 PT2001 PT2002 PT2003 PTRC2A3 PTRC2A4 PTRC2B3 PTRC2B4	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel Containment Pressure Transmitter Containment Pressure Transmitter Containment Pressure Transmitter Containment Pressure Transmitter RCS Pressure RCS Pressure RCS Pressure RCS Pressure	Trip RCPs. Remove control power fuses and stop the containment spray pumps at switchgear. Locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment. Take local control of credited train components at switchgear or locally ~~Remove SFAS power to valves at D1P~~ to allow restoration of required components.	DB-1497	RR/DID	LIC (6)
FF-01	ICS38B LISP9A3 PI6365B1 PISP12A1 PISP12B1 SW1382 LIRC14-1 LISP9B3 FI6425	AFPT 1 Governor Steam Generator 1-2 Start-up Level Ind. RC Extended Range Pressure Indicator Steam Generator 1-2 Outlet Steam Pressure Steam Generator 1-1 Outlet Steam Pressure Service Water Supply to Auxiliary Feed Reactor Coolant Pressurizer Channel 1 Level Steam Generator 1-1 Start-Up Level Indic. Makeup Flow Indication	Procedurally driven actions being taken away from the primary control station to maintain plant operations.	DB-1527	~~DID~~ RR	LIC (6)
FF-01	MS107A-ISOL MS5889B ICS38A	Main Steam Line 1 to AFPT 2 Isolation Steam Admission to AFPT 2 AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1545	~~RR~~ DID	LIC (6 & 8)
FF-01	MS106A-ISOL MS107-ISOL ICS38A ICS38B	Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation AFPT 2 Governor AFPT 1 Governor	Trip or control AFPT-2 locally. De-energize MS106A and manually close.	DB-1578	RR/DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-01	P37-1 P371B P371D MU6405 MU6407 MU6409 MU6420-P MU6422	Make-up Pump 1-1 Main Lube Oil Pump for P37-1 Auxiliary Gear Lube Oil Pump For P37-1 Make-Up Pump 1 Recirculation Isol-3 Way Make-Up Pump 1 Recirculation Isol Make-Up Pump 1 to Seal Injection Cross Normal Make-Up Flow Controller Bypass Normal Make-Up to Reactor Coolant Syst	Locally start credited Makeup Pump. Locally align credited Makeup Pump auxiliaries. Manually control makeup flow.	DB-1614	DID	LIC (8)
FF-01	MU38 MU59A MU59B MU59C MU59D	RCP Seal Return Isolation RCP 2-1 Seal Return RCP 2-2 Seal Return RCP 1-1 Seal Return RCP 1-2 Seal Return	Isolate instrument air to MU38 and vent to fail closed.	DB-1622	DID	
FF-01	RC2 RC10	Pressurizer Spray Valve Pressurizer Spray Motor Isolation	Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.	DB-1677	DID	
FF-01	MU1A CC1409 MU1B CC1410 MU2A MU2B MU3	Reactor Coolant Letdown Cooler 1 Inlet Letdown Cooler 1 CCW Inlet Reactor Coolant Letdown Cooler 2 Inlet Letdown Cooler 2 CCW Inlet Letdown Coolers Outlet Isolation Letdown Coolers Outlet Isolation Letdown Stop	Isolate instrument air to MU3 and vent to fail closed.	DB-1685	~~DID~~ RR	LIC (6)
FF-01	HA01 HA03 HB01 HB03	RCP 1-2-2 RCP 1-1-1 RCP 1-2-1 RCP 1-1-2	Trip RCP 1-2-2, 1-1-1~~, 1-2-1 and 1-1-2~~ breakers at switchgear, AND Trip RCPs 1-2-1 and 1-1-2 by de-energizing B Bus by opening HX11B, HX01B and HX02B.	DB-1826	RR	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-01	C6708 C6709 C6714 C6715 C21-1 FD1018 FD1020 S33-1 SW2927 SV4823A	MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR EMERG SYS Supply Fan Fire Damper Fire Damper CREVS 1 Condensing Unit Control Room Emergency Condenser 1 Temp Control Room Emergency Ventilation System	Provide temporary ventilation for the MCR.	DB-1828	DID	
FF-01	Emergency Trip push button	Emergency Trip push button	Manually trip the turbine using the manual trip pushbutton at the front standard.	DB-1829	DID	
FF-01	NI5874C-1 TERC3A6 TERC3B5 TERC4A2 TERC4B3	Nuclear Instrumentation RC LOOP 2 HLG WR Temp Element RC LOOP 1 HLG WR Temp Element RCP 2-1 DISCH CLG WR Temp Element RCP 1-2 DISCH CLG NR Temp Element	Locally monitor reactivity and RCS parameters.	DB-1831	DID	
FF-01	ABDC1	Bus Tie Xfmer BD	Trip all B bus supply breakers. At C1 bus, disconnect control room from bus breakers.	DB-1832	~~DID~~ RR	LIC (6)
FF-01	DH2735 DH2736	DH Auxiliary Spray Stop DH Auxiliary Spray Throttle	~~At MCC E11B,~~ Place disconnect switch to LOCAL. ~~and~~ Close DH2735 at MCC E11B, OR De-energize and manually close DH2736 ~~and manually close.~~	DB-1833	DID	LIC (6)
FF-01	AF3869-ISOL AF3872-ISOL AF599 ~~FV~~AF6451	Auxiliary Feed Pump 1 to Steam Generator 1-2 Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	Control AFPT-1 using ~~ICS38A~~ ICS38B from ASP.	DB-2009	PCS	LIC (8 & 12)
FF-01	AF3869-ISOL AF3872-ISOL AF599 ~~FV~~AF6451	Auxiliary Feed Pump 1 to Steam Generator 1-2 Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	Trip or control AFPT-2 locally. Manually close AF599.	DB-2009	RR	LIC (8 & 12)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
FF-02	C6708 C6709 C6714 C6715 C21-1 S33-1 SW2927 SV4823A	MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR EMERG SYS Supply Fan CREVS 1 Condensing Unit Control Room Emergency Condenser 1 Temp Control Room Emergency Ventilation System	Provide temporary ventilation for the MCR.	DB-1828	DID	
FF-03	FD1018 FD1019 FD1020 FD1021	Fire Damper Fire Damper Fire Damper Fire Damper	Provide temporary ventilation for the MCR.	DB-1301	DID	
FF-03	C6708 C6709 C6714 C6715 C21-1 S33-1 SW2927 SV4823A	MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR EMERG SYS Supply Fan CREVS 1 Condensing Unit Control Room Emergency Condenser 1 Temp Control Room Emergency Ventilation System	Provide temporary ventilation for the MCR.	DB-1828	DID	
G-01	MS107A-ISOL	Main Steam Line 1 to AFPT 2 Isolation	If accessible, trip or control AFPT2 otherwise: De-energize MS107A and manually close.	DB-1916	RR	LIC (6 & 8)
G-02	AC105-P AD105-P MU6419-P MU6421-P MU6408 MU6409 MU19 MU66A MU66B MU66C MU66D	Make-Up Pump 1-1 Breaker Make-Up Pump 1-2 Breaker Make-Up Alternate Injection Throttle Make-Up To Reactor Coolant System Train Make-Up Pump 2 to Seal Injection Cross-X Make-Up Pump 1 to Seal Injection Cross-X Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet	Remove control power fuses and trip AC105 breaker at the switchgear. Remove control power fuses and trip AD105 breaker at the switchgear.	DB-0947	DID	LIC (8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
G-02	~~MU1A~~ ~~CC1409~~ ~~MU1B~~ ~~CC1410~~ MU2A MU2B MU3 MU4 MU10A MU11 CC5098 WC1453 WC1747 WC3560	~~Reactor Coolant Letdown Cooler 1 Inlet~~ ~~Letdown Cooler 1 CCW Inlet~~ ~~Reactor Coolant Letdown Cooler 2 Inlet~~ ~~Letdown Cooler 2 CCW Inlet~~ Reactor Coolant Letdown Cooler 2 Inlet Letdown Coolers Outlet Isolation Letdown Stop Letdown Block Orifice Isolation Mixed Bed 1 Letdown Inlet Three-Way Letdown to Radwaste Drain CCW Line 2 Return Isolation Primary Demineralizer Inlet Temperature CWRT 2 Inlet Flow Control Degasifier Bypass Flow Control	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-0949	DID	LIC (8)
G-02	MU38 MU59A MU59B MU59C MU59D	RCP Seal Return Isolation RCP 2-1 Seal Return RCP 2-2 Seal Return RCP 1-1 Seal Return RCP 1-2 Seal Return	Isolate instrument air to MU38 and vent to fail closed.	DB-0985	DID	
G-02	MS106-ISOL	Main Steam Line 1 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-0989	~~DID~~ RR	LIC (6 & 8)
G-02	MU19 MU66A MU66B MU66C MU66D CC4100 CC4400	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler	Within 8 hours: Manually align seal injection flow to all RCP seals, OR Manually align CCW flow to all RCP thermal barriers, OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-0990	~~RR~~ DID	LIC (10)
G-02	MS106-ISOL MS106A-ISOL ICS38~~A~~B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1169	RR	LIC (6 & 8)
G-02	AF3870-ISOL ~~FV~~AF6452	Auxiliary Feed Pump 1 to SG 1-~~2~~-1 AUX FP 1-1 Solenoid Control Valve	Trip or control AFPT-1 locally.	DB-1184	RR	LIC (6, 8, & 12

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
G-02	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1217	DID	
G-02	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1258	DID	
G-02	MS106A-ISOL	Main Steam Line 2 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-1534	~~RR~~ DID	LIC (6 & 8)
G-02	MS106 MS106A MS107	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation	Locally align system valves to bypass MS107.	DB-1618	DID	
~~G-02~~	~~RC2~~ ~~RC10~~	~~Pressurizer Spray Valve~~ ~~Pressurizer Spray Motor Isolation~~	~~Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.~~	~~DB-1678~~	~~DID~~	LIC (5)
~~G-02~~	~~MU1A~~ ~~CC1409~~ ~~MU1B~~ ~~CC1410~~ ~~MU2A~~ ~~MU2B~~ ~~MU3~~	~~Reactor Coolant Letdown Cooler 1 Inlet~~ ~~Letdown Cooler 1 CCW Inlet~~ ~~Reactor Coolant Letdown Cooler 2 Inlet~~ ~~Letdown Cooler 2 CCW Inlet~~ ~~Reactor Coolant Letdown Cooler 1 Inlet~~ ~~Letdown Coolers Outlet Isolation~~ ~~Letdown Stop~~	~~Isolate instrument air to MU3 and vent to fail closed.~~	~~DB-1686~~	~~DID~~	LIC (5)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
G-02	C5762D C5763D OR C5755D C5756D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel OR SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Cooling,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1711	~~RR~~ DID	LIC (6)
G-02	AF3869-ISOL	AFW from AFTP-1 to SG 1-2	Trip or control AFPT-1 locally.	DB-1922	RR	LIC (6 & 8)
HH-01	MS107A-ISOL	Main Steam Line 1 to AFPT 2 Isolation	Trip or control AFPT-2 locally.	DB-0916	~~RR~~ DID	LIC (6 & 8)
HH-01	C6708 C6709 C6714 C6715 C21-1 FD1018 FD1020 S33-1 SW2927 SV4823A	MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR EMERG SYS Supply Fan Fire Damper Fire Damper CREVS 1 Condensing Unit Control Room Emergency Condenser 1 Temp Control Room Emergency Ventilation System	Provide temporary ventilation for the MCR.	DB-1828	DID	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
II-01	ACB34560 ACB34561	Generator Output Breaker Generator Output Breaker	Locally open the main generator output breakers. Identify and respond to adverse plant conditions associated with not automatically tripping the main generator.	DB-1248	DID	
II-01	HA01 HA03 HB01 HB03	RCP 1-2-2 RCP 1-1-1 RCP 1-2-1 RCP 1-1-2	Trip RCP 1-2-2, 1-1-1, 1-2-1 and 1-1-2 breakers at switchgear.	DB-1287	RR	
II-01	DC-PZR-HTR-2 DC-PZR-HTR-3	PZR-HTR-2 PZR-HTR-3	~~Operate~~ Trip pressurizer heaters ~~power supply~~ breakers at switchgear.	DB-1488	DID	LIC (6 & 8)
II-01	MS106A-ISOL	Main Steam Line 2 to AFPT 1 Isolation	Locally de-energize ~~MS106A~~ and manually close MS106A, OR Trip or control AFPT-1 locally.	DB-1548	DID ~~RR~~	LIC (6, 8, & 10)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
II-01	~~C5755D~~ ~~C5756D~~ C5762D C5763D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel	Trip RCPs. Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1714	RR/DID	LIC (6)
II-01	FD1060	Fire Damper	Provide temporary ventilation to prevent loss of E1 bus.	DB-1762	DID	
II-01	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1771	~~DID~~ RR	LIC (11)
II-01	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1772	~~DID~~ RR	LIC (11)
II-01	T31-1 T31-2 P112	Condensate Storage Tank (CST) 1-1 Condensate Storage Tank (CST) 1-2 Condenser Polishing Backwash Pump	Locally trip feeder breakers ~~for E3 and F3 busses~~ (HAAE3 and HBBF3) for E3 bus.	DB-2027	DID	LIC (9)
~~II-04~~	~~DC-TURB-TRIP-1~~ ~~DC-TURB-TRIP-2~~	~~DC-TRUB-TRIP-1~~ ~~DC-TRUB-TRIP-2~~	~~Manually trip the turbine using the manual trip pushbutton at the front standard.~~	~~DB-1923~~	~~DID~~	SSA RAI 09.01

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
J-01	MU3 WC1743	Letdown Stop CWRT 1 Inlet Flow Control	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-0899	DID	
J-01	MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-0900	RR	LIC (6 & 8)
J-01	AD105-P MU6422 MU32 MU6408 MU19 MU66A MU66D	Makeup Pump 1-2 Breaker Normal Make-Up To Reactor Coolant System Make-Up Flow Controller Make-Up Pump 2 to Seal Injection Cross-X Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-2-2 Seal Inlet	Remove control power fuses and trip AD105 breaker at the switchgear.	DB-0902	DID	LIC (8)
J-01	AF3872-ISOL AF599 ~~FV~~AF6451	Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	Trip or control AFPT-2 locally.	DB-1190	RR	LIC (6, 8, & 12
J-01	MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1550	~~RR~~ DID	LIC (6 & 8)
J-01	MS106A-ISOL MS107-ISOL ICS38A	Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally. De-energize MS106A and manually close.	DB-1581	RR/DID	LIC (6 & 7)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
J-01	C5755D C5756D	SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1813	~~RR~~ DID	LIC (6)
K-01	MS106A-ISOL ICS38B	Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1538	~~RR~~ DID	LIC (6 & 8)
K-01	MS106-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1539	~~DID~~ RR	LIC (6, 7, & 8)
K-01	HV5314	LVSGR 2 Ventilation Fan 2 Discharge Damper	Provide temporary ventilation to prevent loss of F1 bus.	DB-1623	DID	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
K-01	~~C5755D~~ ~~C5756D~~ C5762D C5763D	~~SFAS Channel 2 Logic Panel~~ ~~SFAS Channel 4 Logic Panel~~ SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	~~DB-1710~~ DB-1717	~~RR~~ DID	LIC (6)
MA-01	MS106-ISOL MS106A-ISOL OR MS107-ISOL MS107A-ISOL	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation OR Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation	Trip or control AFPT-1 locally. OR Trip or control AFPT-2 locally.	DB-1529	~~RR~~ DID	LIC (6 & 8)
MA-01	MS106-ISOL ~~MS106A~~ OR MS107-ISOL ~~MS107A~~	Main Steam Line 1 to AFPT 1 Isolation ~~Main Steam Line 2 to AFPT 1 Isolation~~ OR Main Steam Line 2 to AFPT 2 Isolation ~~Main Steam Line 1 to AFPT 2 Isolation~~	Trip or control AFPT-2 locally (if required).	DB-1565	~~DID~~ RR	LIC (6, 7, & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
MA-01	C5762D C5763D OR C5755D C5756D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel OR SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1719	~~RR~~ DID	LIC (6)
MA-01	AF3870-ISOL AF3872-ISOL	Auxiliary Feed Pump 1 to SG 1-1 Auxiliary Feed Pump 2 to SG 1-2	Trip or control AFPT-2 locally (if required).	DB-1879	RR	LIC (6 & 8)
MA-01	MS106-ISOL MS106A-ISOL OR MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation OR Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally ~~(if required)~~.	DB-2003	RR	LIC (6 & 8)
MB-01	MS106-ISOL	Main Steam Line 1 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-0989	~~DID~~ RR	LIC (6, 7, & 8)
MB-01	MS106A-ISOL	Main Steam Line 2 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-1534	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
MB-01	C5762D C5763D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1720	~~RR~~ DID	LIC (6)
MC-01	MS106-ISOL	Main Steam Line 1 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-0989	~~DID~~ RR	LIC (6, 7, & 8)
MC-01	ACB34560 ACB34561	Generator Output Breaker Generator Output Breaker	Locally open the main generator output breakers. Identify and respond to adverse plant conditions associated with not automatically tripping the main generator.	DB-1249	DID	
MC-01	MS106A-ISOL	Main Steam Line 2 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-1534	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID
MC-01	C5762D C5763D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1721	~~RR~~ DID
OS	ACB34560 ACB34561	Generator Output Breaker Generator Output Breaker	Locally open the main generator output breakers. Identify and respond to adverse plant conditions associated with not automatically tripping the main generator.	DB-1250	DID
OS	FD1056 FD1155	Fire Damper Fire Damper	Provide temporary ventilation to prevent loss of E1 bus.	DB-1344	DID
OS	FD1062 FD1154	Fire Damper Fire Damper	Provide temporary ventilation to prevent loss of F1 bus.	DB-1709	DID

LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
OS	C6708 C6709 C6714 C6715 C21-1 S33-1 SW2927 SV4823A	MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR Emergency Vent (Train 1) MCR Emergency Vent (Train 2) MCR EMERG SYS Supply Fan CREVS 1 Condensing Unit Control Room Emergency Condenser 1 Temp Control Room Emergency Ventilation System	Provide temporary ventilation for the MCR.	DB-1828	DID	
P-01	HV5314	LVSGR 2 Ventilation Fan 2 Discharge Damper	Provide temporary ventilation to prevent loss of F1 bus.	DB-1345	DID	
P-01	MS106A-ISOL	Main Steam Line 2 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-1534	~~RR~~ DID	LIC (6 & 8)
P-02	HV5314	LVSGR 2 Ventilation Fan 2 Discharge Damper	Provide temporary ventilation to prevent loss of F1 bus.	DB-1346	DID	
P-02	HV5305	LVSGR 1 Ventilation Fan 1 Discharge Damper	Provide temporary ventilation to prevent loss of E1 bus.	DB-1755	DID	
~~P-02~~	~~AD210~~	~~Motor Driven Feed Pump Breaker~~	~~Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.~~	~~DB-1775~~	~~DID~~	LIC (5)
~~P-02~~	~~AD210~~	~~Motor Driven Feed Pump Breaker~~	~~Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.~~	~~DB-1776~~	~~DID~~	LIC (5)
P-03	HA01 HA03 HB01 HB03	RCP 1-2-2 RCP 1-1-1 RCP 1-2-1 RCP 1-1-2	Trip RCP 1-2-2, 1-1-1, 1-2-1 and 1-1-2 breakers at switchgear.	DB-1288	RR	
~~P-03~~	~~P195-1~~	~~EMERG DIESEL GEN FUEL OIL TANK 1-1~~	~~Fill EDG Day tank using P8-1.~~	~~DB-1340~~	~~DID~~	LIC (5)
P-03	HV5314	LVSGR 2 Ventilation Fan 2 Discharge Damper	Provide temporary ventilation to prevent loss of F1 bus.	DB-1347	DID	
P-03	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1777	~~DID~~ RR	LIC (11 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
P-03	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1778	~~DID~~ RR	LIC (11 & 8)
Q-01	MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1171	RR	LIC (6 & 8)
Q-01	AF3872-ISOL AF599 ~~FV~~AF6451	Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	Trip or control AFPT-2 locally.	DB-1192	RR	LIC (6, 8, & 12
Q-01	HV5305	LVSGR 1 Ventilation Fan 1 Discharge Damper	Provide temporary ventilation to prevent loss of E1 bus.	DB-1348	DID	
Q-01	AD210-P	Motor Driven Feed Pump Breaker	~~Locally close manual valve FW6397 or FW6398.~~ Close FW6459 and FW6460, energizing and closing AF599 or AF608, OR Trip the motor-driven feed pump (MDFP) by de-energizing the power supply (Bus D2) and locally closing the line stops FW6398 and FW6397.	DB-1408	~~DID~~ RR	LIC (6, 8, & 11)
Q-01	AD105-P MU6420-P MU6422 MU32 MU6408 MU19 MU66A MU66D	Make-Up Pump 1-2 Breaker Normal Make-Up Flow Controller Bypass Normal Make-Up To Reactor Coolant Syst Make-Up Flow Controller Make-Up Pump 1 to Seal Injection Cross-X Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-2-2 Seal Inlet	~~Close MU209.~~ ~~OR~~ ~~De-energize and close MU6422.~~ Throttle manual MU system flowpath valves as necessary to eliminate runout or Pressurizer overfill, OR De-energize D1 bus to de-energize the Make-up Pump 1-2 (MUP).	DB-1481	DID	LIC (6 & 8)
Q-01	DC-PZR-HTR-ESS-2	PZR-HTR-ESS-2	~~Operate~~ Trip pressurizer heaters ~~power supply~~ breakers at switchgear.	DB-1489	DID	LIC (9)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
Q-01	MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1556	~~RR~~ DID	LIC (6 & 8)
Q-01	MS106A-ISOL MS107-ISOL ICS38A	Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally. De-energize MS106A and manually close.	DB-1584	RR/DID	LIC (6 & 8)
Q-01	C5755D C5756D	SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel	Trip RCPs. Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following: RCP Seal Injection, Letdown, AND CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1722	RR/DID	LIC (6)
Q-01	MU1A MU1B MU3 MU11 CC1409	Reactor Coolant Letdown Cooler 1 Inlet Reactor Coolant Letdown Cooler 2 Inlet Letdown Stop Three-Way Letdown to Radwaste Drain Letdown Cooler 1 CCW Inlet	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1729	DID	

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
Q-01	AD210-P	Motor Driven Feed Pump Breaker	~~Locally close manual valve FW6397 or FW6398.~~ Trip supply bus breaker for D2_EA to de-energize the motor-driven feed pump (MDFP).	DB-1773	~~DID~~ RR	LIC (6 & 11)
Q-01	HA01 HA03 HB01 HB03	RCP 1-2-2 RCP 1-1-1 RCP 1-2-1 RCP 1-1-2	De-energize B bus from the switchyard ~~to trip RCP 1-2-1 and 1-1-2~~.Trip RCP 1-2-2 and 1-1-1 breakers at switchgear.	DB-1868	RR	LIC (4)
Q-01	AF3871-ISOL AF608 AF3870-ISOL	Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1	Trip or control AFPT-2 locally.	DB-1914	RR	LIC (6 & 8)
R-01	DC-PZR-HTR-ESS-1 DC-PZR-HTR-ESS-2	PZR-HTR-ESS-1 PZR-HTR-ESS-2	~~Operate~~ Trip pressurizer heaters ~~power supply~~ breakers at switchgear.	DB-1123	DID	LIC (9)
S-01	ACB34560 ACB34561	Generator Output Breaker Generator Output Breaker	Locally open the main generator output breakers. Identify and respond to adverse plant conditions associated with not automatically tripping the main generator.	DB-1004	DID	LIC (6)
S-01	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1005	~~DID~~ RR	LIC (11 & 8)
S-01	DC-PZR-HTR-ESS-1	PZR-HTR-ESS-1	~~Operate~~ Trip pressurizer heater ~~power supply~~ breakers at switchgear.	DB-1006	DID	LIC (9)
S-01	HA01 HA03 HB01 HB03	RCP 1-2-2 RCP 1-1-1 RCP 1-2-1 RCP 1-1-2	Trip 13.8KV bus A to stop RCP 1-2-2 and 1-1-1 at supply breaker. Trip RCP 1-2-1 and 1-1-2 breakers at switchgear.	DB-1007	RR	LIC (4)
S-01	MS106-ISOL MS106A-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1009	RR	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
S-01	AF3870-ISOL AF608 AFFV6452	Auxiliary Feed Pump 1 to SG 1-21 Auxiliary Feedwater to Steam Generator AUX FP 1-1 Solenoid Control Valve	Trip or control AFPT-1 locally.	DB-1193	RR	LIC (6 & 8)
S-01	MS106A-ISOL ICS38B	Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1557	~~RR~~ DID	LIC (6 & 8)
S-01	MS106-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally	DB-1585	RR	LIC (8)
S-01	C5762D C5763D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel	Trip RCPs. Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following: RCP Seal Injection, Letdown, AND CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1723	RR/DID	LIC (6, 7, & 8)
S-01	AD210-P	Motor Driven Feed Pump Breaker	Remove control power fuses and trip the motor-driven feed pump (MDFP) breaker at the switchgear.	DB-1774	~~DID~~ RR	LIC (11 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
T-01	CC5095 CC5097 CC5096 CC5098	CCW Line 1 Discharge Isolation CCW Line 1 Return Isolation CCW Line 2 Discharge Isolation CCW Line 2 Return Isolation	Within 8 hours: Manually align seal injection flow to all RCP seals, OR Manually align CCW flow to all RCP thermal barriers, OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1129	~~RR~~ DID	LIC (10)
T-01	P43-1 P43-2 P43-3	CCW Pump 1-1 CCW Pump 1-2 CCW Pump 1-3	If CCW not restored within one hour to MUPS or HPIS Pumps. THEN Commence RCS cooldown to place FLEX system into service.	DB-2105	DID	LIC (6)
T-01	P43-1 P43-2 P43-3 CC5095 CC5097 CC5096 CC5098	CCW Pump 1-1 CCW Pump 1-2 CCW Pump 1-3 CCW Line1 Discharge Isolation CCW Line 1 Return Isolation CCW Line 2 Discharge Isolation CCW Line 2 Return Isolation	Restore CCW to Letdown flow path components, OR Commence RCS Cooldown to control Pressurizer level.	DB-2106	DID	LIC (6)
U-01	MS106-ISOL MS106A-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1172	RR	LIC (6 & 8)
U-01	AF3870-ISOL AF608 ~~FV~~AF6452	Auxiliary Feed Pump 1 to SG 1-~~2~~1 Auxiliary Feedwater to Steam Generator AUX FP 1-1 Solenoid Control Valve	Trip or control AFPT-1 locally.	DB-1194	RR	LIC (6, 8, & 12
U-01	MS101-1	Main Steam Line 1 MSIV Bypass (Train 1)	~~De-energize SFRCS to prevent MSIV bypass valves from spuriously opening.~~ Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1239	DID	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
U-01	ACB34560 ACB34561	Generator Output Breaker Generator Output Breaker	Locally open the main generator output breakers. Identify and respond to adverse plant conditions associated with not automatically tripping the main generator.	DB-1251	DID	LIC (6)
U-01	HA01 HA03 HB03	RCP 1-2-2 RCP 1-1-1 RCP 1-1-2	Trip RCP 1-2-2, 1-1-1, 1-2-1and 1-1-2 breakers at switchgear.	DB-1291	RR	LIC (9)
U-01	MU38 MU59A MU59B MU59C MU59D	RCP Seal Return Isolation RCP 2-1 Seal Return RCP 2-2 Seal Return RCP 1-1 Seal Return RCP 1-2 Seal Return	Isolate instrument air to MU38 and vent to fail closed.	DB-1299	DID	
U-01	MU19 MU66A MU66B MU66C MU66D CC4100 CC4200 CC4300 CC4400 CC5096 CC5098 CC1407A CC1411A	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 1-2 Pump Seal Cooler Reactor Coolant Pump 2-1 Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler CCW Line 2 Discharge Isolation CCW Line 2 Return Isolation CCW From Containment Isolation CCW to Containment Isolation	Trip RCPs Within 8 hours: Manually align seal injection flow to all RCP seals, OR Manually align CCW flow to all RCP thermal barriers, OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1387	RR/DID	LIC (7)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
U-01	MU2A MU2B MU3 MU4 MU10A MU11 CC1407A CC1411A CC5096 CC5098 WC1747 WC3560 WC1453	Letdown Coolers Outlet Isolation Letdown Coolers Inlet Isolation Letdown Stop Letdown Block Orifice Isolation Mixed Bed 1 Letdown Inlet Three-Way Letdown to Radwaste Drain CCW from Containment Isolation CCW to Containment Isolation CCW Line 2 Discharge Isolation CCW Line 2 Return Isolation CWRT 2 Inlet Flow Control Degasifier Bypass Flow Control Primary Demineralizer Inlet Temperature	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1474	DID	
U-01	AC105-P MU6419-P MU6421-P MU6409 MU19 MU66A MU66B MU66C MU66D	Make-Up Pump 1-1 Breaker Make-Up Alternate Injection Throttle Make-Up to Reactor Coolant System Train Make-Up Pump 1 to Seal Injection Cross-X Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet RCP 1-2-2 Seal Inlet	Remove control power fuses and trip AC105 at the switchgear.	DB-1482	DID	LIC (8)
U-01	SW1434	CCW Heat Exchanger 2 Outlet Temperature	Recover CCW with the spare CCW train. Restore SW minimum flow to the CCW coolers by manually isolating instrument air to SW1434 IA accumulator and depressurizing the accumulator to open SW1434. If necessary, align a spare or backup SW pump. ~~Manually isolate instrument air to SW1434 IA accumulator. Depressurize accumulator to open SW1434.~~	DB-1490	RR/DID	LIC (6 & 7)
U-01	MS106A-ISOL ICS38B	Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1558	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
U-01	MS106-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1586	~~DID~~ RR	LIC (6, 7, & 8)
U-01	C5762D C5763D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel	Trip RCPs. Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1723	RR/DID	LIC (6)
U-01	AF3869-ISOL	AFW from AFTP-1 to SG 1-2	Trip or control AFPT-1 locally.	DB-1922	~~DID~~ RR	LIC (8)
~~U-01~~	~~DC-TURB-TRIP-1~~ ~~DC-TURB-TRIP-2~~	~~DC-TRUB-TRIP-1~~ ~~DC-TRUB-TRIP-2~~	~~Manually trip the turbine using the manual trip pushbutton at the front standard.~~	~~DB-1923~~	~~DID~~	SSA RAI 09.01
UU-01	MS106A-ISOL ICS38B	Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1538	~~RR~~ DID	LIC (6 & 8)
UU-01	MS106-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1539	~~DID~~ RR	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
UU-01	C5762D C5763D ~~PTRC2B3~~ ~~PTRC2B4~~	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel ~~RCS Pressure~~ ~~RCS Pressure~~	Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1724	~~RR~~/DID	LIC (6 & 8)
V-01	HA03 HB03	RCP 1-1-1 RCP 1-1-2	Trip RCP 1-1-1 and 1-1-2 breakers at switchgear.	DB-1120	RR	LIC (9)
V-01	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1217	DID	
V-01	MS101-1	Main Steam Line 1 MSIV Bypass (Train 1)	~~De-energize SFRCS to prevent MSIV bypass valves from spuriously opening.~~ Isolate Air to MSIV Bypass Actuator and Vent to fail MSIV Bypass Valves closed.	DB-1240	DID	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
V-01	ACB34560 ACB34561	Generator Output Breaker Generator Output Breaker	Locally open the main generator output breakers. Identify and respond to adverse plant conditions associated with not automatically tripping the main generator.	DB-1252	DID	
V-01	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Locally trip running containment spray pump. Disable auto start of non-running containment spray pump.	DB-1258	DID	
V-01	MU19 MU208 MU66B MU66C CC4100 CC4400 CC1407A CC1407B CC1411A CC1411B	Seal Injection Inlet Isolation Valve Seal Injection Isolation Valve RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet Reactor Coolant Pump 1-1 Pump Seal Cooler Reactor Coolant Pump 2-2 Pump Seal Cooler CCW from Containment Isolation CCW from Containment Isolation CCW to Containment Isolation CCW to Containment Isolation	Trip RCPs Within 8 hours: Manually align seal injection flow to all RCP seals, OR Manually align CCW flow to all RCP thermal barriers, OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1388	RR/DID	LIC (7)
V-01	~~MU1B~~ MU2A MU2B MU4 MU10A MU11 CC1407A CC1407B CC1411A CC1411B WC1453 WC1747	~~Reactor Coolant Letdown Cooler 2 Inlet~~ Letdown Coolers Outlet Isolation Letdown Coolers Inlet Isolation Letdown Block Orifice Isolation Mixed Bed 1 Letdown Inlet Three-Way Letdown to Radwaste Drain CCW from Containment Isolation CCW from Containment Isolation CCW to Containment Isolation CCW to Containment Isolation Primary Demineralizer Inlet Temperature CWRT 2 Inlet Flow Control	Manually align letdown flow path to Clean Waste Receiver Tank (CWRT).	DB-1475	DID	LIC (8)
V-01	MS106A-ISOL	Main Steam Line 2 to AFPT 1 Isolation	Trip or control AFPT-1 locally.	DB-1534	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
V-01	MS106-ISOL MS107A-ISOL	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 1 to AFPT 2 Isolation	Trip or control AFPT-1 locally. If turbine fails to trip, de-energize and close MS106. ~~De-energize MCC F11B by opening supply breaker BF1137 to~~ De-energize MS107A ~~then~~ and manually close. ~~MS107A.~~	DB-1588	RR/DID	LIC (6, 7, & 8)
~~V-01~~	~~RC2~~ ~~RC10~~	~~Pressurizer Spray Valve~~ ~~Pressurizer Spray Motor Isolation~~	~~Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.~~	~~DB-1671~~	~~DID~~	LIC (5)
V-01	C5762D C5763D ~~PTRC2B3~~ ~~PTRC2B4~~	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel ~~RCS Pressure~~ ~~RCS Pressure~~	Trip RCPs. Prior to battery depletion (1 hour), locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. ~~If lost, re-establish the following:~~ ~~RCP Seal Injection,~~ ~~Letdown,~~ ~~AND~~ ~~CCW to containment.~~ When SFAS occurs after 1 hour and if RCP seal injection and letdown CCW to containment are lost, then re-establish. Take local control of credited train components at switchgear or locally to allow restoration of required components.	DB-1724	RR/DID	LIC (6)
V-01	AC105-P	Make-Up Pump 1-1 Breaker	Remove control power fuses and trip AC105 breaker at the switchgear.	DB-1899	DID	LIC (8)
V-01	~~FV~~AF6452 AF3869-ISOL	Aux FP 1-1 Solenoid Control Valve Auxiliary Feed Pump 1 to Steam Generator 1-2	Trip or control AFPT-1 locally.	DB-1918	RR	LIC (6, 8, & 12

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
V-01	C5762D C5763D ~~PTRC2B3~~ ~~PTRC2B4~~	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel ~~RCS Pressure~~ ~~RCS Pressure~~	Trip RCPs. Remove control power fuses and stop the containment spray pumps at switchgear. Locally disable auto start for the following: Containment Spray Pumps, Low Pressure Injection Pumps, AND High Pressure Injection Pumps. If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment. Take local control of credited train components at switchgear or locally to allow restoration of required components. ~~Remove SFAS power to valves at D1P to allow restoration of required components.~~	DB-1920	RR/DID	LIC (6)
X-01	MU19 MU66A MU66D CC5095 CC5097 CC1407B CC1411B	Seal Injection Inlet Isolation Valve RCP 1-1-1 Seal Inlet RCP 1-2-2 Seal Inlet CCW Line 1 Discharge Isolation CCW Line 1 Return Isolation CCW from Containment Isolation CCW to Containment Isolation	Trip RCPs Within 8 hours: Manually align seal injection flow to all RCP seals, OR Manually align CCW flow to all RCP thermal barriers, OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-0930	RR/DID	LIC (7)
X-01	DC-PZR-HTR-1 DC-PZR-HTR-2 DC-PZR-HTR-3 DC-PZR-HTR-4 DC-PZR-HTR-ESS-2	PZR-HTR-1 PZR-HTR-2 PZR-HTR-3 PZR-HTR-4 PZR-HTR-ESS-2	Trip supply breakers AD1DF11 and AD1DF12 (F1 bus), AND ~~Operate~~ Trip pressurizer heaters power supply breakers at switchgear (E1).	DB-0932	DID	LIC (6)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
X-01	HB01 HB03	RCP 1-2-1 RCP 1-1-2	Trip RCP 1-2-1 and 1-1-2 breakers at switchgear.	DB-0935	RR	
X-01	MS107-ISOL MS107A-ISOL ICS38A	Main Steam Line 2 to AFPT 2 Isolation Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-0938	RR	LIC (6 & 8)
X-01	AF3872-ISOL AF599 AFFV6451	Auxiliary Feed Pump 2 to SG 1-2 Auxiliary Feedwater to Steam Generator AUX FP 1-2 Solenoid Control Valve	Trip or control AFPT-2 locally.	DB-1196	RR	LIC (6, 8, & 12
X-01	P56-2 CS1531	Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	~~Manually~~ Trip supply breakers ~~open~~ AD1DF11 and AD1DF12 ~~breakers to de-energize~~ (F1 bus).~~.~~	DB-1227	DID	LIC (6)
X-01	P56-2 CS1531	Ctmt Spray Pump 1-2 Ctmt Spray Automatic Control Valve	~~Manually~~ Trip supply breakers ~~open~~ AD1DF11 and AD1DF12 ~~breakers to de-energize~~ (F1 bus).	DB-1268	DID	LIC (9)
X-01	MS107A-ISOL ICS38A	Main Steam Line 1 to AFPT 2 Isolation AFPT 2 Governor	Trip or control AFPT-2 locally.	DB-1561	~~RR~~ DID	LIC (6 & 8)
X-01	MS106A-ISOL MS107-ISOL ICS38A	Main Steam Line 2 to AFPT 1 Isolation Main Steam Line 2 to AFPT 2 Isolation AFPT 2 Governor	Trip or control ~~AFPT-1~~ AFPT-2 locally and de-energize ~~MS106A~~ and manually close MS106A.	DB-1589	RR/DID	LIC (6 & 8)
~~X-01~~	~~RC2 RC10~~	~~Pressurizer Spray Valve Pressurizer Spray Motor Isolation~~	~~Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.~~	~~DB-1673~~	~~DID~~	LIC (5)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
X-01	C5755D C5756D ~~PTRC2A3~~ ~~PTRC2A4~~	SFAS Channel 2 Logic Panel SFAS Channel 4 Logic Panel ~~RCS Pressure Transmitter~~ ~~RCS Pressure Transmitter~~	Trip RCPs. Manually trip ~~open~~ AD1DF11 and AD1DF12 supply breakers (F1). ~~to de-energize F1 bus.~~ Remove control power fuses and locally stop the ~~running~~ remaining containment spray pump(s) at switchgear. Locally disable auto start for the following: Low Pressure Injection Pumps, AND High Pressure Injection Pumps. If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment. ~~Remove control power fuses and trip the containment spray pumps at switchgear.~~ Take local control of credited train components at switchgear or locally ~~Remove SFAS power to valves at D1P~~ to allow restoration of required components.	DB-1911	RR/DID	LIC (6)
X-01	AF3871-ISOL AF608 ~~AF3870~~	Auxiliary Feed Pump 2 to Steam Generator 1-1 Isolate Auxiliary Feedwater to Steam Generator 1-1 ~~Auxiliary Feedwater from AFPT 1-1 to Steam Generator 1-1~~	Trip or control AFPT-2 locally.	DB-1914	RR	LIC (6 & 8)
Y-01	DC-PZR-HTR-1 DC-PZR-HTR-2 DC-PZR-HTR-3 DC-PZR-HTR-ESS-1	PZR-HTR-1 PZR-HTR-2 PZR-HTR-3 PZR-HTR-ESS-1	Trip supply breakers AC1CE11 and AC1CE12 (E1 bus). ~~Operate~~ Trip pressurizer heaters power supply breakers at switchgear (F1).	DB-0997	DID	LIC (6)
Y-01	HA01 HA03	RCP 1-2-2 RCP 1-1-1	Trip RCP 1-2-2 and 1-1-1 breakers at switchgear.	DB-0998	RR	
Y-01	MS106A-ISOL ICS38B	Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1000	~~RR~~ DID	LIC (6 & 8)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
Y-01	MS106-ISOL MS106A-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation Main Steam Line 2 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1174	RR	LIC (6 & 8)
Y-01	AF608 ~~FV~~AF6452 AF3870-ISOL	Auxiliary Feedwater to Steam Generator AUX FP 1-1 Solenoid Control Valve Auxiliary Feed Pump 1 to Steam Generator 1	Trip or control AFPT-1 locally.	DB-1197	RR	LIC (6, 8, & 12
Y-01	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Trip supply breakers AC1CE11 and AC1CE12 (E1 bus).	DB-1217	DID	LIC (6)
Y-01	P56-1 CS1530	Ctmt Spray Pump 1-1 Ctmt Spray Automatic Control Valve	Trip supply breakers AC1CE11 and AC1CE12 (E1 bus).	DB-1258	DID	LIC (6)
Y-01	MU66B MU66C CC1407A CC1411A	RCP 1-1-2 Seal Inlet RCP 1-2-1 Seal Inlet CCW From Containment Isolation CCW to Containment Isolation	Trip RCPs. Within 8 hours: Manually align seal injection flow to all RCP seals, OR Manually align CCW flow to all RCP thermal barriers, OR Cooldown RCS to place the plant between 280 and 350 degF.	DB-1366	RR/DID	LIC (7)
Y-01	MS106-ISOL ICS38B	Main Steam Line 1 to AFPT 1 Isolation AFPT 1 Governor	Trip or control AFPT-1 locally.	DB-1590	RR	LIC (6 & 8)
~~Y-01~~	~~RC2 RC10~~	~~Pressurizer Spray Valve Pressurizer Spray Motor Isolation~~	~~Trip reactor coolant pumps at the switchgear that cannot be tripped from the control room.~~	~~DB-1674~~	~~DID~~	LIC (5)

