Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
ZTDPHD	1.00E-01	1.05E+00	Failure to control SG 2/3 Water Level: Partial Instruments are available	This SF represents failure to control S/G level in scenarios where the fire has impacted the SG controls/instrumentation. The fire procedure identifies the fire areas where these degradations may occur and provides viable manual mitigation actions. Most of the top sequences containing this SF also include feed and bleed failures that occur in conjunction with loss of instrument air conditions that fail PORV 474. Providing PORV with an alternate air source that can support long term F&B function in these events would potentially improve the reliability of the F&B function (SAMA 5).
PR6BWZ	9.66E-02	1.04E+00	Fire - 456 available, 8000C and 455C failed. Overlaps with PR9. Water Challenge.	This SF is primarily associated with induced LOCAs for fires in fire area 6-A-3. The boundary conditions are failure of the pressure relief top event given failure of PORV 455C and block valve 8000C and availability of PORV 456. These scenarios also generally include spurious operation of the pressurizer heaters, which can force a PORV open and lead to a LOCA without the ability to close a block valve (failed by fire). The DCPP fire procedure already directs actions for the relevant fire area to de-energize the pressurizer heaters.. In many scenarios, an RHR pump is failed due to the failure to trip the "deadheaded" RHR pumps. A potential means of precluding the need to trip the RHR pumps would be to install a normally open CCW flow bypass line around the RHR Hx outlet valve. This would ensure that minimum cooling flow would be available to prevent damage to the RHR pumps when they are running with the RCS at high pressure (SAMA 1). In other cases, RHR B is failed because the pump, suction valve 8700B and FCV-641B are failed. The cables for these components could be protected in fire areas 6-A-2 (RHR A) and 6-A-3 (RHR B) to address the scenarios for both the A and B RHR trains (SAMA 8).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
RF3Z	1.60E-01	1.04E+00	FIRE: SWITCHOVER TO CONTAINMENT SUMP RECIRCULATION AFTER SLOCA DEGRADED INSTRUMENTATION	Automating the swap to recirculation mode could improve the reliability of the function (SAMA 7).
PR6GWZ	9.66E-02	1.04E+00	Fire - 456 and 8000B failed. 8000C and 455C available. Overlaps with PR1E. Water Challenge.	This SF is primarily associated with induced LOCAs for fires in fire area 6-A-2. The boundary conditions are failure of the pressure relief top event given failure of PORV 456 and block valve 8000B and availability of 8000C and 455C. These scenarios also generally include spurious operation of the pressurizer heaters, which can force a PORV open and lead to a LOCA without the ability to close a block valve (failed by fire). The DCPP fire procedure already directs actions for the relevant fire area to de-energize the pressurizer heaters. In many scenarios, an RHR pump is failed due to the failure to trip the "deadheaded" RHR pumps. A potential means of precluding the need to trip the RHR pumps would be to install a normally open CCW flow bypass line around the RHR Hx outlet valve. This would ensure that minimum cooling flow would be available to prevent damage to the RHR pumps when they are running with the RCS at high pressure (SAMA 1). In other cases, RHR A is failed because the pump, suction valve 8700A, and FCV-641A are failed. The cables for these components could be protected in fire areas 6-A-2 (RHR A) and 6-A-3 (RHR B) to address the scenarios for both the A and B RHR trains (SAMA 8).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
AW4	1.61E-02	1.04E+00	SUPPORT FOR BOTH MDP'S UNAVAILABLE	Some of the larger contributors to failure of the AFW MDPs are related to spray damage from fire protection system flooding scenarios (fire areas 14A and 3Q2). A potential means of addressing this failure mode would be to provide barriers to protect the TD AFW pump from spray damage. For the MD AFW pumps, ventilation ducts that must remain open for AFW room cooling are located in flood area and protecting the MD AFW pumps requires replacing the pump with one that that can function in the water (SAMA 9). An alternate approach to restoring SG makeup would be to provide an engine driven SG makeup pump that can be aligned in time to mitigate loss of SG makeup scenarios (SAMA 2). Smaller contributors include failures of DC Bus H. In these cases, a portable DC generator could be used to provide control power to a MDAFW pump if 4KV power is available or to support the TD AFW pump (SAMA 10).
ZSVHES	5.80E-03	1.04E+00	480V Switchgear Ventilation - Operator Action: No fire damage to flow switches	This is an operator action that is performed in a fire event to mitigate loss of normal 480V Switchgear cooling with degraded indication (to support operator action). The existing fire procedures already identify that room cooling for the 480V switchgear may be impacted by fires in the relevant areas (primarily 14D) and identify that manual action to open the doors/place portable fans for alternate cooling should be performed. This is a relativley simple mitigation method and human dependence issues would limit credit requiring additional operator action. A redundant train of 480V switchgear room HVAC could be installed to reduce these contributors (SAMA 6).
LA1	6.41E-03	1.03E+00	RHR PUMP TRAIN A STARTS AND RUNS FOR 24 HOURS: ALL SUPPORT AVAILABLE (SBLOCA)	This event represents the failure of RHR pump A to start and run for 24 hours. The top contributors are for small LOCAs combined with failure of the B RHR pump train to operate for 24 hours (ultimately, there is no recirculation capability). Installing a swing RHR pump that can be supplied from any power division would provide the capability to pump water through an existing RHR Hx to provide a means of removing heat