Table G-1 Davis-Besse Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Compartment	Component ID	Component Name	Recovery Actions	VFDR	PCS/ RR/ DID	
Y-01	C5762D C5763D	SFAS Channel 1 Logic Panel SFAS Channel 3 Logic Panel	Trip RCPs. Manually trip AC1CE11 and AC1CE12 supply breakers (E1). Remove control power fuses and locally stop the remaining containment spray pump(s) at the switchgear (F1 bus). Locally disable auto start for the following: Low Pressure Injection Pumps, AND High Pressure Injection Pumps. If lost, re-establish the following: RCP Seal Cooling, Letdown, AND CCW to containment. Take local control of credited train components at switchgear or locally ~~Remove SFAS power to valves at D1P~~ to allow restoration of required components.	DB-1917	RR/DID	LIC (6)

Enclosure B
L-18-188

LAR Attachment S – Modifications and Implementation Items
(7 pages follow)

S. Modifications and Implementation Items

6 Pages Attached

Table S-1, Plant Modifications Committed, provided below, include a description of the modifications along with the following information:

- Risk ranking of the modification,
- A problem statement,
- A description of the proposed modification,
- An indication if the modification is currently included in the FPRA,
- A statement if compensatory measure is in place; and
- A risk-informed characterization of the modification and compensatory measure.
- The following legend should be used when reviewing the tables:
  - High = Modification would have an appreciable impact on reducing overall fire CDF.
  - Medium = Modification would have a measurable impact on reducing overall fire CDF.
  - Low = Modification would have either an insignificant or no impact on reducing overall fire CDF.

Table S-1 Plant Modifications Committed

Item	Rank	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
DB-1421	H	Fire damage could result in loss of both steam driven auxiliary feedwater pumps. This could challenge the NSPC for decay heat removal.	ECP 13-0195 installs the emergency water storage tank and facility. This provides emergency power sources and makeup water. ECP 13-0196 installs the diesel-driven emergency feedwater pump and auxiliary equipment.	Yes	No	This modification provides an alternate source of feedwater by providing a diesel-driven power source and expanded emergency water storage.
DB-2061	L	The CCW pumps have less than 20 feet of separation with no intervening combustibles. A fire affecting one CCW pump could potentially damage all CCW pumps.	If the FRE determines a modification is required, then the specifications of the modification will be developed.	Yes	No	Any required modification will ensure availability of required RCP seal cooling in the event of a fire in T-01.

Table S-2, Items provided below are those items (procedure changes, process updates, and training to affected plant personnel) that will be completed prior to the implementation of new NFPA 805 fire protection program.

Table S-2 Implementation Items

Item	Description	LAR Section/Source
DB-0341 DB-0538 DB-1074 DB-1093 DB-1095	Revise Pre-Fire Plans and Associated Training Modules to Include Action for Radioactive Release Scenarios; Review Pre-Fire Plans Against Safe Shutdown Analysis and Revise as Necessary; Revise Pre-Fire Plans to Include Rooms 330, 317A, 605, and 417A; Develop Pre-Fire Plan for Potential Radioactive Release Areas.	Attachment E and Attachment A1, Sections 3.4.3(a), 3.4.2, and 3.4.2.1
DB-0463	Update DB-OP-02501 to Reference Ammeters for Runout Detection.	Attachment C
DB-0492	Generate an Inspection Procedure for the Ceramic Fiber used in Trays.	Attachment V
DB-0525 DB-1058	Revise DB-FP-00007 for Combustible and Transient Loading Program Requirements and to Include Duration Limits Based on Fire Modeling.	Attachment A1, Sections 3.3.1.2 and 3.3.1.2(4)
DB-0540	Revise Transformer Inspection Procedure for Gravel Bed Drainage.	Attachment A1, Section 3.3.9 FPE RAI 01.02
DB-0541	Revise Fire Brigade Policies and Practices Based on the NFPA 600 Code Review.	Attachment A1, Sections 3.4.1(a), 3.4.3(a), and 3.4.4
DB-0557	Revise Fire Brigade Drills to Include Areas Essential to Plant Operation, Safe Shutdown Areas, and to Control Radioactive Release.	Attachment A1, Sections 3.4.3(b) and 3.4.3(c)
DB-0572	Revise Affected Procedures to Include Credited NFPA 805 Fire Protection Equipment.	Attachment A1, Section 3.2.3(2)
DB-0573 DB-0600	Revise Performance-Based Inspection Requirements to Include NFPA 805 Credited Fire Protection Equipment.	Attachment A1, Sections 3.11.1 and 3.2.3(1)
DB-0582	Assess Current Transformer Fire Effects Due to Open Secondary Circuits.	Attachment B, NEI Section 3.5.2.1
DB-0759	Revise Control Room Fire Alarm Response Procedure DB-OP-02529.	Attachment A1, Section 3.4.1(d)
DB-0779	Revise the DBNPS Fire Protection Program, or equivalent replacement procedure, to List NRC as AHJ.	Attachment A1, Section 3.2.2.4 FPE RAI 01.02

Table S-2 Implementation Items

Item	Description	LAR Section/Source
DB-1147 DB-1744 DB-1949	Develop a Monitoring Program as Required by NFPA 805.	4.6.2, Attachment E, and Attachment V
DB-1591	Revise Documents to Include Fire Protection Water System Connections.	Attachment A1, Section 3.5.16
DB-1603	Review of MOVs for Crediting CPT.	Attachment V
DB-1695	Revise PRA to reflect the transitioning plant: If the resulting risk estimates exceed RG 1.174 criteria, then model refinements, plant modifications, and/or procedure changes will be made as necessary prior to the use of the model.	Attachment V PRA RAI 02.d.01
DB-1696 DB-2013 DB-2014	Update the Ignition Frequency Calculation and Fire Modeling for the following: Implementation of the DAFW System and FLEX, Add the Satellite phone Equipment That Will be Added to the EFWF and MCR per ECP-14-0465; Evaluate for Impacts on the Implementation of NFPA 805E for CP 14-0646 that Adds New Sound Powered Phone Equipment.	Attachment V
DB-1810	Revise Interior Finish Procurement Specifications to Include Radiant Heat Flux.	Attachment A1, Section 3.3.3
DB-1812	Revise Procedures to Trip RCPs During a Serious Fire Event.	Attachment C
DB-1825	Revise DBNPS EEEEs including NPE-98-00081 or its replacement (to remove credit for sprinklers).	4.2.2 FPE RAI 01 FPE RAI 06
DB-1838 DB-2041	Create a NFPA 13 and NFPA 72 Code Compliance Review for SBO Diesel Generator Building.	Attachment A2, Fire Compartment OS FPE RAI 01.02 SSA RAI 01
DB-1878	Verification of Fire Damper Rating.	Attachment A2, Fire Compartment II-04
DB-1900	Update Combustible Loading Analysis to include SBO Diesel Building and Review SBO DG Day Tank to NFPA 30.	Attachment A1, Section 3.3.8 FPE RAI 01.02
DB-1908	Revise Procedures and Conduct Training to Implement NPO Requirements for NFPA 805.	Attachment D
DB-1912	Include inspection of Dampers 1203 and 1204 in Fire Damper Inspection Procedure.	Attachment A2, Fire Compartments BG-01 and II-01 FPE RAI 01.02

Table S-2 Implementation Items

Item	Description	LAR Section/Source
DB-1915	Revise Pre-Fire Plans and Training Materials to Address Radioactive Release.	Attachment E
DB-1941	Revise Procedures Including Fire Brigade Training and Drills to Incorporate Recovery Actions.	Attachment G
DB-1943	Review and Revise Fire PRA Human Reliability Analysis Upon Completion of Procedure Updates, Modifications, and Training.	Attachment G
DB-1964	Revise Cable Specifications.	Attachment A1, Sections 3.3.5.1 and 3.3.5.3 FPE RAI 01
DB-1988	Update SAFE to Document ECP 13-0406 Fuse Protection for DB Ammeters.	Attachment C
DB-2005	Perform NFPA 58 Code Review of the Permanent Propane Tanks Installation.	Attachment A1, Section 3.3.7.1
DB-2015	Revise the Level 1 Failure Reports to Reflect Where Normal Control Power is Available.	Attachment C and Attachment V
DB-2020	Resolve the Non-enclosed Power Wiring for the Emergency Backup Lighting in Fire Compartment CC-01.	Attachment A1, Section 3.3.5.1
DB-2029	Create Analysis Assessment to create the Data Set and Testing Criteria due to Modification of EFW and FLEX.	Attachment V
DB-2031	Update documentation due to addition of power converters for the Auxiliary Feedwater and Motor Driven Feedwater target rock valves.	Attachment C and Attachment V
DB-2035 DB-2036	Update documentation such as SAFE for Containment Spray Modifications and Instrumentation.	Attachment C
DB-2037	Develop Fire Modeling Qualification Guides and Procedures.	Attachment V
DB-2049	Develop the DBNPS NFPA 805 Design Basis Document.	4.7.1 FPE RAI 01
DB-2050	Develop New NFPA 805 Control Procedures and Processes.	4.7.2 FPE RAI 01
DB-2053	The NFPA 20 Code of Record Compliance Review will be updated to be in the format of an EEEE.	Attachment A1, Section 3.5.3 FPE RAI 05

Table S-2 Implementation Items

Item	Description	LAR Section/Source
DB-2054	The NFPA 10 Code of Record Compliance Review will be updated to be in the format of an EEEE.	Attachment A1, Section 3.7 FPE RAI 05
DB-2055	The NFPA 72E Code of Record Compliance Review will be updated to be in the format of an EEEE.	Attachment A1, Section 3.8.2 FPE RAI 05
DB-2056	The NFPA 13 and NFPA 15 Code of Record Compliance Review will be updated to be in the format of an EEEE.	Attachment A1, Section 3.9.1 FPE RAI 05
DB-2057	The NFPA 80 and NFPA 90A Code of Record Compliance Review will be updated to be in the format of an EEEE.	Attachment A1, Section 3.11.3 FPE RAI 05
DB-2062	Update the Conduct of Operations procedure to provide clarification required for fire brigade qualifications necessary to meet NFPA 805 Section 3.4.1(c).	Attachment A1, Section 3.4.1(c) FPE RAI 02
DB-2063	Perform a review of the performance-based methods described in EPRI TR-1006756 for establishing the appropriate frequencies for inspection, testing, and maintenance procedures, and adjust the site program to address and differences identified.	Attachment A1, Section 3.2.3(1); Attachment L FPE RAI 03
DB-2128	Implement a means to obtain steam generator level locally during fire scenarios that Include Control Room evacuations.	PRA RAI 03.01.c

Table S-3, Plant Modifications Completed, provided below, include a description of the modifications along with the following information:

- Risk ranking of the modification,
- A problem statement,
- A description of the proposed modification,
- An indication if the modification is currently included in the FPRA,
- A statement if compensatory measure is in place; and
- A risk-informed characterization of the modification and compensatory measure.
- The following legend should be used when reviewing the tables:
  - High = Modification would have an appreciable impact on reducing overall fire CDF.
  - Medium = Modification would have a measurable impact on reducing overall fire CDF.
  - Low = Modification would have either an insignificant or no impact on reducing overall fire CDF.

Table S-3 Plant Modifications Completed

Item	Rank	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
DB-1983	H	FLEX RCS Charging Modification	ECP 13-0463 adds the FLEX RCS Makeup and Boration System. This includes the two FLEX RCS charging pumps that are credited in the fire PRA model.	Yes	No	This modification will help mitigate RCP seal LOCAs should seal cooling and seal injection or seal return be lost through the use of 2 FLEX RCS charging pumps.
DB-2010	H	Install Oil Containment Systems	Install oil containment systems for the unit sub transformers in compartments X-01 and Y-01.	Yes	No	The oil collection system is currently credited in the FPRA and is used to help prevent the creation of a hot gas layer in fire compartments X-01 and Y-01.

Enclosure C
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LAR Attachment W – Fire PRA Insights
(36 pages follow)

W. Fire PRA Insights

35 Pages Attached

W.1 Fire PRA Overall Risk Insights

In the following discussions, the "As Built As Operated Plant" references the plant as it existed at the beginning of the transition to NFPA 805. As the process has continued, the modifications listed in Table S-1 have progressed in parallel with the LAR development and have been mostly completed in the field. The "Transitioning Plant" model includes the impact of the fully implemented modifications and procedure changes.

Risk insights were documented as part of the development of the Davis-Besse Nuclear Power Station (DBNPS) Fire Probabilistic Risk Assessment (FPRA). The calculated fire core damage frequency/large early release frequency (CDF/LERF) were derived using NUREG/CR-6850 methodology for FPRA development. The results were useful in identifying the areas of the plant where the fire risk is greatest as well as understanding the risk significance of multiple spurious operations (MSO). The risk insights generated were also useful in identifying areas where specific contributors might be mitigated via modification.

Using the definition of "significant" from the American Society of Mechanical Engineers (ASME)/American Nuclear Society (ANS) PRA Standard (for the term significant accident sequence) the fire initiating events that sum to 95% of the collective CDF or those whose contribution is more than 1% of the total Fire CDF are considered to represent the significant fire scenarios. For Davis-Besse 6016 scenarios were quantified. Of those scenarios 4168 are multi-compartment related, 35 were left at the compartment level burn without performing detailed fire modeling, and of the compartments remaining, 1813 detailed fire modeling scenarios were created. The contributors to the calculated total CDF of the As-Built As-Operated Plant are as follows: 23 scenarios contribute > 1%. To achieve 95% contribution at least 332 scenarios must be considered, with the 120th ranking scenario having a CDF contribution of < 0.1%. Table W-1 presents the current as built as operated plant (no modification) top 23 scenarios that contribute >1.00% and account for ~57% of the total plant risk due to fire.

Given the results of the As-Built As-Operated Plant scenarios as seen in Table W-1, along with a series of sensitivities regarding Detailed Fire Modeling (DFM) the plant decided something more than fire wrap and traditional mitigation features would be required. After looking at the results in Table W-1, it was observed that the dominant sequences among the top scenarios involved a loss of feedwater. In order to mitigate the risk the decision was made to install a new independent train of feedwater. It was to be located in a completely separate building so current fire scenarios and the multi-compartment analysis would not impact the new system. The new train is diesel powered, and it will have a new tank from which the new pump will take suction. Table W-2 presents a review of the top scenarios for the Transitioning Plant. The table below shows the breakdown of scenarios and their relative importance after installing the modifications credited for risk reduction (i.e., Emergency Feedwater, FLEX RCS Charging Pumps, and Oil Collection Pans).

Contributions of Scenarios by Modeling (Post Transition Model)					
Level of Fire Modeling	**# of Scenarios**	**CDF**	**% Contribution**	**LERF**	**% Contribution**
Compartment Level (no DFM)	35	1.36E-06	2.8%	3.31E-08	0.8%
Detailed Scenarios	1813	4.53E-05	93.8%	3.54E-06	89.2%
Multi-Compartment	4168	1.62E-06	3.4%	3.98E-07	10.0%
Totals	**6016**	**4.83E-05**	**100%**	**3.97E-06**	**100%**

W.2 Risk Change Due to NFPA 805 Transition

In accordance with the guidance in Regulatory Position 2.2.4.2 of Regulatory Guide (RG) 1.205, Revision 1:

> *The total increase or decrease in risk associated with the implementation of NFPA 805 for the overall plant should be calculated by summing the risk increases and decreases for each fire area (including any risk increases resulting from previously approved recovery actions). The total risk increase should be consistent with the acceptance guidelines in Regulatory Guide 1.174. Note that the acceptance guidelines of Regulatory Guide 1.174 may require the total CDF, LERF, or both, to evaluate changes where the risk impact exceeds specific guidelines. If the additional risk associated with previously approved recovery actions is greater than the acceptance guidelines in Regulatory Guide 1.174, then the net change in total plant risk incurred by any proposed alternatives to the deterministic criteria in NFPA 805, Chapter 4 (other than the previously approved recovery actions), should be risk-neutral or represent a risk decrease.*

W.2.1 Methods Used to Determine Changes in Risk

Fire Risk Evaluations were performed for Variations from Deterministic Requirements (VFDRs) of the Davis-Besse Nuclear Power Station. This involves identifying the variations, then assessing the risk, and documenting the results on a per compartment basis. Below is a high level description of how the assessments were performed.

Variations from Deterministic Requirements at the Davis-Besse Nuclear Power Station were categorized into Nuclear Safety Performance Criteria (NSPC), including Reactor Coolant System (RCS) Inventory and Pressure Control, Decay Heat Removal, Reactivity Control, Process Monitoring, and Vital Auxiliaries. These challenges to the NSPC were then grouped by the PRA into Safety Functions which include Secondary Side Decay Heat Removal (VFDRs that are related to removing heat via the steam generator), Primary Side Integrity and Pressure Control (VFDRs related to RCS Inventory and Pressure control), Support Systems (VFDRs related to power, cooling, etc., that may be relied upon for multiple systems), and Epsilon (VFDRs that are evaluated Qualitatively by the PRA).

The Safety Functions were then evaluated by removing the fire effects from the identified components (random failures were considered). Each group was evaluated separately in the PRA Analysis Assessments, along with one integrated All case (this All case is reported in Table W-3 under the heading “Compliant Case”).

Table W-3 provides the risk increases and decreases on a fire compartment basis associated with Variance From Deterministic Requirements (VFDRs).

As allowed by RG 1.205, credit for alternative modifications (that do not bring fire compartments into compliance) but affect the FPRA results have also been considered to offset the risk increase. Specifically, these alternative modifications include the installation of an Emergency Feedwater system to provide a new independent source of Feedwater to the Steam Generators, FLEX RCS pumps, and oil containment systems for the unit sub transformers in compartments X-01 and Y-01. It is important to note that the risk reduction is based solely on the scope of fire initiating events.

Calculating Delta Risk

In order to calculate the total risk of the compartment three models are required:

1) The Current As-Built As-Operated Plant Model (R3)
2) The Compliant Case Model (R4)
3) The Transitioning Plant Model (R1).

The R3, or Base Model does not include any credit for the potential plant modifications identified in Attachment S.

The R4, or Compliant Case model starts with the As-Built As-Operated plant and takes all the equipment identified in all of the VFDRs, identified for the compartment, and removes the potential impact on the equipment due to fire. This may not be physically feasible, but from the risk analysis the equipment is protected and removed from every fire scenario located in the compartment. If an operator manual action was credited in the compartment, for compliance the operator action was set to false to simulate the operator performing this function flawlessly every time.

The R1, or Transitioning Plant, model credits the proposed modifications in Attachment S. The two modifications of interest that reduce risk by the largest amount are the new independent train of Emergency Feedwater and the addition of two RCS Flex Charging Pumps. The Transitioning Plant Model credits modifications beyond compliance, whereas the compliant case (R4) does not.

The Fire Risk Evaluation (FRE) delta CDF and delta LERF is found by subtracting the risk of the Fully Compliant Plant (R4) from the As-Built As-Operated plant (R3), which is included in Table W-2. Per RG 1.205, crediting the modifications that do not bring the compartment into compliance is allowed and is termed Risk Offset. That was calculated by taking the Transitioning model (which includes the modifications, R1) and subtracting the As-Built As-Operated plant (R3). This too is listed in Table W-2. Finally, the compartment Net Delta Risk is the addition of the FRE delta risk and the risk offset which mathematically looks like the following:

$$(R3 - R4) + (R1 - R3) = R1 - R4$$

The compartment Net Delta Risk is the Transitioning Plant minus the Compliant Plant and is reported in Table W-2 on a per compartment basis.

The NFPA 805 transition risk based on the transitioning plant model meets RG 1.174 criteria for both CDF and LERF on a fire area by area and plant basis.

W.2.1.1 Conservative Assumptions Removed Sensitivity Study

In addition to the cases described above, a sensitivity study was performed to determine the impact of conservative assumptions on the calculated delta risk. In the study, the R4 cases are performed using models that do not fail unlocated system cables or cabinets, do not use conservative spurious component repositioning probabilities, and does not fail low risk (Tier 3) components. The absolute delta risk for each VFDR group is then calculated by subtracting the conservatisms removed compliant case risk (i.e., R4*) from the R3 case (i.e., $\Delta R^*=R3-R4^*$). The results of these VFDR group compliant case quantifications and delta risk calculations are presented in Table W-4.

W.2.2 Risk Acceptance Criteria

As a result of transitioning to NFPA 805, plant modifications proposed for DBNPS result in a net decrease in both CDF and LERF. The total plant fire risk (including all internal and external events) is below 1E-04 for CDF and 1E-05 for LERF. Therefore, these changes meet the RG 1.174 acceptance guidelines.

RG 1.205 also requires the licensee to calculate the additional risk of recovery actions. The development of the FREs and data for Table W-3 treated all previously-approved operator manual actions as new. Thus, the ΔCDF and ΔLERF for all operator manual actions are included in the FRE results presented in Table W-3.

The total calculated Fire CDF and LERF (Post NFPA 805), which includes plant modifications proposed in Attachment S, are 4.83E-05/year and 3.97E-06/year, respectively.

As shown in Table W-3, safety was improved beyond the level of a compliant plant as a result of risk-informed modifications.

W.3 Generic RAI Resolutions

As a result of the industry going through interactions with the NRC and learning from our peers, the DBNPS PRA team included this section to provide the NRC information to help expedite the review process and help issue the DBNPS Safety Evaluation more efficiently.

W.3.1 State of Knowledge Correlation (SOKC)

The risk metrics in this attachment are presented in the form of point estimate values. The mean values of CDF and LERF estimated from the uncertainty analysis are expected to be slightly higher than the point estimates calculated using the input parameter mean values, depending on the degree to which the input parameters are correlated. The purpose of the uncertainty analysis was to demonstrate the difference between the point estimate and the mean values of the risk results. In the mean estimate analysis, mean values are used for each parameter in the following equations:

$$CDF = \sum\lambda * \sum(SF*Pns)* CCDP$$

$$LERF = \sum\lambda * \sum(SF*Pns)* CLERP$$

Where

λ = Scenario ignition frequency

SF*Pns = Probability of scenario fire induced damage state

CCDP = Scenario Conditional Core Damage Probability

CLERP = Scenario Conditional Large Early Release Probability

The summations are performed over all scenario damage states to derive the overall mean CDF and LERF for the plant.

In the uncertainty analysis, the terms in the above expressions are replaced by probability distributions representing the uncertainty in each term. Since the mean value is only affected by SOKC of the probabilities of the basic events appearing in the same cutset (NUREG-1855, Vol. 1), the ignition frequency, weighting factor, and probability of non-suppression, from the equation above are considered independent. In this way the only term affected by SOKC is CCDP or CLERP for a given fire scenario. Distributions for ignition frequencies are available, however, so for completeness the uncertainty in ignition frequency is included in the uncertainty analysis.

Uncertainty in the fire-induced CCDP and CLERP SOKC can be attributed to uncertainty in component failure rates and human error probabilities. Component failure rate uncertainty can be due to uncertainty in the rate itself, uncertainty in common cause factors, and uncertainty in fire induced spurious operation probabilities. Distributions were included for these items in the CAFTA database, with the exception of spurious operation probabilities that used a bounding, generic 0.6 probability. The uncertainty analysis was performed using the monte carlo function of the UNCERT software. The method used in UNCERT samples all parametric distributions in the model and applies each sample value of each parameter to all basic events with the

same parameter. The process is repeated thousands of times to obtain a sufficient number of sample values to develop the distributions for the fire induced CDF and LERF. This method therefore considers SOKC.

Below is the table of results from the evaluation:

CDF/yr 100,000 Samples (Monte Carlo)			
	5%	Median	95%
Point Est		4.82E-05	
Mean	4.8E-05	4.78E-05	4.8E-05
5%	2.7E-05	2.72E-05	2.7E-05
Median	4.2E-05	4.22E-05	4.2E-05
95%	8.5E-05	8.55E-05	8.6E-05

LERF/yr 100,000 Samples (Monte Carlo)			
	5%	Median	95%
Point Est		3.97E-06	
Mean	3.9E-06	3.95E-06	4.0E-06
5%	2.5E-06	2.51E-06	2.5E-06
Median	3.6E-06	3.63E-06	3.6E-06
95%	6.3E-06	6.38E-06	6.4E-06

The results of the uncertainty analysis provide reasonable confidence that the SOKC would have minimal effect on the results and, therefore, do not need to be explicitly accounted for in the quantification.

W.3.2 Unapproved Methods (UAMs)

DBNPS did not use any deviations from NRC Accepted Fire PRA Methods (e.g., NUREG/CR-6850, Frequently Asked Questions (FAQs), or Interim Guidance).

W.3.3 Control Power Transformers (CPT) and Spurious Event Probabilities

The DBNPS Circuit Failure Mode Likelihood Analysis used NUREG/CR-6850 Option 1 to determine spurious event probabilities. Since the publication of NUREG/CR-6850, the credit for the Control Power Transformer (CPT) credit has been removed as discussed in NUREG/CR-7150; therefore, the likelihood analysis was updated to remove the CPT credit, and as such, it was removed from the Fire PRA. NUREG/CR-6850 without the CPT credit was used for the Circuit Failure Model and Likelihood Analysis.

The duration factor was applied to the spurious event probability for a spuriously opened PORV. The modeling was reviewed via a focused scope peer review and found to be correctly implemented.

W.3.4 Transient Fire Pinch Points / Placement

Transient fires have been postulated in each fire compartment in the fire PRA. Accessible floor area is postulated as a possible transient ignition source location. Each fire compartment has been subdivided into one or more transient fire zones (weighted by floor area) to refine the frequency of damage to risk significant targets. The total transient frequency for each compartment is apportioned throughout the accessible floor area. A “pinch point” focused approach is not utilized at DBNPS. By analyzing transient fires for accessible floor areas within fire compartments, potential pinch point locations were considered for damage.

IGN-A9 was assessed a met CC I-III with a suggestion to document interviews with Maintenance and operations. Those interviews were then provided in the Ignition Frequency Calculation C-FP-013.10-008.

FSS-A5 was assessed a met CC III with no suggestions or findings.

W.3.5 Hotwork Cable Fires and Junction Box Fires

As described in Fire PRA Notebook 10-02 Plant Response Model, FAQ 13-0005 and FAQ 13-0006 were followed to determine how to apply the ignition frequency for Cable Fires Caused by Welding and Cutting and Junction Box fires when detailed fire modeling was performed. On a per compartment basis, only the highest CCDP raceway and junction box were applied (i.e., no subsequent screening was done as suggested in FAQ 13-0005 and FAQ 13-006, Step 3) if an ignition frequency was calculated for Bin 5, 11, 18, or 31.

W.3.6 Ignition Frequency Sensitivity

The DBNPS Fire PRA did not use NUREG/CR-6850 Supplement 1 data; instead, the DBNPS Fire PRA model was built using the NUREG-2169, published January 2015. It was determined that a sensitivity study comparing the frequencies from NUREG/CR-6850 and NUREG-2169 was unnecessary and, therefore, was not performed.

W.3.7 Main Control Room Abandonment

Main Control Room Abandonment CDF and LERF were determined by evaluating a fault tree that first determines the need for abandonment either due to habitability or due to loss of control. Per procedure, the control room would only be abandoned due to loss of control during fires that occur in the Control Room itself, or in the Cable Spreading Room. Abandonment due to loss of control would be performed if there was a total loss of feedwater (Main Feedwater, Auxiliary Feedwater, the Motor Driven Feedwater Pump, and the Emergency Feedwater Pump). Additionally, loss of both 4160 VAC safety related buses, or both 480V safety related buses would cause control room abandonment. Once abandonment criteria is met, the fault tree considers several aspects that determine if abandonment is successful and core damage avoided. The first aspect is if operators make the decision to abandon the control room in a timely manner. If the decision is made to abandon, the fault tree considers RCS integrity, feedwater availability, and power to the auxiliary shutdown panel. Human actions necessary to maintain the aspects are included in the sections of the fault tree representing that aspect. Failure of any of these aspects is considered to be failure of abandonment leading to core damage. Depending on which aspects are failed, the abandonment sequences are mapped to one of seven core damage sequences:

Sequence TBQU: Transient induced LOCA after a loss of decay heat removal and failure of Makeup/HPI cooling.

Sequence TBU: Transient with loss of decay heat removal via steam generators and failure of makeup/HPI cooling.

Sequence TQU: Transient induced small LOCA with failure of high pressure injection.

Sequence TBP: Transient with loss of decay heat removal via the steam generators and failure of RCS pressure relief.

Sequence TKBP: Transient with failure to trip and excessive peak RCS pressure.

Sequence TKBL: Transient with failure to trip and failure to remove RCS heat

Sequence TKBU: Transient with failure to trip and failure to achieve eventual shutdown.

LERF is then calculated by propagating the core damage sequences through the Level 2 fault trees to determine LERF.

W.3.8 Wrapped or Embedded Cables

If the cable protection is less than 3-hour by wrap or embedment, or a 1-hour embedment with validation of fire duration, the cable is included in the Level 1 Failure Reports, and its support function is considered failed when the fire damages the cable. Those failures are included in the DBNPS Fire PRA.

W.3.9 Peer Review PRA Upgrades

An independent assessment of the Davis-Besse Internal Events (with Internal Flooding), Fire, and Seismic PRA models was performed in October 2017 to close open Findings from previous peer reviews. The review determined that the model changes performed to close findings in some cases constituted a PRA upgrade. The upgrades and their subsequent focused scope peer reviews are described below.

For the internal events model, closure of findings related to common cause modeling were determined to be upgrades, and were reviewed in a focused scope peer review performed after the end of the independent assessment in October 2017. Results of the focused scope peer review are as follows:

SR SY-B4 was reviewed and assessed to be Met.

SR DA-D5 was reviewed and assessed to be Met at CC-III.

For the Seismic PRA model closure of several findings related to V/H ratio determination, increased seismicity due to waste water injection, seismically initiated seiche, and potential for longer evacuation timing associated with high magnitude events resulted in methodology changes requiring peer review. These items were reviewed in a focused scope peer review performed after the end of the independent assessment in October 2017. Results of the focused scope peer review are as follows:

SHA-G1 was reviewed and assessed to be Met at CC-II.

SHA-H1 was reviewed and assessed to be Met.

SHA-I1 was reviewed and assessed to be Met.

SPR-E6 (LE-E3) was reviewed and assessed to be Met.

For the Fire PRA model a finding related to Fire Induced Multiple Spurious Operation (MSO) modeling constituted a PRA Upgrade. A focused scope peer review was subsequently performed in November 2017 to review the MSO modeling which determined that the applicable SRs were all met to CC II or higher. SRs reviewed with respect to MSO modeling in the focused scope peer review were as follows:

ES-A1 was reviewed and assessed to be Met.

ES-A2 was reviewed and assessed to be Met.

ES-A4 was reviewed and assessed to be Met at CC I/II.

ES-A5 was reviewed and assessed to be Met at CC III.

ES-A6 was reviewed and assessed to be Met at CC III.

ES-B2 was reviewed and assessed to be Met at CC II.

ES-B3 was reviewed and assessed to be Met.

ES-B4 was reviewed and assessed to be Met.

ES-B5 was reviewed and assessed to be Not Applicable, since screening of the sort described in the SR was not performed in the Davis-Besse Fire PRA model.

ES-C2 was reviewed and assessed to be Met at CC III.

ES-D1 was reviewed and assessed to be Met.

PRM-B3 was reviewed and assessed to be Met.

PRM-B10 was reviewed and assessed to be Met.

FQ-A1 was reviewed and assessed to be Met.

FQ-A2 was reviewed and assessed to be Met.

FQ-A3 was reviewed and assessed to be Met.

FQ-A4 was reviewed and assessed to be Met.

As a result of responses to NRC Requests for Additional Information and to close an open peer review finding, containment buckling due to spurious containment spray was added to the PRA model. This addition was considered a PRA upgrade, and was reviewed in a focused scope peer review in October 2017. SRs reviewed, and their assessment are as follows:

PRM-B14 was reviewed and assessed to be Met.

PRM-B15 was reviewed and assessed to be Met.

After the initial LAR submittal, it was decided to credit DC Hot Short duration in modeling fire induced spurious PORV opening. The addition of this method was considered a PRA upgrade, which was reviewed in a focused scope peer review in October 2017. SRs reviewed, and their assessment are as follows:

CF-A1 was reviewed and assessed to be Met at CC II-III.

CF-A2 was reviewed and assessed to be Met

CF-B1 was reviewed and assessed to be Met

W.3.10 Fire Propagation for Well Sealed Electrical Cabinets

Well-sealed electrical cabinets > 440V were being treated to have a probability that the fire could cause an arc fault that opens the cabinet and spreads to the closest raceway. In order to reduce the amount of work to implement the FAQ, the following methodology was followed:

1. If the compartment CCDP times the fraction of MCC fires energetic enough to breach the well-sealed MCC enclosure is < 1E-08, then the scenario is mapped to whole room damage (WRD).
2. If the compartment CCDP times the fraction of MCC fires energetic enough to breach the well-sealed MCC enclosure is between 1E-08 and 5E-07, then specific measurements from the field walkdowns are used to determine the fraction of MCC fires that damage targets above the well-sealed MCC based on fire modeling and to determine the severity factors but still map to whole room damage.
3. If the compartment CCDP times the fraction of MCC fires energetic enough to breach the well-sealed MCC enclosure is > 5E-07, specific measurements from the walkdowns are used to determine the fraction of MCC fires that damage targets above the well-sealed MCC based on fire modeling and to determine the severity factor and map these scenarios to specific scenarios damaging only targets within the zone of influence.

   The method chosen is in compliance with FAQ 14-0009.