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				from containment (SAMA 11).
LP1	6.21E-04	1.03E+00	Both RHR Trains: ALL SUPPORT AVAILABLE (SLOCA)	LP1 is a conditional split fraction that equates to SF LB2, which is explicitly addressed below.
LB2	9.69E-02	1.03E+00	RHR PUMP TRAIN B: ALL SUPPORT AVAILABLE (LA FAILED - SLOCA)	This event represents the failure of RHR pump B to start and run for 24 hours. The top contributors are for small LOCAs combined with failure of the A RHR pump train to operate for 24 hours (ultimately, there is no recirculation capability). Installing a swing RHR pump that can be supplied from any power division would provide the capability to pump water through an existing RHR Hx to provide a means of removing heat from containment (SAMA 11).
OG1	9.27E-03	1.03E+00	230kV Offsite Power: ALL SUPPORT AVAILABLE	This event is represents the availability of offsite power to the plant (including parts of the DCPP switchyard). While it is theoretically possible to improve the reliability of the switchyard equipment, it would be difficult to quantify the changes in reliability based on component changes. A more effective means of mitigation is considered to be providing the plant with the capability to survive a long term SBO. In this case, a 480V AC generator could be used to supply the battery chargers for long term AFW support in conjunction with a self cooled, 480V AC RCS high pressure injection pump that can be used to make up for normal seal leakage or boil off if SG makeup fails (SAMA 12).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
AZAF3	2.70E-02	1.03E+00	UNIT 1 4.16 KV BUS F: HF13/HF14 impacted - Recovery successful	This event represents the fire induced failure of the 4KV Bus F (but not due to operator error to manually swap from the Aux transformer to the Startup transformer). The top contributors are fires in the 12Kv cable spreading room (area 1085) and safeguards room (area 8G), which are combined with other fire induced and random failures that lead to induced SBOs and cases where only 1 4KV division is available combined with other hardware failures that prevent RCS makeup. Charging remains available but SI and feed and bleed fails due to lack of support. Or control room ventilation to SSPS is lost due to the fire with failure of operator actions for recovery resulting in failure of SI. This split fraction often occurs with AWFZ and AZAH7 (ZAH7). For scenarios with charging available, providing an engine driven SG makeup pump could restore secondary side heat removal capability (SAMA 2). For the SBO scenarios, alternate, independent means of both primary and secondary side makeup would be required for long term success, which could be provided by portable, engine driven primary and secondary side makeup pumps (SAMA 18).
GXH	3.50E-02	1.03E+00	1/3 DIESELS UNAVAILABLE (BUS H)	GXH is an "Intermediate" SF used to calculate GH1 and other conditional SFs associated with failure of DH 1-1. The top contributors including this event are flooding events in the AFW rooms that include random loss of offsite power. In these scenarios, the condensate feedwater system is unavailable and combined with F&B failure (2/3 PORVs failed: Bus 1H fails PORV 456, and PORV 474 via FCV-584), there are no heat removal options. A potential approach to restoring SG makeup would be to provide an engine driven SG makeup pump that can be aligned in time to mitigate loss of SG makeup scenarios (SAMA 2). Another approach is to install independent swing diesel (SAMA15).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
ZPRL3A	4.37E-02	1.03E+00	Normal letdown LOCA due to fire induced/random failures: All components impacted - Recovery of 8149A,B,C impacted. (HEP=1)	This event represents a letdown path LOCA with failure of the recovery action to isolate the LOCA pathway by opening the DC supply breakers for the valves. DCPP currently has fire procedures that direct this action for fires in the relevant area and no additional changes to the procedures have been identified that would significantly improve action reliability. A potential enhancement would be to provide fire barriers to protect the cables related to the valves in the letdown path associated with LOCA (valves 8149A,B,C valves and LCV-459 and LCV-460). Ensuring that either LCV-459 or 460 is protected in area 5A1 could prevent or mitigate the fire induced LOCA (SAMA 14).
AWFZ	5.24E-01	1.03E+00	No support for AFWP2, AFWP3 and fire impacts on AFWP1.	This event represents the failure of AFW given than the fire has impacted TD AFW pump 1-1 and the unavailability of MD Pumps 1-2 and 1-3 due to support system failure. Since there is a loss of all secondary heat removal the only cooling function that remains is feed and bleed. The top sequences containing this SF are for fire initiators in the Electrical area (6-A-5) and the Safeguards Room (8G). For fire in area 6A5 CCW and SI is lost due to the fire. Since CCW is lost, all charging is lost and feed and bleed is unavailable. In order to mitigate these scenarios, alternate, independent means of both primary and secondary side makeup would be required for long term success, which could be provided by portable, engine driven primary and secondary side makeup pumps (SAMA 18). For area 8G see AFAZ3.

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
GF1	3.50E-02	1.02E+00	DG 1-3 (BUS F) STARTS & RUNS FOR 6 HR	This SF represents the failure of DG 1-3 to start and run for 6 hours. Cross-tie from the opposite unit is available, but common cause failures would likely limit the credit associated with including the capability in the model. Installation of a self-contained, independent swing diesel, not dependent on external support systems, would provide increased defense in depth and should be considered for loss of onsite emergency AC power sources (SAMA 15). A potential alternate solution is to use a 480V AC generator to supply the battery chargers for long term AFW support in conjunction with a self cooled, 480V AC RCS high pressure injection pump that can be used to make up for normal seal leakage or boil off if SG makeup fails (SAMA 12).
PRC1A	1.73E-01	1.02E+00	PR Failed due to PORV 456C 8000C Failure - FOR FIRE AREA 1A and 9A	This SF represents the failure of PORV 456 and block valve 8000C in an manner that leads to a PORV LOCA. The SF is highly coupled with the SF ZHTRP2, which leads to failure of the remaining RHR pump that could otherwise be used to mitigate the LOCA. In these cases, operating RHR pumps are "deadheaded" and will eventually fail unless the operator trips the pump(s) or initiates flow to the associated RHR heat exchanger from CCW. The procedures are currently set up to direct the operators to trip the pumps at some point after they have initiated if they are not required. A potential means of precluding the need to trip the RHR pumps would be to install a normally open CCW flow bypass line around the RHR Hx outlet valve. This would ensure that minimum cooling flow would be available to prevent damage to the RHR pumps when they are running with the RCS at high pressure (SAMA 1).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
SIZCR6	8.41E-01	1.02E+00	8974A, and All ZSI1componnts impacted	This event is primarily linked to fire area 5-A-1 and represents the failure of the safety injection function when SI to RWST recirculation valve MOV 8974A transfers closed. In all top contributors, SI is required to mitigate a letdown line LOCA. DCPP currently has fire procedures that direct this action for fires in the relevant area and no additional changes to the procedures have been identified that would significantly improve action reliability. A potential enhancement would be to provide fire barriers to protect the cables related to the valves in the letdown path associated with LOCA (valves 8149A,B,C valves and LCV-459 and LCV-460). Ensuring that either LCV-459 or 460 is protected in area 5A1 could prevent or mitigate the fire induced LOCA (SAMA 14).
HRF23A	6.00E-01	1.02E+00	Fire - HR Fails due to ZHR23A fails: NO FLOW PATH FROM RHR TO HIGH PRESSURE PUMPS:	This event is primarily linked to fire area 5-A-1 and represents the failure of the safety injection function when either MOV 8923A or B fail closed. In all top contributors, SI is required to mitigate a letdown line LOCA. DCPP currently has fire procedures that direct this action for fires in the relevant area and no additional changes to the procedures have been identified that would significantly improve action reliability. A potential enhancement would be to provide fire barriers to protect the cables related to the valves in the letdown path associated with LOCA (valves 8149A,B,C valves and LCV-459 and LCV-460). Ensuring that either LCV-459 or 460 is protected in area 5A1 could prevent or mitigate the fire induced LOCA (SAMA 14).
ZPRSI2	2.80E-01	1.02E+00	Operator action to terminate spurious SI: Degraded instrumentation	This SF represents the failure to terminate a fire induced spurious SI signal. In this case, the fire has degraded the instrumentation used to diagnose the SI termination action. The DCPP fire procedure already includes guidance on addressing spurious actuation of SI and it is directed to be used for any fire scenario. A potential enhancement to consider would be to include a note identifying the spurious signal actuations that may occur in each fire area with a reference to the attachment that governs the mitigating steps for the associated spurious