Table W-1 Significant Fire Initiating Events Contributing Greater than 1% (~57% of the Calculated CDF for the As-Built Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
X-01-EE-01	MCA Scenario Impacting X-01,EE-01	5.07%	TBU/ Spurious signals isolate steam to AFW pump 1, and isolate flow from AFW Pump 2. Fire impacts on DC MCC 2N prevent use of MDFP. Makeup Pump 2 failed by fire impacts, and MU6405 is fire impacted, preventing flow from BWST to Makeup Pump 1. Makeup/HPI cooling is therefore impossible.	3.03E-05	1.00E+00	1.00E+00	2.62E-05	1.54E-01	4.02E-06	5.07%
P-03.01B	D3602 Cabinet Fire FDS1/2/3/4/5/6/7/8/9	4.74%	TBU/ Fire impacts cause loss of AFW and loss of power to MDFP, resulting in total loss of feedwater. Fire impacts fail both Makeup pumps, preventing Makeup/HPI cooling.	3.35E-05	8.46E-01	1.00E+00	2.45E-05	3.03E-02	7.41E-07	9.82%
Q-01.10B	D1_EA (HEAF) FDS1/2/5/6	4.16%	TQU/ The HEAF on Bus D1 renders train 2 equipment unavailable, and damages Bus D2, making the SBODG unavailable. Damage to cables for J Bus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire, resulting in an RCP Seal LOCA. Without essential power, ECCS pumps cannot mitigate the LOCA.	2.83E-04	9.96E-01	8.84E-02	2.15E-05	1.44E-02	3.50E-06	13.98%
Y-01-X-01	MCA Scenario Impacting Y-01,X-01	3.85%	TBQU/ Both AFW trains and MDFP failed due to fire impacts on steam generator level transmitters. Fire impacts on RCS pressure transmitter cause PORV to spuriously open, causing a small LOCA. Both Makeup pumps fail due to loss of power to their lube oil pumps, so Makeup/HPI cooling is not possible.	2.30E-05	1.00E+00	1.00E+00	1.99E-05	1.00E+00	1.99E-05	17.83%

Table W-1 Significant Fire Initiating Events Contributing Greater than 1% (~57% of the Calculated CDF for the As-Built Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
X-01-Y-01	MCA Scenario Impacting X-01,Y-01	3.85%	TBQU/ Both AFW trains and MDFP failed due to fire impacts on steam generator level transmitters. Fire impacts on RCS pressure transmitter cause PORV to spuriously open, causing a small LOCA. Both Makeup pumps fail due to loss of power to their lube oil pumps, so Makeup/HPI cooling is not possible.	2.30E-05	1.00E+00	1.00E+00	1.99E-05	1.00E+00	1.99E-05	21.69%
A-08.05C	Relay Cabinet RC3701 FDS5/7/9/10/11	3.64%	TBU/ Fire impacts cause SG Level transmitter for AFW train 2 to fail high, causing SG 2 underfeed. Steam valve from SG1 to AFW pump 1 fails to open due to fire, so steam is unavailable to drive AFW pump 1. Fire impacts cause loss of power to MDFP. Fire impacts fail both Makeup pumps, so Makeup/HPI cooling fails.	3.35E-05	6.49E-01	1.00E+00	1.88E-05	3.07E-02	5.76E-07	25.33%
Q-01.08B	Bus B (HEAF) FDS1/2/5/6	3.41%	TQU/ The HEAF on Bus B damages Bus D1, which renders train 2 equipment unavailable; and damages Bus D2, making the SBODG unavailable. Damage to cables for J Bus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire, resulting in an RCP Seal LOCA. Without essential power, ECCS pumps cannot mitigate the LOCA. * This sequence conservatively models an RCP seal LOCA, even though the sequence of failures would suggest the RCPs would lose power and cease operation prior to losing seal injection and seal cooling. Modeling in this way avoids 'taking credit for a failure' to prevent RCP Seal LOCAs during fire scenarios.	3.04E-04	9.96E-01	6.72E-02	1.76E-05	2.98E-03	7.80E-07	28.74%

Table W-1 Significant Fire Initiating Events Contributing Greater than 1% (~57% of the Calculated CDF for the As-Built Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
Q-01.12B	D2_EA (HEAF) FDS1/2/5/6	3.17%	TQU/ The HEAF on Bus D2 damages Bus D1, which renders train 2 equipment unavailable; and also makes the SBODG unavailable. Damage to cables for J Bus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire, resulting in an RCP Seal LOCA. Without essential power, ECCS pumps cannot mitigate the LOCA.	2.83E-04	9.96E-01	6.72E-02	1.63E-05	2.98E-03	7.24E-07	31.90%
P-03.T01-2	Transient Scenario 1-2	2.87%	TBU/ Both AFW trains and MDFP failed due to fire impacts on steam generator level transmitters. Fire impacts fail both Makeup pumps, preventing Makeup/HPI cooling.	2.72E-04	6.31E-02	1.00E+00	1.48E-05	3.03E-02	4.48E-07	34.77%
DD-01.HOTWORKCABLEFIRE	BLP59C DD-01 CABLE FIRE CAUSED BY WELDING AND CUTTING	2.71%	Control Room Abandonment (TBU, TQU, TBQU)/ Control room abandonment due to loss of all feedwater. Fire impacts cause loss of AFW and MDFP. Failure of operator actions to successfully abandon control room.	1.03E-04	1.00E+00	1.58E-01	1.40E-05	1.95E-03	1.73E-07	37.49%
R-01.06B	CD (HEAF) FDS1/2/3/4/5/6/7/8/9	2.57%	TBU/ Both AFW trains and MDFP failed due to fire impacts on steam generator level transmitters. Fire impacts fail #3 SW and CCW pumps. Cooling water and ECCS system failures cause loss of Makeup/HPI cooling.	1.30E-04	1.00E+00	1.18E-01	1.32E-05	3.73E-03	4.19E-07	40.05%

Table W-1 Significant Fire Initiating Events Contributing Greater than 1% (~57% of the Calculated CDF for the As-Built Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
A-08.04C	C3702 FDS5/7/8/9/ 10/11	2.34%	TBLX/ Both AFW trains and MDFP failed due to fire impacts on steam generator level trainsmitters. Fire impacts on MCC E11E prevent opening train 1 HPI/LPI cross connect valve, and fire impacts on MCCs F11B and F11D prevent aligning LPI pump 2 suction to the emergency sump. Therefore, Makeup/HPI cooling fails upon BWST depletion.	3.35E-05	4.18E-01	1.00E+00	1.21E-05	3.02E-02	3.64E-07	42.40%
MA-01.T01	Transient Scenario #1	2.00%	TBU/ Fire impacts cause overcurrent trips on both 4160V essential busses, rendering ECCS equipment unavailable. Fire impacts directly fail AFW pump 1, and fail power to MS107, so AFW pump 2 cannot receive steam from SG2. AFW pump 2 fails due to no motive steam available. With no ECCS systems available Makeup/HPI cooling is not possible.	1.44E-04	1.00E+00	8.31E-02	1.03E-05	4.10E-03	5.09E-07	44.40%
A-08.T13	Transient Scenario #13	1.97%	TBLX/ Fire impacts cause SG Level transmitter for AFW train 1 and MDFP to SG 1 to fail high, causing SG 1 underfeed. Fire impacts cause AF599 to spuriously close, isolating feed to SG 2. Fire impacts on MCC E11E prevent opening train 1 HPI/LPI cross connect valve, and fire impacts on MCCs F11B and F11D prevent aligning LPI pump 2 suction to the emergency sump. Therefore, Makeup/HPI cooling fails upon BWST depletion.	2.72E-04	6.43E-02	6.74E-01	1.02E-05	2.29E-02	3.45E-07	46.37%

Table W-1 Significant Fire Initiating Events Contributing Greater than 1% (~57% of the Calculated CDF for the As-Built Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
X-01-R-01	MCA Scenario Impacting X-01,Y-01	1.26%	TBU/ Both AFW trains and MDFP failed due to fire impacts on steam generator level transmitters. Both Makeup pumps are failed due to fire impacts, making Makeup/HPI cooling impossible.	7.51E-06	1.00E+00	1.00E+00	6.47E-06	4.48E-01	2.90E-06	47.63%
S-01.10B	Bus A (HEAF) FDS1/2/5/6	1.23%	TBU/TQU/ The HEAF on Bus A damages bus C1, which renders train 1 equipment unavailable. Damage to cables to startup transformer 2 feeder breaker make offsite power unavailable to Bus D1. Fire damage to CCW heat exchanger flow control valve or CCW flow sensor make train 2 CCW unavailable for EDG 2 cooling, failing the EDG. Causing a loss of train 2 essential power. Operators fail to align the SBODG to provide power, or random failures cause loss of SBODG. Fire impacts on AFW train 1 flow control valve cause loss of AFW train 1. Loss of power on train 2 prevents opening steam valve from SG 2 to AFP 2. With AFW train 1 failed, no steam is available to drive AFW pump 2. Fire prevents tripping RCPs after loss of seal cooling and injection, causing a RCP Seal LOCA.	2.83E-04	9.96E-01	2.61E-02	6.34E-06	1.47E-03	3.56E-07	48.86%

Table W-1 Significant Fire Initiating Events Contributing Greater than 1% (~57% of the Calculated CDF for the As-Built Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
Q-01.09B	D1_EA FDS1/2/6	1.21%	TQU/ The fire on Bus D1 renders train 2 equipment unavailable, and damages Bus D2, making the SBODG unavailable. Damage to cables for J Bus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire, resulting in an RCP Seal LOCA. Without essential power, ECCS pumps cannot mitigate the LOCA.	4.36E-04	1.89E-01	8.82E-02	6.26E-06	1.44E-02	1.02E-06	50.07%
Q-01.07B	Bus B FDS1/2/6	1.14%	TQU/ The HEAF on Bus B damages Bus D1, which renders train 2 equipment unavailable; and damages Bus D2, making the SBODG unavailable. Damage to cables for J Bus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire, resulting in an RCP Seal LOCA. Without essential power, ECCS pumps cannot mitigate the LOCA. * This sequence conservatively models an RCP seal LOCA, even though the sequence of failures would suggest the RCPs would lose power and cease operation prior to losing seal injection and seal cooling. Modeling in this way avoids 'taking credit for a failure' to prevent RCP Seal LOCAs during fire scenarios.	4.69E-04	2.12E-01	6.84E-02	5.87E-06	3.04E-03	2.61E-07	51.21%

Table W-1 Significant Fire Initiating Events Contributing Greater than 1% (~57% of the Calculated CDF for the As-Built Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
S-01.12B	C1_41 (HEAF) FDS1/2/5/6	1.13%	TQU/ The HEAF on Bus C1 renders train 1 equipment unavailable. Fire impacts on the #3 CCW Heat Exchanger temperature control valve fail CCW pump 3 as 2. Maintenance conditions or non-fire related random failures cause CCW pump/train 2 unavailability or cooling failure. The total loss of CCW renders all ECCS pumps and makekup pumps unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire, resulting in an RCP Seal LOCA. Without cooling, ECCS pumps cannot mitigate the LOCA.	2.83E-04	9.96E-01	2.39E-02	5.80E-06	9.47E-04	2.30E-07	52.34%
Q-01.11B	D2_EA FDS1/2/6	1.10%	TQU/ The fire on Bus D2 damages Bus D1, which renders train 2 equipment unavailable; and also makes the SBODG unavailable. Damage to cables for J Bus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire, resulting in an RCP Seal LOCA. Without essential power, ECCS pumps cannot mitigate the LOCA.	4.36E-04	2.21E-01	6.84E-02	5.68E-06	3.04E-03	2.53E-07	53.44%

Table W-1 Significant Fire Initiating Events Contributing Greater than 1% (~57% of the Calculated CDF for the As-Built Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
S-01.14B	C2_EA (HEAF) FDS1/2/5/6	1.04%	TQU/ The HEAF on Bus C2 damages bus C1, which renders train 1 equipment unavailable. Random failures make train 2 CCW unavailable. Loss of CCW cooling fails RCP seal injection and cooling and fire prevents tripping RCPs after loss of seal cooling and injection, causing a RCP Seal LOCA. With no CCW cooling, ECCS pumps cannot mitigate LOCA. Fire impacts on cables for breaker HBBD cause a loss of normal power to D1. Random failures of EDG 2 and the SBODG result in a total loss of 4160V power. Loss of power causes failure of RCP seal injection and cooling. Fire prevents tripping RCPs after loss of seal cooling and injection, causing a RCP Seal LOCA. With no power, ECCS pumps cannot mitigate LOCA.	2.61E-04	9.96E-01	2.39E-02	5.36E-06	9.50E-04	2.13E-07	54.48%
II-01.TBCOLLAPSE	T/G Fires (Excitor, Hydrogen, Oil & Catastrophic) FDS6	1.03%	TBU/ Turbine building collapse fails AFW and MDFP. Collapse also fails bus D1 and fails MOV MU6405 so that Makeup Pump 1 suction cannot be aligned to the BWST. With no Makeup trains available, Makeup/HPI cooling is not possible.	8.23E-03	7.50E-04	1.00E+00	5.32E-06	3.61E-02	1.92E-07	55.51%

Table W-1 Significant Fire Initiating Events Contributing Greater than 1% (~57% of the Calculated CDF for the As-Built Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
Q-01.09D	D1_EA FDS4/5/8/9/ 10	1.03%	TQU/ The fire on Bus D1 renders train 2 equipment unavailable, and damages Bus D2, making the SBODG unavailable. Damage to cables for J Bcrus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire, resulting in an RCP Seal LOCA. Without essential power, ECCS pumps cannot mitigate the LOCA.	4.36E-04	1.60E-01	8.83E-02	5.29E-06	1.44E-02	8.64E-07	56.54%

Note: All fire scenarios apply the plant availability factor of 8.62E-01, so in the above table IGF*SF*Pns*CCDP*8.62E-01=CDF. LERF calculation is similar.

Table W-2 presents the Transitioning Plant top scenarios that contribute greater than 1% to CDF.

Table W-2 Significant Fire Initiating Events Contributing Greater than 1% (~28% of the Calculated CDF for the Transition Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
Q-01.10B	D1_EA (HEAF) FDS1/2/5/6	1.99%	TQU/ The HEAF on Bus D1 renders train 2 equipment unavailable. Damage to cables for J Bus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire, resulting in an RCP Seal LOCA. Fire damage causes overfeed from AFW train 2, requiring operators to trip the pump. MDFP unavailable due to fire damage to bus D2. Random failures prevent success of blast cooldown or use of FLEX charging pumps to mitigate LOCA. * This sequence conservatively models an RCP seal LOCA, even though the sequence of failures would suggest the RCPs would lose power and cease operation prior to losing seal injection and seal cooling. Modeling in this way avoids 'taking credit for a failure' to prevent RCP Seal LOCAs during fire scenarios	2.83E-04	9.96E-01	3.95E-03	9.60E-07	5.21E-04	1.27E-07	1.99%
U-01.T01	Transient Scenario #1	1.95%	TQX/ Fire induced failures cause a loss of RCP seal return or loss of seal injection and seal cooling. Operators fail to trip RCPs, causing a RCP Seal LOCA. Loss of instrument air due to fire impacts cause pressurizer overfill, which operators fail to prevent. Random failures of PORV, PORV block valve, and/or pressurizer relief valves cause an unisolable small LOCA. Fire impacts to emergency sump and normal shutdown cooling valves prevent long term cooling after BWST depletion.	2.72E-04	3.34E-01	1.20E-02	9.42E-07	2.59E-05	2.03E-09	3.94%

Table W-2 Significant Fire Initiating Events Contributing Greater than 1% (~28% of the Calculated CDF for the Transition Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
EE-01.T11	Transient Scenario #11	1.59%	TBU/ Fire impacts cause loss of AFW. Operators fail to start MDFP, EFW, and fail to initiate Makeup/HPI cooling.	2.86E-04	9.64E-01	3.22E-03	7.66E-07	8.62E-04	2.05E-07	5.53%
DD-01.T03	Transient Scenario #3	1.53%	Control Room Abandonment (TBU, TQU, TBQU)/ Control room abandoned due to loss of E1 and F1 480VAC buses. Failure of operator actions to successfully abandon control room.	3.86E-05	1.29E-01	1.72E-01	7.37E-07	5.42E-03	2.32E-08	7.05%
P-03.01B	D3602 Cabinet Fire FDS1/2/3/4/ 5/6/7/8/9	1.48%	TBU/ Fire impacts cause loss of AFW and loss of power to MDFP. Random failures in EFW system result in total loss of feedwater. Fire impacts fail both Makeup pumps, preventing Makup/HPI cooling.	3.35E-05	8.46E-01	2.92E-02	7.14E-07	8.69E-04	2.12E-08	8.53%
Q-01.08B	Bus B (HEAF) FDS1/2/5/6	1.44%	TQU/ The HEAF on Bus B damages bus D1, which renders train 2 equipment unavailable. Damage to cables for J Bus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire. Seal LOCA Fire damage causes overfeed from AFW train 2, requiring operators to trip the pump. MDFP unavailable due to fire damage to bus D2. Random failures prevent success of blast cooldown or use of FLEX charging pumps to mitigate LOCA. * This sequence conservatively models an RCP seal LOCA, even though the sequence of failures would suggest the RCPs would lose power and cease operation prior to losing seal injection and seal cooling. Modeling in this way avoids 'taking credit for a failure' to prevent RCP Seal LOCAs during fire scenarios	3.04E-04	9.96E-01	2.66E-03	6.95E-07	1.07E-04	2.80E-08	9.97%

Table W-2 Significant Fire Initiating Events Contributing Greater than 1% (~28% of the Calculated CDF for the Transition Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
U-01.T05	Transient Scenario #5	1.34%	TQX/ Fire induced failures cause a loss of RCP seal return or loss of seal injection and seal cooling. Operators fail to trip RCPs, causing a RCP Seal LOCA. Loss of instrument air due to fire impacts cause pressurizer overfill, which operators fail to prevent. Random failures of PORV, PORV block valve, and/or pressurizer relief valves cause an unisolable small LOCA. Fire impacts to emergency sump and normal shutdown cooling valves prevent long term cooling after BWST depletion.	2.72E-04	2.30E-01	1.20E-02	6.49E-07	2.51E-05	1.36E-09	11.32%
Q-01.12B	D2_EA (HEAF) FDS1/2/5/6	1.34%	TQU/ The HEAF on Bus D2 damages bus D1, which renders train 2 equipment unavailable. Damage to cables for J Bus make offsite power unavailable to Bus C1. Random failures of EDG1 render train 1 equipment unavailable. RCPs left without seal cooling or injection & operators unable to trip due to fire. Seal LOCA Fire damage causes overfeed from AFW train 2, requiring operators to trip the pump. MDFP unavailable due to fire damage to bus D2. Random failures prevent success of blast cooldown or use of FLEX charging pumps to mitigate LOCA. * This sequence conservatively models an RCP seal LOCA, even though the sequence of failures would suggest the RCPs would lose power and cease operation prior to losing seal injection and seal cooling. Modeling in this way avoids 'taking credit for a failure' to prevent RCP Seal LOCAs during fire scenarios	2.83E-04	9.96E-01	2.66E-03	6.45E-07	1.07E-04	2.59E-08	12.65%

Table W-2 Significant Fire Initiating Events Contributing Greater than 1% (~28% of the Calculated CDF for the Transition Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
MA-01.T01	Transient Scenario #1	1.33%	TBU/ Fire impacts cause overcurrent trips on both 4160V essential busses, rendering ECCS equipment unavailable. Fire impacts directly fail AFW pump 1, and fail power to MS107, so AFW pump 2 cannot receive steam from SG2. AFW pump 2 fails due to no motive steam available. Random failures in the EFW system fail feed from EFW. With no ECCS systems available Makeup/HPI cooling is not possible.	1.44E-04	1.00E+00	5.18E-03	6.43E-07	2.11E-04	2.62E-08	13.98%
DD-01.HOTWORKCABLEFIRE	Bin 5 DD-01 CABLE FIRE CAUSED BY WELDING AND CUTTING	1.31%	Control Room Abandonment (TBU, TQU, TBQU)/ Control room abandonment due to loss of all feedwater. Fire impacts cause loss of AFW and MDFP, random failures of EFW system result in loss of all feedwater. Failure of operator actions to successfully abandon control room.	1.03E-04	1.00E+00	7.16E-03	6.35E-07	2.60E-04	2.31E-08	15.30%

Table W-2 Significant Fire Initiating Events Contributing Greater than 1% (~28% of the Calculated CDF for the Transition Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
S-01.10B	Bus A (HEAF) FDS1/2/5/6	1.22%	TBU/TQU/ The HEAF on Bus A damages bus C1, which renders train 1 equipment unavailable. Damage to cables to startup transformer 2 feeder breaker make offsite power unavailable to Bus D1. Fire damage to CCW heat exchanger flow control valve or CCW flow sensor make train 2 CCW unavailable for EDG 2 cooling, failing the EDG. Causing a loss of train 2 essential power. Operators fail to align the SBODG to provide power, or random failures cause loss of SBODG. Fire impacts on AFW train 1 flow control valve cause loss of AFW train 1. Loss of power on train 2 prevents opening steam valve from SG 2 to AFP 2. With AFW train 1 failed, no steam is available to drive AFW pump 2. Random failures prevent use of EFW. Fire prevents tripping RCPs after loss of seal cooling and injection, causing a RCP Seal LOCA. * This sequence conservatively models an RCP seal LOCA, even though the sequence of failures would suggest the RCPs would lose power and cease operation prior to losing seal injection and seal cooling. Modeling in this way avoids 'taking credit for a failure' to prevent RCP Seal LOCAs during fire scenarios	2.83E-04	9.96E-01	2.43E-03	5.90E-07	8.37E-05	2.03E-08	16.52%

Table W-2 Significant Fire Initiating Events Contributing Greater than 1% (~28% of the Calculated CDF for the Transition Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
A-08.05C	Relay Cabinet RC3701 FDS5/7/9/10/11	1.21%	TBU/ Fire impacts cause SG Level transmitter for AFW train 2 to fail high, causing SG 2 underfeed. Steam valve from SG1 to AFW pump 1 fails to open due to fire, so steam is unavailable to drive AFW pump 1. Fire impacts cause loss of power to MDFP. Random failures cause loss of EFW. Fire impacts fail both Makeup pumps, so Makeup/HPI cooling fails.	3.35E-05	6.49E-01	3.12E-02	5.86E-07	8.85E-04	1.66E-08	17.73%
R-01.06B	Bus CD (HEAF) FDS1/2/3/4/5/6/7/8/9	1.18%	TBU/ Both AFW trains and MDFP failed due to fire impacts on steam generator level transmitters. Random failures of EFW or failure of human action to start EFW. Fire impacts fail #3 SW and CCW pumps. Cooling water and ECCS system failures cause loss of Makeup/HPI cooling.	1.30E-04	1.00E+00	5.07E-03	5.70E-07	1.45E-04	1.63E-08	18.91%
FF-01.MCBC5715S10	Main Control Board Fire	1.17%	Control Room Abandonment (TBU, TQU, TBQU)/ Control room abandoned due to loss of E1 and F1 480VAC buses. Failure of operator actions to successfully abandon control room.	4.91E-03	1.58E-03	8.48E-02	5.67E-07	2.93E-03	1.96E-08	20.09%
FF-01.MCBC5715S05	Main Control Board Fire	1.17%	Control Room Abandonment (TBU, TQU, TBQU)/ Control room abandoned due to loss of E1 and F1 480VAC buses. Failure of operator actions to successfully abandon control room.	4.91E-03	1.58E-03	8.47E-02	5.67E-07	2.93E-03	1.96E-08	21.26%

Table W-2 Significant Fire Initiating Events Contributing Greater than 1% (~28% of the Calculated CDF for the Transition Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
A-08.04C	Cabinet C3702 FDS5/7/8/9/ 10/11	1.14%	TBLX/ Both AFW trains and MDFP failed due to fire impacts on steam generator level trainsmitters. Random failures of EFW or failure of human action to start EFW. Fire impacts on MCC E11E prevent opening train 1 HPI/LPI cross connect valve, and fire impacts on MCCs F11B and F11D prevent aligning LPI pump 2 suction to the emergency sump. Therefore, Makeup/HPI cooling fails upon BWST depletion.	3.35E-05	4.18E-01	4.55E-02	5.50E-07	9.58E-04	1.16E-08	22.40%
A-08.T16	Transient Scenario #16	1.13%	TBU/ Fire impacts spuriously close AFW train 2 containment Isolation valve (AF599). Fire impacts cause steam valve from SG1 to AFW pump 1 to fail to open. AFW train 1 fails due to lack of motive steam.	2.72E-04	3.60E-01	6.48E-03	5.47E-07	1.23E-04	1.03E-08	23.53%
DD-01.T13	Transient Scenario #13	1.09%	Control Room Abandonment (TBU, TQU, TBQU) Control room abandoned due to loss of C1 and D1 480VAC buses. Fire damage causes direct loss of C1, and loss of offsite power to D1. Fire impacts cause loss of CCW to EDG2, resulting in loss of power to D1. Failure of operator actions to successfully abandon control room.	3.86E-05	1.12E-01	1.41E-01	5.26E-07	4.65E-03	1.74E-08	24.62%
E-01.T03	Transient Scenario #3	1.08%	TBU/ Fire impacts cause AFW overfeed, failing both AFW pumps. Operators fail to start EFW, MDFP, and fail to initiate Makeup/HPI cooling. Random failures of EFW, MDFP, or ECCS systems also contribute.	2.58E-04	8.32E-01	2.83E-03	5.24E-07	8.29E-05	1.53E-08	25.71%

Table W-2 Significant Fire Initiating Events Contributing Greater than 1% (~28% of the Calculated CDF for the Transition Plant)

Scenario	Desc	% CDF	Risk Insights (Dominant Sequence)/ Key Failures	IGF	SF*Pns	CCDP	CDF	CLERP	LERF	Cumulative CDF %
G-02.WHOLERMNOEMB.BF11D	BF11D FDS2/4	1.07%	TQX/ Operators fail to prevent pressurizer overfill from Makeup System. PORV or Pressurizer Safety valve fails to close after overfeed. Fire impacts prevent swapping to emergency sump (DH7A & DH7B failures) or shutdown cooling (no power to DH12) after depletion of BWST.	1.68E-04	2.30E-01	1.56E-02	5.18E-07	1.35E-04	4.49E-09	26.78%
AC-01.COMPARTMENT	AC-01 Compartment Full Burn	1.04%	TQX/ Operators fail to prevent pressurizer overfill from Makeup System. PORV or Pressurizer Safety valve fails to close after overfeed. Fire impacts prevent swapping to emergency sump (DH7A & DH7B failures) or shutdown cooling (PSH7531A fails high) after depletion of BWST.	1.22E-03	1.00E+00	4.78E-04	5.04E-07	9.56E-07	1.01E-09	27.83%

Note: All fire scenarios apply the plant availability factor of 8.62E-01, so in the above table IGF*SF*Pns*CCDP*8.62E-01=CDF. LERF calculation is similar.

Table W-3 Davis-Besse Fire Compartment Risk Summary[1]

		Transitioning Plant		Current As-Built Plant		All VFDRs Fixed		Excluding Risk Offset				Net Delta			
		R1[4]		R3[4]		R4[2]		FRE Delta Risk (R3-R4)		Risk Offset (R1-R3)		Net Delta (R1-R4)		Additional Risk of RAs[3,5]	
Fire Compartment	Description	CDF (R1)	LERF (R1)	CDF (R3)	LERF (R3)	CDF (R4)	LERF (R4)	Delta ALL CDF (R3-R4)	Delta ALL LERF (R3-R4)	Roff CDF	Roff LERF	Net CDF	Net LERF	CDF	LERF
A-01	Spent Resin, Decon & Storage	1.68E-07	1.82E-09	9.08E-07	3.10E-08	0.00E+00	0.00E+00	9.08E-07	3.10E-08	-7.40E-07	-2.92E-08	1.68E-07	1.82E-09	1.68E-07	1.82E-09
A-02	545	8.07E-10	0.00E+00	8.07E-10	6.10E-11	0.00E+00	0.00E+00	8.07E-10	6.10E-11	0.00E+00	-6.10E-11	8.07E-10	0.00E+00	8.07E-10	0.00E+00
A-03	Misc. Waste Monitoring Tank Rm	5.31E-09	2.27E-12	5.34E-09	2.84E-11	0.00E+00	0.00E+00	5.34E-09	2.84E-11	-2.62E-11	-2.62E-11	5.31E-09	2.27E-12	5.31E-09	2.27E-12
A-04	ECCS 2	3.19E-07	1.61E-08	1.02E-06	1.34E-07	0.00E+00	0.00E+00	1.02E-06	1.34E-07	-7.05E-07	-1.18E-07	3.19E-07	1.61E-08	3.19E-07	1.61E-08
A-05	CWRT	2.21E-08	5.57E-10	2.91E-07	1.09E-08	0.00E+00	0.00E+00	2.91E-07	1.09E-08	-2.69E-07	-1.04E-08	2.21E-08	5.57E-10	2.21E-08	5.57E-10
A-06	Containment Annulus (east)	4.57E-08	8.74E-10	6.25E-08	1.33E-09	0.00E+00	0.00E+00	6.25E-08	1.33E-09	-1.68E-08	-4.60E-10	4.57E-08	8.74E-10	4.57E-08	8.74E-10
A-07	#2 MPR	4.04E-08	9.17E-10	1.51E-07	4.22E-09	0.00E+00	0.00E+00	1.51E-07	4.22E-09	-1.11E-07	-3.31E-09	4.04E-08	9.17E-10	4.04E-08	9.17E-10
A-08	#4 MPR	4.72E-06	9.83E-08	5.77E-05	1.77E-06	2.30E-06	6.93E-08	5.54E-05	1.71E-06	-5.29E-05	-1.68E-06	2.42E-06	2.90E-08	5.50E-05	1.71E-06
A-09	Cable Chase	1.05E-07	3.17E-09	2.88E-06	1.06E-07	0.00E+00	0.00E+00	2.88E-06	1.06E-07	-2.78E-06	-1.03E-07	1.05E-07	3.17E-09	1.05E-07	3.17E-09
AB-01	ECCS 1	8.88E-07	2.83E-08	1.35E-06	1.88E-07	4.08E-07	1.32E-07	9.37E-07	5.61E-08	-4.58E-07	-1.59E-07	4.80E-07	-1.03E-07	0.00E+00	0.00E+00
AB-02	Containment Annulus (west)	5.10E-08	9.25E-10	1.07E-07	2.49E-09	0.00E+00	0.00E+00	1.07E-07	2.49E-09	-5.57E-08	-1.57E-09	5.10E-08	9.25E-10	5.10E-08	9.25E-10
AB-03	#1 MPR	4.43E-08	3.38E-11	5.31E-08	2.96E-10	0.00E+00	0.00E+00	5.31E-08	2.96E-10	-8.78E-09	-2.62E-10	4.43E-08	3.38E-11	4.43E-08	3.38E-11
AB-04	MU Pump RM	1.21E-06	1.56E-08	1.49E-06	4.46E-08	3.13E-07	1.84E-08	1.17E-06	2.62E-08	-2.74E-07	-2.90E-08	8.99E-07	-2.85E-09	9.70E-11	0.00E+00
AB-05	#3 MPR	2.33E-07	1.65E-09	2.33E-07	1.67E-09	0.00E+00	0.00E+00	2.33E-07	1.67E-09	2.60E-10	-1.83E-11	2.33E-07	1.65E-09	2.33E-07	1.65E-09
AB-06	Aux Bldg Stairwell 3	8.99E-11	0.00E+00	8.99E-11	8.04E-12	0.00E+00	0.00E+00	8.99E-11	8.04E-12	0.00E+00	-8.04E-12	8.99E-11	0.00E+00	8.99E-11	0.00E+00
AC-01	BWST and PWST Pipe Trench	5.04E-07	1.01E-09	5.04E-07	1.01E-09	5.04E-07	9.91E-10	3.54E-10	1.65E-11	-9.00E-11	0.00E+00	2.64E-10	1.65E-11	3.54E-10	1.65E-11
AD-01	Aux Bldg Elev equip room	9.72E-10	7.33E-12	1.01E-09	4.61E-11	0.00E+00	0.00E+00	1.01E-09	4.61E-11	-3.88E-11	-3.88E-11	9.72E-10	7.33E-12	9.72E-10	7.33E-12
B-01	Pipe Chase	3.51E-07	9.80E-08	8.28E-07	3.75E-07	0.00E+00	0.00E+00	8.28E-07	3.75E-07	-4.77E-07	-2.77E-07	3.51E-07	9.80E-08	3.51E-07	9.80E-08
BD-01	Screenwash pump & Diesel FP day tank	5.38E-09	5.83E-11	5.68E-09	2.35E-10	0.00E+00	0.00E+00	5.68E-09	2.35E-10	-2.94E-10	-1.76E-10	5.38E-09	5.83E-11	5.38E-09	5.83E-11
BE-01	Diesel Fire Pump Rm	3.04E-08	6.12E-10	3.30E-07	1.50E-08	0.00E+00	0.00E+00	3.30E-07	1.50E-08	-3.00E-07	-1.44E-08	3.04E-08	6.12E-10	3.04E-08	6.12E-10
BF-01	SWP RM	2.11E-07	6.18E-09	2.39E-06	1.13E-07	0.00E+00	0.00E+00	2.39E-06	1.13E-07	-2.18E-06	-1.07E-07	2.11E-07	6.18E-09	2.11E-07	6.18E-09
BG-01	SW VALVE	1.51E-08	2.25E-10	4.14E-07	1.36E-08	0.00E+00	0.00E+00	4.14E-07	1.36E-08	-3.98E-07	-1.33E-08	1.51E-08	2.25E-10	1.51E-08	2.25E-10
BH-01	Labs	1.86E-07	3.36E-09	3.13E-07	8.99E-09	0.00E+00	0.00E+00	3.13E-07	8.99E-09	-1.28E-07	-5.62E-09	1.86E-07	3.36E-09	1.86E-07	3.36E-09

Table W-3 Davis-Besse Fire Compartment Risk Summary[1]

		Transitioning Plant		Current As-Built Plant		All VFDRs Fixed		Excluding Risk Offset				Net Delta			
		R1[4]		R3[4]		R4[2]		FRE Delta Risk (R3-R4)		Risk Offset (R1-R3)		Net Delta (R1-R4)		Additional Risk of RAs[3,5]	
Fire Compartment	Description	CDF (R1)	LERF (R1)	CDF (R3)	LERF (R3)	CDF (R4)	LERF (R4)	Delta ALL CDF (R3-R4)	Delta ALL LERF (R3-R4)	Roff CDF	Roff LERF	Net CDF	Net LERF	CDF	LERF
BM-01	Diesel Oil Pumphouse	2.09E-09	2.08E-11	2.19E-09	9.56E-11	0.00E+00	0.00E+00	2.19E-09	9.56E-11	-9.86E-11	-7.49E-11	2.09E-09	2.08E-11	2.09E-09	2.08E-11
BN-01	EDG Week Tanks	6.54E-10	4.50E-12	6.82E-10	3.31E-11	0.00E+00	0.00E+00	6.82E-10	3.31E-11	-2.86E-11	-2.86E-11	6.54E-10	4.50E-12	6.54E-10	4.50E-12
CC-01	Labs	2.60E-08	3.05E-11	2.73E-08	4.34E-11	0.00E+00	0.00E+00	2.73E-08	4.34E-11	-1.28E-09	-1.29E-11	2.60E-08	3.05E-11	2.60E-08	3.05E-11
D-01	Let Down Cooler & CF Tank Area	1.16E-06	2.60E-08	2.12E-05	6.28E-07	2.07E-05	6.19E-07	4.44E-07	8.55E-09	-2.00E-05	-6.02E-07	-1.96E-05	-5.93E-07	1.25E-07	1.16E-10
DD-01	Cable Spread Rm	3.44E-06	7.57E-07	2.94E-05	3.46E-06	8.33E-06	3.81E-08	2.11E-05	3.42E-06	-2.59E-05	-2.70E-06	-4.88E-06	7.18E-07	2.10E-05	4.61E-06
DF-01	#2 EPR	1.38E-06	3.23E-08	2.50E-06	7.38E-08	1.05E-07	2.28E-09	2.40E-06	7.15E-08	-1.12E-06	-4.15E-08	1.28E-06	3.00E-08	1.84E-06	6.07E-08
DG-01	#1 EPR	2.03E-07	1.96E-10	2.03E-07	2.37E-10	0.00E+00	0.00E+00	2.03E-07	2.37E-10	-5.00E-10	-4.17E-11	2.03E-07	1.96E-10	2.03E-07	1.96E-10
DH-01	#2 MS Line Area	9.42E-08	2.76E-09	9.51E-08	2.82E-09	0.00E+00	0.00E+00	9.51E-08	2.82E-09	-9.15E-10	-6.71E-11	9.42E-08	2.76E-09	9.42E-08	2.76E-09
E-01	AFP1 Rm	1.12E-06	3.24E-08	2.17E-06	7.03E-08	9.51E-07	3.30E-08	1.22E-06	3.73E-08	-1.06E-06	-3.79E-08	1.64E-07	-5.96E-10	1.22E-06	3.65E-08
EE-01	FAN ALLEY	1.06E-06	2.79E-07	1.08E-06	2.87E-07	1.42E-07	2.52E-11	9.40E-07	2.87E-07	-2.47E-08	-8.16E-09	9.16E-07	2.79E-07	9.23E-07	2.21E-07
EF-01	EFWF	8.66E-09	3.50E-10	8.85E-09	3.53E-10	0.00E+00	0.00E+00	8.85E-09	3.53E-10	-1.96E-10	-2.40E-12	8.66E-09	3.50E-10	8.66E-09	3.50E-10
F-01	AFP2	7.55E-07	2.23E-08	7.89E-06	2.45E-07	1.33E-06	4.52E-08	6.56E-06	1.99E-07	-7.13E-06	-2.22E-07	-5.70E-07	-2.30E-08	6.56E-06	1.99E-07
FF-01	Main Control Room	4.92E-06	2.01E-07	1.74E-05	2.92E-07	3.65E-06	4.60E-08	1.37E-05	2.46E-07	-1.25E-05	-9.19E-08	1.27E-06	1.55E-07	1.40E-05	2.60E-07
FF-02	Storage	8.99E-11	0.00E+00	8.99E-11	8.04E-12	0.00E+00	0.00E+00	8.99E-11	8.04E-12	0.00E+00	-8.04E-12	8.99E-11	0.00E+00	8.99E-11	0.00E+00
FF-03	Control room kitchen	2.15E-10	0.00E+00	2.15E-10	1.31E-11	0.00E+00	0.00E+00	2.15E-10	1.31E-11	0.00E+00	-1.31E-11	2.15E-10	0.00E+00	2.15E-10	0.00E+00
G-01	CLW Monitoring Tank Room	9.60E-09	0.00E+00	9.60E-09	3.51E-12	0.00E+00	0.00E+00	9.60E-09	3.51E-12	0.00E+00	-3.51E-12	9.60E-09	0.00E+00	9.60E-09	0.00E+00
G-02	565 EAST	2.91E-06	3.33E-08	5.56E-06	1.42E-07	1.03E-06	4.10E-08	4.53E-06	1.01E-07	-2.65E-06	-1.08E-07	1.88E-06	-7.72E-09	2.35E-06	8.60E-08
G-03	SFP demin, valve room	2.79E-09	2.72E-11	2.98E-09	1.27E-10	0.00E+00	0.00E+00	2.98E-09	1.27E-10	-1.94E-10	-1.00E-10	2.79E-09	2.72E-11	2.79E-09	2.72E-11
HH-01	A/C EGMT RM	3.36E-07	4.20E-11	3.40E-07	4.01E-10	0.00E+00	0.00E+00	3.40E-07	4.01E-10	-3.90E-09	-3.59E-10	3.36E-07	4.20E-11	3.36E-07	4.20E-11
II-01	TURB BLDG	6.38E-07	1.05E-08	9.74E-06	3.13E-07	6.39E-06	2.06E-07	3.35E-06	1.06E-07	-9.10E-06	-3.02E-07	-5.76E-06	-1.96E-07	3.16E-06	1.02E-07
II-02	Aux steam boiler room	1.89E-07	1.68E-08	3.89E-06	2.60E-07	0.00E+00	0.00E+00	3.89E-06	2.60E-07	-3.70E-06	-2.43E-07	1.89E-07	1.68E-08	1.89E-07	1.68E-08
II-03	Seal Oil Room	1.47E-08	1.80E-10	8.47E-08	2.54E-09	0.00E+00	0.00E+00	8.47E-08	2.54E-09	-7.00E-08	-2.36E-09	1.47E-08	1.80E-10	1.47E-08	1.80E-10
II-04	SAC #2, workshops	1.67E-08	1.95E-10	1.80E-08	6.71E-10	0.00E+00	0.00E+00	1.80E-08	6.71E-10	-1.30E-09	-4.76E-10	1.67E-08	1.95E-10	1.67E-08	1.95E-10
II-05	oil drum storage	1.31E-09	9.51E-12	1.36E-09	5.98E-11	0.00E+00	0.00E+00	1.36E-09	5.98E-11	-5.02E-11	-5.03E-11	1.31E-09	9.51E-12	1.31E-09	9.51E-12