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				actuation (SAMA 16).
OB1Z2	1.34E-01	1.02E+00	–Failure of the Feed and Bleed function due to Loss of Instrument Air (Guranteed failure in all fire scenarios) and Instrumentation Degraded	The event represents the failure of the feed and bleed function in cases where there is successful operator action (even with degraded instrumentation), but failure due to hardware based reasons. Providing a backup air supply to PORV PCV 474 could reduce the feed and bleed failures associated with loss of instrument air (SAMA 5).
RF1Z	8.68E-03	1.02E+00	FIRE: SWITCHOVER TO CONTAINMENT SUMP RECIRC AFTER SLOCA OR B/F WITH CS FAILED	This SF is related to operator error to perform swap to recirculation mode in fire scenarios. The sequences including the SF typically include induced LOCAs via spurious pressurizer heater actuation or PORV pathways that force bleed and feed operation. Automating the swap to recirculation mode could improve the reliability of the function (SAMA 7).
ZTDPHS	5.00E-02	1.02E+00	Failure to control SG 2/3 Water Level: All Instruments are available	This SF is related to operator failure to control SG level, which leads to the need for Feed and Bleed cooling. In the top contributors, the transition to F&B is failed due to hardware issues. Providing a backup air supply to PORV PCV 474 could reduce the feed and bleed failures associated with loss of instrument air (SAMA 5). In other scenarios, the swap to recirculation mode fails. Automating the swap to recirculation mode could improve the reliability of the function (SAMA 7).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
SACSS4	3.91E-02	1.02E+00	SEISMIC FAILURE OF AC TB STRUCT SUCCESSFULE: SEIS4, Hazard Levels: 2.00E+00 to 2.500E+00	This SF represents the failure of all vital 4KV AC power given that the turbine building does not fail due to the seismic event. In most cases, the 230kV offsite supply is also failed and power is not available to the site at all. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above the top of active fuel (TAF), a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
SACSS5	1.49E-01	1.02E+00	SEISMIC FAILURE OF AC TB STRUCT SUCCESSFULE: SEIS5, Hazard Levels: 2.500E+00 to 3.00E+00	This SF represents the failure of all vital 4KV AC power given that the turbine building does not fail due to the seismic event. In most cases, the 230kV offsite supply is also failed and power is not available to the site at all. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified pressure operated relief valve (PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
WFLO2N	2.20E-03	1.02E+00	Operator Fails to Isolate Raw Water Reservoir for 6 inch Firewater Flood	This SF is associated with a number of different fire protection flooding scenarios that result in flood damage to the charging and CCW pumps, as well as the RHR pumps. Lack of RCP seal cooling results in an RCP seal LOCA without high pressure injection capability. In some cases, AFW and Condensate/FW makeup capability to the SGs is also failed. A potential means of mitigating the event would be to provide water level sensors in critical areas, such as those housing the charging pumps, AFW pumps, CCW pumps, and RHR pumps that could actuate on high level to shut down the fire protection pumps when there is not a coincident fire alarm (SAMA 17). These types of events could also potentially be mitigated through the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
SDS1	2.17E-02	1.02E+00	RCP Shutdown seals Fail to Actuate	This SF represents failure of the shutdown seals to actuate and is primarily important in fire related events. The fires occur in several different areas and result in the loss of seal cooling for a range of different reasons, which makes it impractical to protect component cables to prevent the loss of the seal cooling function. The DCPP fire procedures already identify components that may be impacted on an area by area basis and provide mitigating actions to recover from the failures. The scenarios including this SF also generally include fire induced LOCAs from pressurizer heater actuation or charging flow imbalance. Multiple other functions/components are also failed, such as the CCW heat exchangers and SG steam relief capability. The wide range of failures essentially requires a fire-safe train of equipment for success. SAMA 18 represents an independent primary and seconday side makeup capability, but for all but very small LOCAs, successful mitigation would require a permanently installed system with higher makeup flow capacity than the portable pumps envisioned for SAMA 18. This type of system would be more expensive than SAMA 18. For this analysis, SAMA 18 is assigned as a bounding case for these contributors.
BB1G	1.97E-02	1.02E+00	UNIT 2 VITAL AC/DC SYSTEM: Train 2G fails with Recovery - TS=S	This SF is an intermediate SF for Unit 2 power failures. These failures show up in the importance list, but are non-minimal failures that do not directly impact the sequence of events. No SAMAs are required.
OR1	2.30E-02	1.02E+00	OPERATOR COOLDOWN AND DEPRESSURIZE RCS	This top contributors associated with this SF are non-isolated SGTR initiating events, which are often combined with failures to isolate the ruptured SG. While the importance of this event may be overestimated due to conservative HRA techniques, some changes could be made to reduce the frequency of the sequences containing this action. Primary side isolation valves would simplify both the action to isolate a ruptured SG, the action to cool down/depressurize the RCS after isolation, and help prevent induced SGTR events (SAMA 19).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
ZAH7	5.00E-01	1.02E+00	4.16 kV Bus H fails due to fire: HH14 affected - Conditional recovery - Local action	This is an intermediate SF for AZAH7, which represents the fire induced failure of 4KV bus H with conditional failure to locally close the 4KV breaker on Bus H to provide power to the bus from the startup transformer. This generally occurs in conjunction with the SF for failure of the F (AZAF3) bus given the condition that the action to swap to the startup source was not a cause of failure (which also leaves bus F unavailable) and AWFZ. The top contributors are fires in the safeguards room (area 8G), which are combined with cases where lack of power combined with other failures prevent RCS makeup for mitigation of induced LOCAs from pressurizer heater actuation. For these scenarios, alternate, independent means of both primary and secondary side makeup would be required for long term success, which could be provided by portable, engine driven primary and secondary side makeup pumps (SAMA 18).
AZAG7	5.00E-01	1.01E+00	HG14 affected - Conditional recovery - Local action	This event represents the fire induced failure of 4KV bus G with conditional failure to locally close the 4KV breaker on Bus G to provide power to the bus from the startup transformer. This generally occurs in conjunction with fires in the 12KV cable spreading room (area 1085) that result in SBO conditions due to fire induced failures that also leave the F and H buses unavailable. A potential solution is to use a 480V AC generator to supply the battery chargers for long term AFW support in conjunction with a self cooled, 480V AC RCS high pressure injection pump that can be used to make up for normal seal leakage or boil off if SG makeup fails (SAMA 12).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
SVZ3R1	2.73E-02	1.01E+00	480V SWITCHGEAR VENTILATION: E-43, S-43 and HD43-SO impacted - run failure	This SF represents the failure of the 480V switchgear ventilation function given that a fire has failed one of the two redundant trains. The SF is generally paired with failure of the operator action to open the doors for alternate ventilation, which is an action that is clearly directed in the current DCPP fire procedure for the relevant fire area (instrumentation is available to support the action). Failure of 480V switchgear ventilation eventually results in loss of all 3 divisions of safety related 480V AC power and all three safety related DC divisions after battery depletion. Because the 480V switchgear and battery chargers are failed, mitigating equipment will be required to operate without 480V AC and 125/250V DC support. A redundant train of 480V switchgear room HVAC could be installed to reduce these contributors (SAMA 6). Alternatively, these types of events could potentially be mitigated through the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18).
AZAH7	5.00E-01	1.01E+00	HH14 affected - Conditional Recovery - Local action	This SF represents the fire induced failure of 4KV bus H with conditional failure to locally close the 4KV breaker on Bus H to provide power to the bus from the startup transformer. This generally occurs in conjunction with the SF for failure of the F (AZAF3) bus given the condition that the action to swap to the startup source was not a cause of failure (which also leaves bus F unavailable) and AWFZ. The top contributors are fires in the safeguards room (area 8G), which are combined with cases where lack of power combined with other failures prevent RCS makeup for mitigation of induced LOCAs from pressurizer heater actuation. For these scenarios, alternate, independent means of both primary and secondary side makeup would be required for long term success, which could be provided by portable, engine driven primary and secondary side makeup pumps (SAMA 18).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
ZPRIS2	1.50E-01	1.01E+00	Instrumentation degraded	This SF represents the failure to isolate a spuriously opened PORV with degraded instrumentation. There are several contributing fire areas and different combinations of injection/heat removal failure that lead to core damage; however, one of the larger contributors is the loss of RHR due to the failure to trip "deadheaded" RHR pumps. A potential means of precluding the need to trip the RHR pumps would be to install a normally open CCW flow bypass line around the RHR Hx outlet valve. This would ensure that minimum cooling flow would be available to prevent damage to the RHR pumps when they are running with the RCS at high pressure (SAMA 1). The current DCPP fire procedure already identifies actions to close spuriously operating PORVs from the hot shutdown panel and to trip the pressurizer heaters in the scenarios where they can be impacted, which would prevent the induced PORV LOCAs.
GXF	3.50E-02	1.01E+00	1/3 DIESELS UNAVAILABLE (BUS F)	This is an intermediate SF for GF1 related to the failure of DG 1-3 to start and run for 6 hours. Cross-tie from the opposite unit is available, but common cause failures would likely limit the credit associated with including the capability in the model. Installation of a self-contained, independent swing diesel, not dependent on external support systems, would provide increased defense in depth and should be considered for loss of onsite emergency AC power sources (SAMA 15). A potential alternate solution is to use a 480V AC generator to supply the battery chargers for long term AFW support in conjunction with a self cooled, 480V AC RCS high pressure injection pump that can be used to make up for normal seal leakage or boil off if SG makeup fails (SAMA 12).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
ZHTRP3	6.50E-03	1.01E+00	Operator Action - Instrumentation OK	This event represents the failure to trip the RHR pumps before failure when they have been "deadheaded" without CCW flow to the RHR heat exchangers. A potential means of precluding the need to trip the RHR pumps would be to install a normally open CCW flow bypass line around the RHR Hx outlet valve. This would ensure that minimum cooling flow would be available to prevent damage to the RHR pumps when they are running with the RCS at high pressure (SAMA 1).
PR6AW1	9.66E-02	1.01E+00	PRESSURE RELIEF: Fire - 8000C, 456 available, 455C failed. This will overlap with PRM. Water Challenge. Block valve closure fails.	This SF is primarily associated with induced LOCAs for fires in fire area 6-A-1. The SF boundary conditions indicate that block valve 8000C and PORV-456 are available while PORV-455C is failed. The fire procedure indicates that for fires in this area, block valve 8000A and the PZR heaters may be impacted. These scenarios generally include spurious operation of the pressurizer heaters and induced LOCAs. Core damage results either because the action to swap to recirculation fails, or because an otherwise RHR pump has been damaged due to the failure to trip after prolonged "deadheaded" operation. A potential means of precluding the need to trip the RHR pumps would be to install a normally open CCW flow bypass line around the RHR Hx outlet valve. This would ensure that minimum cooling flow would be available to prevent damage to the RHR pumps when they are running with the RCS at high pressure (SAMA 1). To reduce the frequency of failures related to the action to transition to recirculation mode, the process could be automated (SAMA 7).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
GG2	2.90E-02	1.01E+00	DG 1-2 (BUS G) : GF-F	Cross-tie from the opposite unit is available, but common cause failures would likely limit the credit associated with including the capability in the model. Installation of a self-contained, independent swing diesel, not dependent on external support systems, would provide increased defense in depth and should be considered for loss of onsite emergency AC power sources (SAMA 15). Alternatively, a smaller sized EDG could be used to power the AFW battery chargers for long term SBO operation and a new, self cooled, 480V AC PDP could be used for primary side makeup (SAMA 12).
BB1H	1.42E-02	1.01E+00	Train 2H fails with Recovery - TH=S	This SF is an intermediate SF for Unit 2 power failures. These failures show up in the importance list, but are non-minimal failures that do not directly impact the sequence of events. No SAMAs are required.
SACSS6	3.30E-01	1.01E+00	SEISMIC FAILURE OF AC TB STRUCT SUCCESSFULE: SEIS6, Hazard Levels: 3.00E+00 to 3.99E+00	This SF represents the failure of all vital 4KV AC power given that the turbine building does not fail due to the seismic event. In most cases, the 230KV offsite supply is also failed and power is not available to the site at all. Given that this SF is associated with a large scale seismic events (>1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
GX	1.90E-04	1.01E+00	3/3 DIESELS UNAVAILABLE	This is an intermediate SF for failure of all three DGs. Cross-tie from the opposite unit is available, but common cause failures would likely limit the credit associated with including the capability in the model. Installation of a self-contained, independent swing diesel, not dependent on external support systems, would provide increased defense in depth and should be considered for loss of onsite emergency AC power sources (SAMA 15). A potential alternate solution is to use a 480V AC generator to supply the battery chargers for long term AFW support in conjunction with a self cooled, 480V AC RCS high pressure injection pump that can be used to make up for normal seal leakage or boil off if SG makeup fails (SAMA 12).
CD1FL	4.55E-02	1.01E+00	FLOOD-ALL SUPPRT AVAILABLE-MFW PUMPS AVAILABLE	This SF represents the failure of the Condensate system in flooding events when all support systems and MFW pumps are available. The top contributor is from a flood sequence in which a pipe from the RWST breaks in the fuel handling building. All AFW pumps and the RWST are lost, as well as RHR due to lack of inventory. Failure of condensate results in loss of all heat removal capability. In other cases, fire protection system breaks in the AFW pump rooms result in failure of AFW, which in combination with Feed and Bleed and Condensate system failure lead to core damage. For fire protection system ruptures, a potential means of mitigating the event would be to provide water level sensors in critical areas, such as those housing the charging pumps, AFW pumps, CCW pumps, and RHR pumps that could actuate on high level to shut down the fire protection pumps when there is not a coincident fire alarm (SAMA 17). These types of events could also potentially be mitigated through the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18).