Table W-3 Davis-Besse Fire Compartment Risk Summary[1]

		Transitioning Plant		Current As-Built Plant		All VFDRs Fixed		Excluding Risk Offset				Net Delta			
		R1[4]		R3[4]		R4[2]		FRE Delta Risk (R3-R4)		Risk Offset (R1-R3)		Net Delta (R1-R4)		Additional Risk of RAs[3,5]	
Fire Compartment	Description	CDF (R1)	LERF (R1)	CDF (R3)	LERF (R3)	CDF (R4)	LERF (R4)	Delta ALL CDF (R3-R4)	Delta ALL LERF (R3-R4)	Roff CDF	Roff LERF	Net CDF	Net LERF	CDF	LERF
II-06	cond storage tank room	6.49E-10	4.47E-12	6.77E-10	3.29E-11	0.00E+00	0.00E+00	6.77E-10	3.29E-11	-2.84E-11	-2.84E-11	6.49E-10	4.47E-12	6.49E-10	4.47E-12
II-07	lube oil filter room	5.28E-10	1.07E-12	5.51E-10	2.42E-11	0.00E+00	0.00E+00	5.51E-10	2.42E-11	-2.31E-11	-2.31E-11	5.28E-10	1.07E-12	5.28E-10	1.07E-12
II-08	Turb Lub Oil Tank Room	7.29E-09	8.29E-11	3.15E-08	9.61E-10	0.00E+00	0.00E+00	3.15E-08	9.61E-10	-2.42E-08	-8.78E-10	7.29E-09	8.29E-11	7.29E-09	8.29E-11
II-09	non radwaste air equip room	3.95E-08	6.70E-11	3.99E-08	2.40E-10	0.00E+00	0.00E+00	3.99E-08	2.40E-10	-4.01E-10	-1.73E-10	3.95E-08	6.70E-11	3.95E-08	6.70E-11
J-01	EDG #2	2.91E-07	8.74E-09	7.19E-06	2.98E-07	0.00E+00	0.00E+00	7.19E-06	2.98E-07	-6.90E-06	-2.89E-07	2.91E-07	8.74E-09	2.91E-07	8.74E-09
J-02	Day tank 1-2 room	2.57E-09	2.21E-11	4.49E-09	1.00E-10	0.00E+00	0.00E+00	4.49E-09	1.00E-10	-1.93E-09	-7.83E-11	2.57E-09	2.21E-11	2.57E-09	2.21E-11
K-01	EDG #1	5.91E-07	2.50E-08	4.98E-06	4.46E-07	1.29E-06	9.52E-08	3.69E-06	3.50E-07	-4.39E-06	-4.21E-07	-6.95E-07	-7.02E-08	3.50E-06	3.39E-07
K-02	Day tank 1-1 room	2.29E-09	1.29E-11	3.63E-09	9.33E-11	0.00E+00	0.00E+00	3.63E-09	9.33E-11	-1.34E-09	-8.04E-11	2.29E-09	1.29E-11	2.29E-09	1.29E-11
MA-01	Manhole MH3001	6.43E-07	2.62E-08	1.03E-05	5.09E-07	2.03E-06	8.74E-08	8.28E-06	4.22E-07	-9.67E-06	-4.83E-07	-1.39E-06	-6.12E-08	8.28E-06	4.17E-07
MB-01	Manhole MH3004	7.02E-08	1.67E-09	4.20E-07	1.40E-08	0.00E+00	0.00E+00	4.20E-07	1.40E-08	-3.50E-07	-1.23E-08	7.02E-08	1.67E-09	7.02E-08	1.67E-09
MC-01	Manhole	4.14E-07	1.37E-08	4.25E-07	1.42E-08	0.00E+00	0.00E+00	4.25E-07	1.42E-08	-1.03E-08	-4.86E-10	4.14E-07	1.37E-08	4.14E-07	1.37E-08
ME-01	Manhole	1.88E-10	0.00E+00	1.88E-10	1.15E-11	0.00E+00	0.00E+00	1.88E-10	1.15E-11	0.00E+00	-1.15E-11	1.88E-10	0.00E+00	1.88E-10	0.00E+00
MF-01	Manhole	1.87E-10	0.00E+00	1.87E-10	1.14E-11	0.00E+00	0.00E+00	1.87E-10	1.14E-11	0.00E+00	-1.14E-11	1.87E-10	0.00E+00	1.87E-10	0.00E+00
MG-01	Manhole	1.86E-10	0.00E+00	1.86E-10	1.14E-11	0.00E+00	0.00E+00	1.86E-10	1.14E-11	0.00E+00	-1.14E-11	1.86E-10	0.00E+00	1.86E-10	0.00E+00
MH-01	Manhole	1.87E-10	0.00E+00	1.87E-10	1.15E-11	0.00E+00	0.00E+00	1.87E-10	1.15E-11	0.00E+00	-1.15E-11	1.87E-10	0.00E+00	1.87E-10	0.00E+00
OF-01	Office	3.14E-10	0.00E+00	3.14E-10	1.70E-11	0.00E+00	0.00E+00	3.14E-10	1.70E-11	0.00E+00	-1.70E-11	3.14E-10	0.00E+00	3.14E-10	0.00E+00
OS	OUTSIDE +MISC	1.71E-07	1.53E-09	9.11E-07	2.82E-08	0.00E+00	0.00E+00	9.11E-07	2.82E-08	-7.40E-07	-2.67E-08	1.71E-07	1.53E-09	1.71E-07	1.53E-09
P-01	Elect maint room	1.08E-09	1.41E-11	1.35E-08	4.29E-10	0.00E+00	0.00E+00	1.35E-08	4.29E-10	-1.24E-08	-4.15E-10	1.08E-09	1.41E-11	1.08E-09	1.41E-11
P-02	Charging room	2.35E-08	8.42E-10	1.17E-07	5.27E-09	0.00E+00	0.00E+00	1.17E-07	5.27E-09	-9.32E-08	-4.42E-09	2.35E-08	8.42E-10	2.35E-08	8.42E-10
P-03	EDG PASSA	1.18E-06	3.45E-08	3.94E-05	1.19E-06	3.94E-05	1.19E-06	7.99E-09	9.20E-10	-3.82E-05	-1.16E-06	-3.82E-05	-1.16E-06	4.98E-09	1.41E-10
Q-01	HVSGR B	3.99E-06	2.98E-07	9.69E-05	8.48E-06	1.33E-06	4.54E-08	9.55E-05	8.44E-06	-9.29E-05	-8.18E-06	2.66E-06	2.53E-07	8.45E-05	8.13E-06
R-01	CD SWGR	7.27E-07	2.01E-08	1.70E-05	5.35E-07	1.70E-05	5.35E-07	2.20E-10	2.10E-12	-1.62E-05	-5.15E-07	-1.62E-05	-5.15E-07	2.20E-10	2.10E-12
S-01	HVSGR A	2.59E-06	7.45E-08	3.00E-05	1.34E-06	2.53E-06	7.97E-08	2.75E-05	1.26E-06	-2.75E-05	-1.27E-06	5.75E-08	-5.19E-09	1.32E-05	1.20E-06
T-01	CCW HX and Pump Rm	6.79E-08	1.56E-10	1.86E-07	1.08E-09	0.00E+00	0.00E+00	1.86E-07	1.08E-09	-1.18E-07	-9.22E-10	6.79E-08	1.56E-10	6.79E-08	1.56E-10
U-01	SFP PUMP	5.09E-06	1.17E-08	5.39E-06	2.04E-08	3.82E-07	1.01E-08	5.01E-06	1.03E-08	-2.99E-07	-8.76E-09	4.71E-06	1.59E-09	5.01E-06	1.05E-08

Table W-3 Davis-Besse Fire Compartment Risk Summary[1]

		Transitioning Plant		Current As-Built Plant		All VFDRs Fixed		Excluding Risk Offset				Net Delta			
		R1[4]		R3[4]		R4[2]		FRE Delta Risk (R3-R4)		Risk Offset (R1-R3)		Net Delta (R1-R4)		Additional Risk of RAs[3,5]	
Fire Compartment	Description	CDF (R1)	LERF (R1)	CDF (R3)	LERF (R3)	CDF (R4)	LERF (R4)	Delta ALL CDF (R3-R4)	Delta ALL LERF (R3-R4)	Roff CDF	Roff LERF	Net CDF	Net LERF	CDF	LERF
UU-01	Aux Build Elevator/Stairwell	3.65E-09	1.90E-11	6.64E-09	5.13E-11	0.00E+00	0.00E+00	6.64E-09	5.13E-11	-2.99E-09	-3.23E-11	3.65E-09	1.90E-11	3.65E-09	1.90E-11
V-01	FUEL HAND	6.60E-07	5.79E-09	6.85E-07	6.99E-09	1.11E-07	3.06E-09	5.75E-07	3.93E-09	-2.54E-08	-1.19E-09	5.49E-07	2.73E-09	5.86E-07	4.65E-09
VA-01	Aux Bldg Stairwell 3A	1.96E-10	0.00E+00	1.96E-10	1.20E-11	0.00E+00	0.00E+00	1.96E-10	1.20E-11	0.00E+00	-1.20E-11	1.96E-10	0.00E+00	1.96E-10	0.00E+00
X-01	LVSGR F	2.68E-06	7.47E-07	9.33E-05	4.70E-05	6.87E-05	3.36E-05	2.46E-05	1.33E-05	-9.07E-05	-4.62E-05	-6.60E-05	-3.29E-05	2.49E-05	2.33E-05
X-02	Battery Room B	3.06E-08	1.25E-08	4.19E-07	9.35E-08	0.00E+00	0.00E+00	4.19E-07	9.35E-08	-3.88E-07	-8.10E-08	3.06E-08	1.25E-08	3.06E-08	1.25E-08
Y-01	LVSGR E	1.53E-06	9.89E-07	3.51E-05	3.44E-05	3.46E-05	2.24E-05	4.59E-07	1.19E-05	-3.36E-05	-3.34E-05	-3.31E-05	-2.14E-05	4.85E-07	1.21E-05
Y-02	Battery Room A	2.55E-08	1.14E-08	3.27E-08	1.92E-08	0.00E+00	0.00E+00	3.27E-08	1.92E-08	-7.17E-09	-7.80E-09	2.55E-08	1.14E-08	2.55E-08	1.14E-08
Total		**4.83E-05**	**3.97E-06**	**5.15E-04**	**1.03E-04**			**3.02E-04**	**4.36E-05**	**-4.67E-04**	**-9.90E-05**	**-1.65E-04**	**-5.54E-05**	**2.51E-04**	**5.30E-05**

1) Every compartment addresses NFPA 805 Basis 4.2.4.2, and contains at least two VFDRs one requires a Recovery Action.

2) When R4 = 0.00E+00, and the Transitioning plant CDF < 5E-07, then the compliant case is conservatively assumed to reduce risk to 0.00E+00.

3) There are many operator actions that are modeled in the PRA. In order to verify all operator actions are captured, the Additional Risk of RAs is equal to the All VFDR resolved case, and the delta is reported without credit for the risk offset; therefore, the threshold is exceeded. However, this value is not used for compliance with RG 1.174 or RG 1.205.

4) If R1 or R3 = 0.00E+00, it is not indicative of no risk. 0.00E+00 represents the risk is below the truncation limit of CDF < 1E-11 and LERF <1E-12.

5) Additional Risk of RAs may be listed as 0.00E+00 for compartments that credit recovery actions as indicated in Table G-1. For compartments with detailed analysis (CDF(R1)>5E-07) this indicates the calculated risk is below the truncation limits of 1E-11 for CDF or 1E-12 for LERF. For low risk compartments, this indicates the transition compartment CDF or LERF was below the truncation limits of 1E-11 for CDF or 1E-12 for LERF. In either case, Additional Risk of RAs may be considered negligible.

Table W-4 Davis-Besse Fire Compartment Risk Summary Conservative Assumptions Removed Sensitivity Case[1]

		Transitioning Plant		Current As-Built Plant		All VFDRs Fixed		Excluding Risk Offset				Net Delta			
		R1[4]		R3[4]		R4[2]		FRE Delta Risk (R3-R4)		Risk Offset (R1-R3)		Net Delta (R1-R4)		Additional Risk of RAs[3,5]	
Fire Compartment	Description	CDF (R1)	LERF (R1)	CDF (R3)	LERF (R3)	CDF (R4)	LERF (R4)	Delta ALL CDF (R3-R4)	Delta ALL LERF (R3-R4)	Roff CDF	Roff LERF	Net CDF	Net LERF	CDF	LERF
A-01	Spent Resin, Decon & Storage	1.68E-07	1.82E-09	9.08E-07	3.10E-08	0.00E+00	0.00E+00	9.08E-07	3.10E-08	-7.40E-07	-2.92E-08	1.68E-07	1.82E-09	1.68E-07	1.82E-09
A-02	545	8.07E-10	0.00E+00	8.07E-10	6.10E-11	0.00E+00	0.00E+00	8.07E-10	6.10E-11	0.00E+00	-6.10E-11	8.07E-10	0.00E+00	8.07E-10	0.00E+00
A-03	Misc. Waste Monitoring Tank Rm	5.31E-09	2.27E-12	5.34E-09	2.84E-11	0.00E+00	0.00E+00	5.34E-09	2.84E-11	-2.62E-11	-2.62E-11	5.31E-09	2.27E-12	5.31E-09	2.27E-12
A-04	ECCS 2	3.19E-07	1.61E-08	1.02E-06	1.34E-07	0.00E+00	0.00E+00	1.02E-06	1.34E-07	-7.05E-07	-1.18E-07	3.19E-07	1.61E-08	3.19E-07	1.61E-08
A-05	CWRT	2.21E-08	5.57E-10	2.91E-07	1.09E-08	0.00E+00	0.00E+00	2.91E-07	1.09E-08	-2.69E-07	-1.04E-08	2.21E-08	5.57E-10	2.21E-08	5.57E-10
A-06	Containment Annulus (east)	4.57E-08	8.74E-10	6.25E-08	1.33E-09	0.00E+00	0.00E+00	6.25E-08	1.33E-09	-1.68E-08	-4.60E-10	4.57E-08	8.74E-10	4.57E-08	8.74E-10
A-07	#2 MPR	4.04E-08	9.17E-10	1.51E-07	4.22E-09	0.00E+00	0.00E+00	1.51E-07	4.22E-09	-1.11E-07	-3.31E-09	4.04E-08	9.17E-10	4.04E-08	9.17E-10
A-08	#4 MPR	4.72E-06	9.83E-08	5.77E-05	1.77E-06	5.49E-08	1.60E-09	5.76E-05	1.77E-06	-5.29E-05	-1.68E-06	4.67E-06	9.67E-08	9.48E-05	2.93E-06
A-09	Cable Chase	1.05E-07	3.17E-09	2.88E-06	1.06E-07	0.00E+00	0.00E+00	2.88E-06	1.06E-07	-2.78E-06	-1.03E-07	1.05E-07	3.17E-09	1.05E-07	3.17E-09
AB-01	ECCS 1	8.88E-07	2.83E-08	1.35E-06	1.88E-07	2.51E-07	7.29E-09	1.09E-06	1.80E-07	-4.58E-07	-1.59E-07	6.37E-07	2.10E-08	9.98E-07	1.78E-07
AB-02	Containment Annulus (west)	5.10E-08	9.25E-10	1.07E-07	2.49E-09	0.00E+00	0.00E+00	1.07E-07	2.49E-09	-5.57E-08	-1.57E-09	5.10E-08	9.25E-10	5.10E-08	9.25E-10
AB-03	#1 MPR	4.43E-08	3.38E-11	5.31E-08	2.96E-10	0.00E+00	0.00E+00	5.31E-08	2.96E-10	-8.78E-09	-2.62E-10	4.43E-08	3.38E-11	4.43E-08	3.38E-11
AB-04	MU Pump RM	1.21E-06	1.56E-08	1.49E-06	4.46E-08	1.67E-07	4.26E-09	1.32E-06	4.03E-08	-2.74E-07	-2.90E-08	1.04E-06	1.13E-08	1.12E-06	3.83E-08
AB-05	#3 MPR	2.33E-07	1.65E-09	2.33E-07	1.67E-09	0.00E+00	0.00E+00	2.33E-07	1.67E-09	2.60E-10	-1.83E-11	2.33E-07	1.65E-09	2.33E-07	1.65E-09
AB-06	Aux Bldg Stairwell 3	8.99E-11	0.00E+00	8.99E-11	8.04E-12	0.00E+00	0.00E+00	8.99E-11	8.04E-12	0.00E+00	-8.04E-12	8.99E-11	0.00E+00	8.99E-11	0.00E+00
AC-01	BWST and PWST Pipe Trench	5.04E-07	1.01E-09	5.04E-07	1.01E-09	3.19E-09	9.97E-11	5.01E-07	9.07E-10	-9.00E-11	0.00E+00	5.01E-07	9.07E-10	5.01E-07	9.07E-10
AD-01	Aux Bldg Elev equip room	9.72E-10	7.33E-12	1.01E-09	4.61E-11	0.00E+00	0.00E+00	1.01E-09	4.61E-11	-3.88E-11	-3.88E-11	9.72E-10	7.33E-12	9.72E-10	7.33E-12
B-01	Pipe Chase	3.51E-07	9.80E-08	8.28E-07	3.75E-07	0.00E+00	0.00E+00	8.28E-07	3.75E-07	-4.77E-07	-2.77E-07	3.51E-07	9.80E-08	3.51E-07	9.80E-08
BD-01	Screenwash pump & Diesel FP day tank	5.38E-09	5.83E-11	5.68E-09	2.35E-10	0.00E+00	0.00E+00	5.68E-09	2.35E-10	-2.94E-10	-1.76E-10	5.38E-09	5.83E-11	5.38E-09	5.83E-11
BE-01	Diesel Fire Pump Rm	3.04E-08	6.12E-10	3.30E-07	1.50E-08	0.00E+00	0.00E+00	3.30E-07	1.50E-08	-3.00E-07	-1.44E-08	3.04E-08	6.12E-10	3.04E-08	6.12E-10
BF-01	SWP RM	2.11E-07	6.18E-09	2.39E-06	1.13E-07	0.00E+00	0.00E+00	2.39E-06	1.13E-07	-2.18E-06	-1.07E-07	2.11E-07	6.18E-09	2.11E-07	6.18E-09
BG-01	SW VALVE	1.51E-08	2.25E-10	4.14E-07	1.36E-08	0.00E+00	0.00E+00	4.14E-07	1.36E-08	-3.98E-07	-1.33E-08	1.51E-08	2.25E-10	1.51E-08	2.25E-10
BH-01	Labs	1.86E-07	3.36E-09	3.13E-07	8.99E-09	0.00E+00	0.00E+00	3.13E-07	8.99E-09	-1.28E-07	-5.62E-09	1.86E-07	3.36E-09	1.86E-07	3.36E-09