Table F.5-1
DCPP Level 1 Importance List Review

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
GH3	1.87E-01	1.01E+00	DG 1-1 (BUS H) : GF-F,GG-F	This SF represents the failure of DG H given failure of the F and G DGs. Cross-tie from the opposite unit is available, but common cause failures would likely limit the credit associated with including the capability in the model. Installation of a self-contained, independent swing diesel, not dependent on external support systems, would provide increased defense in depth and should be considered for loss of onsite emergency AC power sources (SAMA 15). A potential alternate solution is to use a 480V AC generator to supply the battery chargers for long term AFW support in conjunction with a self cooled, 480V AC RCS high pressure injection pump that can be used to make up for normal seal leakage or boil off if SG makeup fails (SAMA 12).
ZPRSI1	2.80E-01	1.01E+00	Operator action to terminate spurious SI - Instrumentation OK	This SF represents the failure to terminate a fire induced spurious SI signal. In this case, the fire has not degraded the instrumentation used to perform the SI termination action. The DCPP fire procedure already includes guidance on addressing spurious actuation of SI and it is directed to be used for any fire scenario. A potential enhancement to consider would be to include a note identifying the spurious signal actuations that may occur in each fire area with a reference to the attachment that governs the mitigating steps for the associated spurious actuation (SAMA 16).
ZSGALL	9.97E-01	1.01E+00	PCV-19, -20, -21, and -22 spuriously open due to fire - fire impact PCV-19, PCV-20, PCV-21 and PCV-22	This SF represents the fire induced opening of PCVs-19, -20, -21, and -22 given that all of the AFW ADVs are impacted by the fire. This, combined with other failures (generally fire induced), leads to loss of SG makeup capability. The top contributors also all include fire induced small LOCAs such that SG makeup alone cannot mitigate the accident. For the diverse set of fire initiators that include this event, a comprehensive mitigation strategy is considered to be required. These types of events could also potentially be mitigated through the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
CPFIRE	1.00E-01	1.16E+00	Failure of Isolating the Containment Pen of greater than 2": Failure of Pen 45 valves due to fire	This SF represents the failure to manually isolate the RCP seal water return lines given a fire induced failure of the valves, which leads to an open pathway from containment that exists prior to core damage. A potential means of improving reliability of the isolation action would be to provide fire area specific guidance that addresses containment isolation valves. In some cases, reference to the SAMGs or additional guidance may be appropriate when isolation will result in the loss of a function that is required to prevent core damage (SAMA 21)
SPCET3	7.67E-01	1.15E+00	RCP SEAL COOLING UNAVAILABLE	There are numerous path that lead to core damage that include the unavailability of RCP seal cooling, but all of the top LERF contributors are the result of induced steam generator tube ruptures. These types of events can be prevented by maintaining level in the SGs after core damage to prevent overheating of the SG tubes. A portable, high pressure engine driven SG makeup source with diverse suction supplies can provide this capability (SAMA 2).
ISCET3	7.10E-02	1.15E+00	INDUCED-SGTR: Loss of seal cooling, smallest leak size, no CST resupply	This SF represents the probability that an induced steam generator tube rupture occurs. While SG makeup alone cannot necessarily prevent core damage for cases in which primary side inventory has been lost, providing the capability to inject water into the SGs will prevent tube failure. A portable, high pressure engine driven SG makeup source with diverse suction supplies can provide this capability (SAMA 2).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
OSZ1	5.30E-02	1.15E+00	MANUAL ACTUATION IN EVENT SSPS FAILS: Instrumentation degraded	Addressed in the Level 1 importance list.
ISCET1	5.80E-02	1.11E+00	INDUCED-SGTR: Loss of SG cooling at setpoint pressure	This SF represents the probability that an induced steam generator tube rupture occurs. While SG makeup alone cannot necessarily prevent core damage for cases in which primary side inventory has been lost, providing the capability to inject water into the SGs will prevent tube failure. A portable, high pressure engine driven SG makeup source with diverse suction supplies can provide this capability (SAMA 2).
OR1	2.30E-02	1.09E+00	OPERATOR COOLDOWN AND DEPRESSURIZE RCS	Addressed in the Level 1 importance list.
OX1	1.60E-02	1.07E+00	OPERATOR DECIDES TO ISOLATE RUPTURED SG	This SF represents the probability that the operators will fail to isolate a ruptured SG in a tube rupture scenario. It is generally coupled with the failure to cool down the RCS as part of the mitigation process. In these cases, the types of strategies that are available to reduce the LERF are limited, but providing primary side SG isolation valves is a potential means of simplifying the mitigation strategy and terminating the scenario (SAMA 19).
RECSR	6.50E-02	1.06E+00	Recovery actions for CSR Scenarios from HSP	Addressed in the Level 1 importance list.
SA1	3.26E-03	1.06E+00	SSPS TRAIN A: GENERAL TRANSIENT	This SF, which is a failure of the "A" train of the solid state protection system, is often paired with operator failure to trip the reactor that result in ATWS events, which are assumed to result in core damage for Seismic initiators. A potential means of reducing the contribution of this SF is to use an alternate signal, such as AMSAC, to automate the de-energization of the 480V buses feeding the rod drive motor generator sets (SAMA 20).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
S12	4.82E-05	1.06E+00	SSPS TRAIN A&B FAIL (GENERAL TRANSIENT)	This is an intermediate SF for SB2, which represents failure of the "B" SSPS channel given failure of the "A" channel. There are limited options available to address the sequences where operators fail to manually actuate the safety systems after automatic actuation has failed. This SF is often paired with operator failure to trip the reactor that result in ATWS events, which are assumed to result in core damage for Seismic initiators. A potential means of reducing the contribution of this SF is to use an alternate signal, such as AMSAC, to automate the de-energization of the 480V buses feeding the rod drive motor generator sets (SAMA 20).
SB2	1.48E-02	1.06E+00	SA-F (GENERAL TRANSIENT)	This is an intermediate SF for SB2, which represents failure of the "B" SSPS channel given failure of the "A" channel. The SB2 SF is often paired with operator failure to trip the reactor that result in ATWS events, which are assumed to result in core damage for Seismic initiators. A potential means of reducing the contribution of this SF is to use an alternate signal, such as AMSAC, to automate the de-energization of the 480V buses feeding the rod drive motor generator sets (SAMA 20).
WLF0	1.00E-01	1.06E+00	Both SSPS Trains Not available, no fire	This SF, which is a failure of the "B" train of the solid state protection system, is often paired with operator failure to trip the reactor that result in ATWS events, which are assumed to result in core damage for Seismic initiators. A potential means of reducing the contribution of this SF is to use an alternate signal, such as AMSAC, to automate the de-energization of the 480V buses feeding the rod drive motor generator sets (SAMA 20).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
SDC6	1.26E-01	1.04E+00	SEISMIC FAILURE OF DC DUE TO FRAGILITY: SEIS6, Hazard Levels: 3.00E+00 to 3.99E+00	This SF represents the seismic failure of 125V DC power. This SF is typically combined with LOOP events, which result in SBO scenarios given that DC power is required for on-site power alignment. Given that this SF is associated with a large scale seismic events (>1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
PRB1A	1.76E-01	1.04E+00	PR Failed due to PORV 455C 8000B Failure - FOR FIRE AREA 1A and 9A	Addressed in the Level 1 importance list.
ZHTRP2	1.60E-01	1.04E+00	Operator Action - Degraded Instrumentation	Addressed in the Level 1 importance list.
ZSVHES	5.80E-03	1.04E+00	480V Switchgear Ventilation - Operator Action: No fire damage to flow switches	Addressed in the Level 1 importance list.

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
SDC5	3.82E-02	1.04E+00	SEIS5, Hazard Levels: 2.500E+00 to 3.00E+00	This SF represents the seismic failure of 125V DC power. This SF is typically combined with LOOP events, which result in SBO scenarios given that DC power is required for on-site power alignment. Given that this SF is associated with a large scale seismic events (>1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
PR6BWZ	9.66E-02	1.04E+00	Fire - 456 available, 8000C and 455C failed. Overlaps with PR9. Water Challenge.	Addressed in the Level 1 importance list.
SDC4	8.45E-03	1.03E+00	SEISMIC FAILURE OF DC DUE TO FRAGILITY: SEIS4, Hazard Levels: 2.00E+00 to 2.500E+00	Addressed in the Level 1 importance list.
AZAF3	2.70E-02	1.03E+00	UNIT 1 4.16 KV BUS F: HF13/HF14 impacted - Recovery successful	Addressed in the Level 1 importance list.
AF1SB	1.38E-04	1.03E+00	UNIT 1 4.16 KV BUS F: All support available (with recovery - Seismic Group B)	This SF represents the probability that 4KV bus F fails in a lower magnitude seismic event. It is typically combined with other failures of buses G and H along with a failure to trip the reactor due to unavailability of DC power to the shunt trip coils for manual trip (local breaker action not credited). This results in an ATWS. A potential means of reducing the contribution of this SF is to use an alternate signal, such as AMSAC, to automate the de-energization of the 480V

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				buses feeding the rod drive motor generator sets (SAMA 20).
AY3FGH	2.26E-05	1.03E+00	VITAL AC TRAINS F&G&H FAIL (SEISMISC GROUP B)	This is an intermediate SF for AH3SB, which represents the failure of 4 KV Bus H given failure of buses F and G in seismic events. The contributors that include this SF are generally combined with the failure to trip the reactor when DC power is not available to the shut trip coils to support a manual trip (local breaker action not credited). This results in an ATWS. A potential means of reducing the contribution of this SF is to use an alternate signal, such as AMSAC, to automate the de-energization of the 480V buses feeding the rod drive motor generator sets (SAMA 20).
AH3SB	4.67E-01	1.03E+00	UNIT 1 4.16 KV BUS H: DF-S, DG-S, AF-F,AG-F (with recovery) - Seismic Group B	This SF represents the failure of 4 KV Bus H given failure of buses F and G in seismic events. The contributors that include this SF are generally combined with the failure to trip the reactor when DC power is not available to the shut trip coils to support a manual trip (local breaker action not credited). This results in an ATWS. A potential means of reducing the contribution of this SF is to use an alternate signal, such as AMSAC, to automate the de-energization of the 480V buses feeding the rod drive motor generator sets (SAMA 20).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
AG2SB	3.50E-01	1.03E+00	UNIT 1 4.16 KV BUS G: DF-S, AF-F, with recovery (Seismic Group B)	This SF represents the failure of 4 KV Bus G given failure of bus F in seismic events. The contributors that include this SF are generally combined with the failure to trip the reactor when DC power is not available to the shut trip coils to support a manual trip (local breaker action not credited). This results in an ATWS. A potential means of reducing the contribution of this SF is to use an alternate signal, such as AMSAC, to automate the de-energization of the 480V buses feeding the rod drive motor generator sets (SAMA 20).
ZSGALL	9.97E-01	1.03E+00	fire impact PCV-19, PCV-20, PCV-21 and PCV-22	Addressed in the Level 1 importance list.
AZAG7	5.00E-01	1.03E+00	HG14 affected - Conditional recovery - Local action	Addressed in the Level 1 importance list.
WLF1	1.00E-01	1.02E+00	WATER LEVEL FOR SUMP RECIRCULATION: Both SSPS Trains Not available, fire with Recovery	This SF represents the failure to close the containment sump discharge valves given the unavailability of both SSPS trains in fire events. A potential improvement would be to include explicit guidance in the fire procedure to manually close either FCV-500 or FCV-501 for fires in zones that could fail SSPS (SAMA 21).
AWR1	2.93E-04	1.02E+00	Failure to supply water from FWST or RWR (non seismic)	Addressed in the Level 1 importance list.
ZPRSI2	2.80E-01	1.02E+00	Operator action to terminate spurious SI: Degraded instrumentation	Addressed in the Level 1 importance list.