Table W-4 Davis-Besse Fire Compartment Risk Summary Conservative Assumptions Removed Sensitivity Case[1]

		Transitioning Plant		Current As-Built Plant		All VFDRs Fixed		Excluding Risk Offset				Net Delta			
		R1[4]		R3[4]		R4[2]		FRE Delta Risk (R3-R4)		Risk Offset (R1-R3)		Net Delta (R1-R4)		Additional Risk of RAs[3,5]	
Fire Compartment	Description	CDF (R1)	LERF (R1)	CDF (R3)	LERF (R3)	CDF (R4)	LERF (R4)	Delta ALL CDF (R3-R4)	Delta ALL LERF (R3-R4)	Roff CDF	Roff LERF	Net CDF	Net LERF	CDF	LERF
BM-01	Diesel Oil Pumphouse	2.09E-09	2.08E-11	2.19E-09	9.56E-11	0.00E+00	0.00E+00	2.19E-09	9.56E-11	-9.86E-11	-7.49E-11	2.09E-09	2.08E-11	2.09E-09	2.08E-11
BN-01	EDG Week Tanks	6.54E-10	4.50E-12	6.82E-10	3.31E-11	0.00E+00	0.00E+00	6.82E-10	3.31E-11	-2.86E-11	-2.86E-11	6.54E-10	4.50E-12	6.54E-10	4.50E-12
CC-01	Labs	2.60E-08	3.05E-11	2.73E-08	4.34E-11	0.00E+00	0.00E+00	2.73E-08	4.34E-11	-1.28E-09	-1.29E-11	2.60E-08	3.05E-11	2.60E-08	3.05E-11
D-01	Let Down Cooler & CF Tank Area	1.16E-06	2.60E-08	2.12E-05	6.28E-07	2.04E-05	6.13E-07	7.39E-07	1.46E-08	-2.00E-05	-6.02E-07	-1.93E-05	-5.87E-07	1.45E-06	2.83E-08
DD-01	Cable Spread Rm	3.44E-06	7.57E-07	2.94E-05	3.46E-06	2.01E-06	3.63E-08	2.74E-05	3.42E-06	-2.59E-05	-2.70E-06	1.44E-06	7.20E-07	4.29E-05	7.23E-06
DF-01	#2 EPR	1.38E-06	3.23E-08	2.50E-06	7.38E-08	3.11E-08	6.85E-10	2.47E-06	7.31E-08	-1.12E-06	-4.15E-08	1.35E-06	3.16E-08	2.32E-06	7.24E-08
DG-01	#1 EPR	2.03E-07	1.96E-10	2.03E-07	2.37E-10	0.00E+00	0.00E+00	2.03E-07	2.37E-10	-5.00E-10	-4.17E-11	2.03E-07	1.96E-10	2.03E-07	1.96E-10
DH-01	#2 MS Line Area	9.42E-08	2.76E-09	9.51E-08	2.82E-09	0.00E+00	0.00E+00	9.51E-08	2.82E-09	-9.15E-10	-6.71E-11	9.42E-08	2.76E-09	9.42E-08	2.76E-09
E-01	AFP1 Rm	1.12E-06	3.24E-08	2.17E-06	7.03E-08	8.60E-07	3.03E-08	1.31E-06	4.01E-08	-1.06E-06	-3.79E-08	2.55E-07	2.17E-09	1.31E-06	4.01E-08
EE-01	FAN ALLEY	1.06E-06	2.79E-07	1.08E-06	2.87E-07	3.69E-11	0.00E+00	1.08E-06	2.87E-07	-2.47E-08	-8.16E-09	1.06E-06	2.79E-07	1.08E-06	2.87E-07
EF-01	EFWF	8.66E-09	3.50E-10	8.85E-09	3.53E-10	0.00E+00	0.00E+00	8.85E-09	3.53E-10	-1.96E-10	-2.40E-12	8.66E-09	3.50E-10	8.66E-09	3.50E-10
F-01	AFP2	7.55E-07	2.23E-08	7.89E-06	2.45E-07	1.29E-06	4.14E-08	6.60E-06	2.03E-07	-7.13E-06	-2.22E-07	-5.33E-07	-1.91E-08	6.60E-06	2.03E-07
FF-01	Main Control Room	4.92E-06	2.01E-07	1.74E-05	2.92E-07	3.61E-06	4.58E-08	1.38E-05	2.47E-07	-1.25E-05	-9.19E-08	1.31E-06	1.55E-07	2.78E-05	3.58E-07
FF-02	Storage	8.99E-11	0.00E+00	8.99E-11	8.04E-12	0.00E+00	0.00E+00	8.99E-11	8.04E-12	0.00E+00	-8.04E-12	8.99E-11	0.00E+00	8.99E-11	0.00E+00
FF-03	Control room kitchen	2.15E-10	0.00E+00	2.15E-10	1.31E-11	0.00E+00	0.00E+00	2.15E-10	1.31E-11	0.00E+00	-1.31E-11	2.15E-10	0.00E+00	2.15E-10	0.00E+00
G-01	CLW Monitoring Tank Room	9.60E-09	0.00E+00	9.60E-09	3.51E-12	0.00E+00	0.00E+00	9.60E-09	3.51E-12	0.00E+00	-3.51E-12	9.60E-09	0.00E+00	9.60E-09	0.00E+00
G-02	565 EAST	2.91E-06	3.33E-08	5.56E-06	1.42E-07	9.74E-07	3.08E-08	4.59E-06	1.11E-07	-2.65E-06	-1.08E-07	1.94E-06	2.49E-09	4.40E-06	1.10E-07
G-03	SFP demin, valve room	2.79E-09	2.72E-11	2.98E-09	1.27E-10	0.00E+00	0.00E+00	2.98E-09	1.27E-10	-1.94E-10	-1.00E-10	2.79E-09	2.72E-11	2.79E-09	2.72E-11
HH-01	A/C EGMT RM	3.36E-07	4.20E-11	3.40E-07	4.01E-10	0.00E+00	0.00E+00	3.40E-07	4.01E-10	-3.90E-09	-3.59E-10	3.36E-07	4.20E-11	3.36E-07	4.20E-11
II-01	TURB BLDG	6.38E-07	1.05E-08	9.74E-06	3.13E-07	5.60E-06	1.85E-07	4.13E-06	1.27E-07	-9.10E-06	-3.02E-07	-4.97E-06	-1.75E-07	5.73E-06	1.81E-07
II-02	Aux steam boiler room	1.89E-07	1.68E-08	3.89E-06	2.60E-07	0.00E+00	0.00E+00	3.89E-06	2.60E-07	-3.70E-06	-2.43E-07	1.89E-07	1.68E-08	1.89E-07	1.68E-08
II-03	Seal Oil Room	1.47E-08	1.80E-10	8.47E-08	2.54E-09	0.00E+00	0.00E+00	8.47E-08	2.54E-09	-7.00E-08	-2.36E-09	1.47E-08	1.80E-10	1.47E-08	1.80E-10
II-04	SAC #2, workshops	1.67E-08	1.95E-10	1.80E-08	6.71E-10	0.00E+00	0.00E+00	1.80E-08	6.71E-10	-1.30E-09	-4.76E-10	1.67E-08	1.95E-10	1.67E-08	1.95E-10
II-05	oil drum storage	1.31E-09	9.51E-12	1.36E-09	5.98E-11	0.00E+00	0.00E+00	1.36E-09	5.98E-11	-5.02E-11	-5.03E-11	1.31E-09	9.51E-12	1.31E-09	9.51E-12

Table W-4 Davis-Besse Fire Compartment Risk Summary Conservative Assumptions Removed Sensitivity Case[1]

		Transitioning Plant		Current As-Built Plant		All VFDRs Fixed		Excluding Risk Offset				Net Delta			
		R1[4]		R3[4]		R4[2]		FRE Delta Risk (R3-R4)		Risk Offset (R1-R3)		Net Delta (R1-R4)		Additional Risk of RAs[3,5]	
Fire Compartment	Description	CDF (R1)	LERF (R1)	CDF (R3)	LERF (R3)	CDF (R4)	LERF (R4)	Delta ALL CDF (R3-R4)	Delta ALL LERF (R3-R4)	Roff CDF	Roff LERF	Net CDF	Net LERF	CDF	LERF
II-06	cond storage tank room	6.49E-10	4.47E-12	6.77E-10	3.29E-11	0.00E+00	0.00E+00	6.77E-10	3.29E-11	-2.84E-11	-2.84E-11	6.49E-10	4.47E-12	6.49E-10	4.47E-12
II-07	lube oil filter room	5.28E-10	1.07E-12	5.51E-10	2.42E-11	0.00E+00	0.00E+00	5.51E-10	2.42E-11	-2.31E-11	-2.31E-11	5.28E-10	1.07E-12	5.28E-10	1.07E-12
II-08	Turb Lub Oil Tank Room	7.29E-09	8.29E-11	3.15E-08	9.61E-10	0.00E+00	0.00E+00	3.15E-08	9.61E-10	-2.42E-08	-8.78E-10	7.29E-09	8.29E-11	7.29E-09	8.29E-11
II-09	non radwaste air equip room	3.95E-08	6.70E-11	3.99E-08	2.40E-10	0.00E+00	0.00E+00	3.99E-08	2.40E-10	-4.01E-10	-1.73E-10	3.95E-08	6.70E-11	3.95E-08	6.70E-11
J-01	EDG #2	2.91E-07	8.74E-09	7.19E-06	2.98E-07	0.00E+00	0.00E+00	7.19E-06	2.98E-07	-6.90E-06	-2.89E-07	2.91E-07	8.74E-09	2.91E-07	8.74E-09
J-02	Day tank 1-2 room	2.57E-09	2.21E-11	4.49E-09	1.00E-10	0.00E+00	0.00E+00	4.49E-09	1.00E-10	-1.93E-09	-7.83E-11	2.57E-09	2.21E-11	2.57E-09	2.21E-11
K-01	EDG #1	5.91E-07	2.50E-08	4.98E-06	4.46E-07	4.11E-07	5.21E-08	4.57E-06	3.94E-07	-4.39E-06	-4.21E-07	1.80E-07	-2.71E-08	4.54E-06	3.93E-07
K-02	Day tank 1-1 room	2.29E-09	1.29E-11	3.63E-09	9.33E-11	0.00E+00	0.00E+00	3.63E-09	9.33E-11	-1.34E-09	-8.04E-11	2.29E-09	1.29E-11	2.29E-09	1.29E-11
MA-01	Manhole MH3001	6.43E-07	2.62E-08	1.03E-05	5.09E-07	0.00E+00	0.00E+00	1.03E-05	5.09E-07	-9.67E-06	-4.83E-07	6.43E-07	2.62E-08	1.03E-05	5.09E-07
MB-01	Manhole MH3004	7.02E-08	1.67E-09	4.20E-07	1.40E-08	0.00E+00	0.00E+00	4.20E-07	1.40E-08	-3.50E-07	-1.23E-08	7.02E-08	1.67E-09	7.02E-08	1.67E-09
MC-01	Manhole	4.14E-07	1.37E-08	4.25E-07	1.42E-08	0.00E+00	0.00E+00	4.25E-07	1.42E-08	-1.03E-08	-4.86E-10	4.14E-07	1.37E-08	4.14E-07	1.37E-08
ME-01	Manhole	1.88E-10	0.00E+00	1.88E-10	1.15E-11	0.00E+00	0.00E+00	1.88E-10	1.15E-11	0.00E+00	-1.15E-11	1.88E-10	0.00E+00	1.88E-10	0.00E+00
MF-01	Manhole	1.87E-10	0.00E+00	1.87E-10	1.14E-11	0.00E+00	0.00E+00	1.87E-10	1.14E-11	0.00E+00	-1.14E-11	1.87E-10	0.00E+00	1.87E-10	0.00E+00
MG-01	Manhole	1.86E-10	0.00E+00	1.86E-10	1.14E-11	0.00E+00	0.00E+00	1.86E-10	1.14E-11	0.00E+00	-1.14E-11	1.86E-10	0.00E+00	1.86E-10	0.00E+00
MH-01	Manhole	1.87E-10	0.00E+00	1.87E-10	1.15E-11	0.00E+00	0.00E+00	1.87E-10	1.15E-11	0.00E+00	-1.15E-11	1.87E-10	0.00E+00	1.87E-10	0.00E+00
OF-01	Office	3.14E-10	0.00E+00	3.14E-10	1.70E-11	0.00E+00	0.00E+00	3.14E-10	1.70E-11	0.00E+00	-1.70E-11	3.14E-10	0.00E+00	3.14E-10	0.00E+00
OS	OUTSIDE +MISC	1.71E-07	1.53E-09	9.11E-07	2.82E-08	0.00E+00	0.00E+00	9.11E-07	2.82E-08	-7.40E-07	-2.67E-08	1.71E-07	1.53E-09	1.71E-07	1.53E-09
P-01	Elect maint room	1.08E-09	1.41E-11	1.35E-08	4.29E-10	0.00E+00	0.00E+00	1.35E-08	4.29E-10	-1.24E-08	-4.15E-10	1.08E-09	1.41E-11	1.08E-09	1.41E-11
P-02	Charging room	2.35E-08	8.42E-10	1.17E-07	5.27E-09	0.00E+00	0.00E+00	1.17E-07	5.27E-09	-9.32E-08	-4.42E-09	2.35E-08	8.42E-10	2.35E-08	8.42E-10
P-03	EDG PASSA	1.18E-06	3.45E-08	3.94E-05	1.19E-06	3.93E-05	1.18E-06	1.11E-07	1.23E-08	-3.82E-05	-1.16E-06	-3.81E-05	-1.15E-06	2.18E-07	2.45E-08
Q-01	HVSGR B	3.99E-06	2.98E-07	9.69E-05	8.48E-06	7.36E-07	1.70E-08	9.61E-05	8.47E-06	-9.29E-05	-8.18E-06	3.25E-06	2.81E-07	1.84E-04	1.67E-05
R-01	CD SWGR	7.27E-07	2.01E-08	1.70E-05	5.35E-07	7.31E-07	2.08E-08	1.62E-05	5.14E-07	-1.62E-05	-5.15E-07	-4.05E-09	-6.37E-10	1.62E-05	5.14E-07
S-01	HVSGR A	2.59E-06	7.45E-08	3.00E-05	1.34E-06	1.19E-06	2.88E-08	2.89E-05	1.31E-06	-2.75E-05	-1.27E-06	1.40E-06	4.57E-08	5.32E-05	2.48E-06
T-01	CCW HX and Pump Rm	6.79E-08	1.56E-10	1.86E-07	1.08E-09	0.00E+00	0.00E+00	1.86E-07	1.08E-09	-1.18E-07	-9.22E-10	6.79E-08	1.56E-10	6.79E-08	1.56E-10
U-01	SFP PUMP	5.09E-06	1.17E-08	5.39E-06	2.04E-08	4.70E-08	1.21E-09	5.34E-06	1.92E-08	-2.99E-07	-8.76E-09	5.04E-06	1.05E-08	1.58E-05	5.52E-08

Table W-4 Davis-Besse Fire Compartment Risk Summary Conservative Assumptions Removed Sensitivity Case[1]

		Transitioning Plant		Current As-Built Plant		All VFDRs Fixed		Excluding Risk Offset				Net Delta			
		R1[4]		R3[4]		R4[2]		FRE Delta Risk (R3-R4)		Risk Offset (R1-R3)		Net Delta (R1-R4)		Additional Risk of RAs[3,5]	
Fire Compartment	Description	CDF (R1)	LERF (R1)	CDF (R3)	LERF (R3)	CDF (R4)	LERF (R4)	Delta ALL CDF (R3-R4)	Delta ALL LERF (R3-R4)	Roff CDF	Roff LERF	Net CDF	Net LERF	CDF	LERF
UU-01	Aux Build Elevator/Stairwell	3.65E-09	1.90E-11	6.64E-09	5.13E-11	0.00E+00	0.00E+00	6.64E-09	5.13E-11	-2.99E-09	-3.23E-11	3.65E-09	1.90E-11	3.65E-09	1.90E-11
V-01	FUEL HAND	6.60E-07	5.79E-09	6.85E-07	6.99E-09	1.45E-08	3.10E-10	6.71E-07	6.68E-09	-2.54E-08	-1.19E-09	6.46E-07	5.49E-09	1.31E-06	1.30E-08
VA-01	Aux Bldg Stairwell 3A	1.96E-10	0.00E+00	1.96E-10	1.20E-11	0.00E+00	0.00E+00	1.96E-10	1.20E-11	0.00E+00	-1.20E-11	1.96E-10	0.00E+00	1.96E-10	0.00E+00
X-01	LVSGR F	2.68E-06	7.47E-07	9.33E-05	4.70E-05	2.94E-05	2.18E-05	6.39E-05	2.52E-05	-9.07E-05	-4.62E-05	-2.68E-05	-2.10E-05	9.61E-05	4.60E-05
X-02	Battery Room B	3.06E-08	1.25E-08	4.19E-07	9.35E-08	0.00E+00	0.00E+00	4.19E-07	9.35E-08	-3.88E-07	-8.10E-08	3.06E-08	1.25E-08	3.06E-08	1.25E-08
Y-01	LVSGR E	1.53E-06	9.89E-07	3.51E-05	3.44E-05	2.24E-05	2.19E-05	1.27E-05	1.24E-05	-3.36E-05	-3.34E-05	-2.09E-05	-2.10E-05	2.30E-05	2.45E-05
Y-02	Battery Room A	2.55E-08	1.14E-08	3.27E-08	1.92E-08	0.00E+00	0.00E+00	3.27E-08	1.92E-08	-7.17E-09	-7.80E-09	2.55E-08	1.14E-08	2.55E-08	1.14E-08
Total		**4.83E-05**	**3.97E-06**	**5.15E-04**	**1.03E-04**			**3.86E-04**	**5.69E-05**	**-4.67E-04**	**-9.90E-05**	**-8.13E-05**	**-4.21E-05**	**6.00E-04**	**1.03E-04**

1) Every compartment addresses NFPA 805 Basis 4.2.4.2, and contains at least two VFDRs one requires a Recovery Action.

2) When R4 = 0.00E+00, and the Transitioning plant CDF < 5E-07, then the compliant case is conservatively assumed to reduce risk to 0.00E+00.

3) There are many operator actions that are modeled in the PRA. In order to verify all operator actions are captured, the Additional Risk of RAs is equal to the All VFDR resolved case, and the delta is reported without credit for the risk offset; therefore, the threshold is exceeded. However, this value is not used for compliance with RG 1.174 or RG 1.205.

4) If R1 or R3 = 0.00E+00, it is not indicative of no risk. 0.00E+00 represents the risk is below the truncation limit of CDF < 1E-11 and LERF <1E-12.

5) Additional Risk of RAs may be listed as 0.00E+00 for compartments that credit recovery actions as indicated in Table G-1. For compartments with detailed analysis (CDF(R1)>5E-07) this indicates the calculated risk is below the truncation limits of 1E-11 for CDF or 1E-12 for LERF. For low risk compartments, this indicates the transition compartment CDF or LERF was below the truncation limits of 1E-11 for CDF or 1E-12 for LERF. In either case, Additional Risk of RAs may be considered negligible.