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
ZSETB7	9.87E-01	1.02E+00	Fire induced loss of thermal barrier cooling: 355, 356, 357, 750 impacted - 355 not recoverable	This SF represents the fire induced loss of thermal barrier cooling. The sequences including these events lead to LERF primarily due to hydrogen burns that fail containment and induced SGTR events. While SG makeup alone cannot necessarily prevent core damage for cases in which primary side inventory has been lost, providing the capability to inject water into the SGs will prevent tube failure. The scenarios including this SF also generally include fire induced LOCAs from pressurizer heater actuation or charging flow imbalance. Multiple other functions/components are also failed, such as the CCW heat exchangers and SG steam relief capability. The wide range of failures essentially requires a fire-safe train of equipment for success. SAMA 18 represents an independent primary and seconday side makeup capability, but for all but very small LOCAs, successful mitigation would require a permanently installed system with higher makeup flow capacity than the portable pumps envisioned for SAMA 18. This type of system would be more expensive than SAMA 18. For this analysis, SAMA 18 is assigned as a bounding case for these contributors. The frequency of containment failure due to hydrogen burns could be reduced by providing a means of eliminating hydrogen buildup in a diverse range of scenarios, such as with a hydrogen igniter system (SAMA 22).
SVI6	3.57E-02	1.02E+00	ALL FOUR VITAL INSTRUMENT CHANNELS: SEIS6, Hazard Levels: 3.00E+00 to 3.99E+00	This SF represents the failure of all four vital instrument channels in large magnitude seismic events. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
SVZ3R1	2.73E-02	1.02E+00	480V SWITCHGEAR VENTILATION: E-43, S-43 and HD43-SO impacted - run failure	Addressed in the Level 1 importance list.
SACSS4	3.91E-02	1.02E+00	SEISMIC FAILURE OF AC TB STRUCT SUCCESSFULE: SEIS4, Hazard Levels: 2.00E+00 to 2.500E+00	Addressed in the Level 1 importance list.
SSG6	3.19E-02	1.01E+00	SEIS6, Hazard Levels: 3.00E+00 to 3.99E+00	This top event represents the seismic failure of the steam generator supports and postulated failure of the reactor coolant system and steam connecting piping. Failure of this top event is modeled as leading to core damage. The top event failure also is modeled as failing containment because it results in high containment internal pressure. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
ZPRL3C	4.37E-02	1.01E+00	Normal letdown LOCA due to fire induced/random failures: All components impacted - Recovery of 8149A,B,C impacted. (HEP=0.1)	This event represents a letdown path LOCA with failure of the recovery action to isolate the LOCA pathway by opening the DC supply breakers for the valves. DCPP currently has fire procedures that direct this action for fires in the relevant area and no additional changes to the procedures have been identified that would significantly improve action reliability. A potential enhancement would be to provide fire barriers to protect the cables related to the valves in the letdown path associated with LOCA (valves 8149A,B,C valves and LCV-459 and LCV-460).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				Ensuring that either LCV-459 or 460 is protected in area 5A1 could prevent or mitigate the fire induced LOCA (SAMA 14).
SEL6	2.99E-02	1.01E+00	EXCESSIVE LOCA: SEIS6, Hazard Levels: 3.00E+00 to 3.99E+00	This top event represents a seismically induced excessive LOCA. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
ZPRS2F	9.98E-01	1.01E+00	Inadvertent pressurizer spray through aux or normal path: All components impacted	This SF represents the failure to terminate a fire induced spurious SI signal. In this case, the fire has failed the instrumentation used to diagnose the SI termination action. The DCPP fire procedure already includes guidance on addressing spurious actuation of SI and it is directed to be used for any fire scenario. A potential enhancement to consider would be to include a note identifying the spurious signal actuations that may occur in each fire area with a reference to the attachment that governs the mitigating steps for the associated spurious actuation (SAMA 16).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
SPR6	8.42E-02	1.01E+00	SEIS6, Hazard Levels: 3.00E+00 to 3.99E+00	This top event represents a seismically induced pressure relief/small LOCA. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
RF3Z	1.60E-01	1.01E+00	FIRE: SWITCHOVER TO CONTAINMENT SUMP RECIRCULATION AFTER SLOCA DEGRADED INSTRUMENTATION	Addressed in the Level 1 importance list.
C2CT3	1.80E-02	1.01E+00	CONTAINMENT FAILURE AT VESSEL BREACH: No HPME caused DCH (low pressure, or HPME doesn't occur at higher pressure) without spray or CFCUs	This SF is assoicated with top event CSCET, which considers containment failure due to RCS blowdown or combustible gas detonation. The scenarios including this SF are all large magnitude seismic events. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
L2CT3	3.30E-01	1.01E+00	LARGE CONTAINMENT FAILURE AT VESSEL BREACH: No HPME caused DCH (low pressure, or HPME doesn't occur at higher pressure) without spray, with CFCUs	This SF is assoicated with top event L2CET, which considers large containment failure due to RCS blowdown or combustible gas detonation. The scenarios including this SF are all large magnitude seismic events. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
D2F1	2.48E-04	1.01E+00	125V DC BUS F (BATTERY) - ALL SUPPORT AVAILABLE	This SF represents the unavailability of the bus F 125 V battery. In most cases, it occurs in scenarios in which all 3 DC divisions have failed. An alternate DC generator could be used to either power critical DC buses or to directly power critical DC equipment (SAMA 10). The generator would have to be stored in a seismically qualified area.
SSG5	1.12E-02	1.01E+00	SEIS5, Hazard Levels: 2.500E+00 to 3.00E+00	This top event represents the seismic failure of the steam generator supports and postulated failure of the reactor coolant system and steam connecting piping. Failure of this top event is modeled as leading to core damage. The top event failure also is modeled as failing containment because it results in high containment internal pressure. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
PR6GWZ	9.66E-02	1.01E+00	Fire - 456 and 8000B failed. 8000C and 455C available. Overlaps with PR1E. Water Challenge.	Addressed in the Level 1 importance list.
ZTDPHD	1.00E-01	1.01E+00	Failure to control SG 2/3 Water Level: Partial Instruments are available	Addressed in the Level 1 importance list.
SVI5	1.08E-02	1.01E+00	SEIS5, Hazard Levels: 2.500E+00 to 3.00E+00	This SF represents the failure of all four vital instrument channels in large magnitude seismic events. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
SSG4	3.00E-03	1.01E+00	SEIS4, Hazard Levels: 2.00E+00 to 2.500E+00	This top event represents the seismic failure of the steam generator supports and postulated failure of the reactor coolant system and steam connecting piping. Failure of this top event is modeled as leading to core damage. The top event failure also is modeled as failing containment because it results in high containment internal pressure. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				exchanger system (SAMA 4).
BB1G	1.97E-02	1.01E+00	UNIT 2 VITAL AC/DC SYSTEM: Train 2G fails with Recovery - TS=S	Addressed in the Level 1 importance list.
D2G2	1.94E-02	1.01E+00	125V DC BUS G (BATTERY) - GIVEN D2F=F	This SF represents the unavailability of the bus G 125 V battery given failure of the bus F battery. In most cases, it occurs in scenarios in which all 3 DC divisions have failed. An alternate DC generator could be used to either power critical DC buses or to directly power critical DC equipment (SAMA 10). The generator would have to be stored in a seismically qualified area.
DA3FGH	2.33E-06	1.01E+00	VITAL DC TRAINS F, G AND H (2 HOUR) UNAVAILABLE	This SF represents the unavailability of all 3 125V DC divisions. An alternate DC generator could be used to either power critical DC buses or to directly power critical DC equipment (SAMA 10). The generator would have to be stored in a seismically qualified area.

TABLE F.5-2A
DCPP LEVEL 2 (ST1 / ST5)[1] IE IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
SDC3	2.23E-03	1.01E+00	SEIS3, Hazard Levels: 1.75E+00 to 2.00E+00	This SF represents the seismic failure of 125V DC power. This SF is typically combined with LOOP events, which result in SBO scenarios given that DC power is required for on-site power alignment. An alternate DC generator could be used to either power critical DC buses or to directly power critical DC equipment (SAMA 10). The generator would have to be stored in a seismically qualified area.
D2H3	4.87E-01	1.01E+00	D2F-F, D2G-F	The probability of this event reflects the failure of multiple DC buses given the availability of 480V AC buses. As such, a backup independent DC power supply system capable of being connected to the affected bus in a timely manner may lower the importance of this event (SAMA 10).
ZPRL3A	4.37E-02	1.01E+00	All components impacted - Recovery of 8149A,B,C impacted. (HEP=1)	Addressed in the Level 1 importance list.

Table Note:

1. ST1 and ST5 refer to release categories Large Early and ISLOCA, respectively

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
CIA	1.03E-01	1.86E+00	FAILURE OF CONTAINMENT ISOLATION: Fire with Recovery	This SF rerpresents the failure of containment isolation in fire events. Because there are multiple valves associated with this function, there are a large set of fire initiating events and accident evolutions associated with this SF. These types of events could also potentially be mitigated through the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18). The existing DCPP fire procedures already include fire area specific actions to mitigate fire induced damage; however, the actions to address the containment isolation function are general. Another potential enhancement would be to explicitly identify the containment isolation valves that may be impacted for each fire area (SAMA 21).
ZOI5	1.90E-01	1.28E+00	Manual containment Isolation: INST. FOR OPERATOR CUE ARE PARTIALLY FAILED DUE TO FIRE	This SF is associated with the operator action to manually perform containment isolation when the instrumentation used for diagnosis is partially degraded. The existing DCPP fire procedures already include firea area specific actions to mitigate fire induced damage; however, the actions to address the containment isolation function are general. Another potential enhancement would be to explicitly identify the containment isolation valves that may be impacted for each fire area (SAMA 21).
ZHTRP2	1.60E-01	1.21E+00	Operator Action - Degraded Instrumentation	Addressed in the Level 1 importance list.

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
ZOI6	4.50E-02	1.17E+00	Manual containment Isolation: INSTRUMENTS FOR OPERATOR CUE ARE OK FROM FIRE	This SF is associated with the operator action to manually perform containment isolation when the instrumentation used for diagnosis is not impacted. Because there are multiple valves associated with this function, there are a large set of fire initiating events and accident evolutions associated with this SF. These types of events could also potentially be mitigated through the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18).
PR6BWZ	9.66E-02	1.11E+00	Fire - 456 available, 8000C and 455C failed. Overlaps with PR9. Water Challenge.	Addressed in the Level 1 importance list.
RF3Z	1.60E-01	1.10E+00	FIRE: SWITCHOVER TO RECIRCULATION AFTER SLOCA DEGRADED INSTRUMENTATION	Addressed in the Level 1 importance list.
PR6GWZ	9.66E-02	1.09E+00	Fire - 456 and 8000B failed. 8000C and 455C available. Overlaps with PR1E. Water Challenge.	Addressed in the Level 1 importance list.
PRB1A	1.76E-01	1.08E+00	PR Failed due to PORV 455C 8000B Failure - FOR FIRE AREA 1A and 9A	Addressed in the Level 1 importance list.
ZTDPHD	1.00E-01	1.08E+00	Failure to control SG 2/3 Water Level: Partial Instruments are available	Addressed in the Level 1 importance list.
RECSR	6.50E-02	1.07E+00	Recovery actions for CSR Scenarios from HSP	Addressed in the Level 1 importance list.

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
OSZ1	5.30E-02	1.07E+00	MANUAL ACTUATION IN EVENT SSPS FAILS: Instrumentation degraded	Addressed in the Level 1 importance list.
ZPRSI2	2.80E-01	1.05E+00	Operator action to terminate spurious SI: Degraded instrumentation	Addressed in the Level 1 importance list.
AW4	1.61E-02	1.04E+00	SUPPORT FOR BOTH MDP'S UNAVAILABLE	Addressed in the Level 1 importance list.
P2CET3	2.82E-01	1.04E+00	RCS PRESSURE AT VESSEL BREACH EXCEEDS 650 PSIA	This SF is linked to scenarios for which the RCS is at intermediate pressure at the time of vessel breach. They include primarily large magnitude seismic events and fire events in which 480V switchgear room cooling fails. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4). For the fire events, containment failure is linked to hydrogen burns. The frequency of containment failure due to hydrogen burns could be reduced by providing a means of eliminating hydrogen buildup in a diverse range of scenarios, such as with a hydrogen igniter system (SAMA 22).
GXH	3.50E-02	1.04E+00	1/3 DIESELS UNAVAILABLE	Addressed in the Level 1 importance list.

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
			(BUS H)	
AWFZ	5.24E-01	1.04E+00	No support for AFWP2, AFWP3 and fire impacts on AFWP1.	Addressed in the Level 1 importance list.
ZSGALL	9.97E-01	1.04E+00	fire impact PCV-19, PCV-20, PCV-21 and PCV-22	Addressed in the Level 1 importance list.
ZPRL3A	4.37E-02	1.04E+00	Normal letdown LOCA due to fire induced/random failures: All components impacted - Recovery of 8149A,B,C impacted. (HEP=1)	Addressed in the Level 1 importance list.
AZAF3	2.70E-02	1.04E+00	UNIT 1 4.16 KV BUS F: HF13/HF14 impacted - Recovery successful	Addressed in the Level 1 importance list.
ZTDPHS	5.00E-02	1.03E+00	Failure to control SG 2/3 Water Level: All Instruments are available	Addressed in the Level 1 importance list.
PRC1A	1.73E-01	1.03E+00	PR Failed due to PORV 456C 8000C Failure - FOR FIRE AREA 1A and 9A	Addressed in the Level 1 importance list.
RF1Z	8.68E-03	1.03E+00	FIRE: SWITCHOVER AFTER SLOCA OR B/F WITH CS FAILED	Addressed in the Level 1 importance list.
HRF23A	6.00E-01	1.03E+00	Fire - HR Fails due to ZHR23A fails: NO FLOW PATH FROM RHR TO HIGH PRESSURE PUMPS:	Addressed in the Level 1 importance list.

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
PR6AW1	9.66E-02	1.03E+00	PRESSURE RELIEF: Fire - 8000C, 456 available, 455C failed. This will overlap with PRM. Water Challenge. Block valve closure fails.	Addressed in the Level 1 importance list.
OB1Z2	1.34E-01	1.03E+00	Fire - Loss of Instrument Air (HEP successful) and Instrumentation Degraded	Addressed in the Level 1 importance list.
SIZCR6	8.41E-01	1.03E+00	8974A, and All ZSI1componnts impacted	Addressed in the Level 1 importance list.
ZPRIS2	1.50E-01	1.03E+00	Instrumentation degraded	Addressed in the Level 1 importance list.
LSCET1	5.00E-01	1.03E+00	INDUCED PORV (OR PRESSURIZER SAFETY) FAILURE	This SF represents the probability that a PORV has failed in the open position after repeated cycling at elevated temperatures, which leads to a low pressure RCS at vessel breach and containment typically fails due to long term overpressurization. The sequences that include PORV failures are diverse and include internal events initiators, fire scenarios, and seismic events. These types of events could also potentially be mitigated through the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18).
ZSETB7	9.87E-01	1.03E+00	355, 356, 357, 750 impacted - 355 not recoverable	This SF represents the fire induced loss of thermal barrier cooling. The sequences including these events are represented by a wide range of fire events that lead to long term containment overpressurization failures. The scenarios including this SF also generally include fire induced LOCAs from pressurizer heater actuation or charging flow imbalance. Multiple other

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				functions/components are also failed, such as the CCW heat exchangers and SG steam relief capability. The wide range of failures essentially requires a fire-safe train of equipment for success. SAMA 18 represents an independent primary and seconday side makeup capability, but for all but very small LOCAs, successful mitigation would require a permanently installed system with higher makeup flow capacity than the portable pumps envisioned for SAMA 18. This type of system would be more expensive than SAMA 18. For this analysis, SAMA 18 is assigned as a bounding case for these contributors.
ZAH7	5.00E-01	1.02E+00	4.16 kV Bus H fails due to fire: HH14 affected - Conditional recovery - Local action	Addressed in the Level 1 importance list.
SDS1	2.17E-02	1.02E+00	RCP Shutdown seals Fail to Actuate	Addressed in the Level 1 importance list.
ZHTRP3	6.50E-03	1.02E+00	Operator Action - Instrumentation OK	Addressed in the Level 1 importance list.
C2CT3	1.80E-02	1.02E+00	CONTAINMENT FAILURE AT VESSEL BREACH: No HPME caused DCH (low pressure, or HPME doesn't occur at higher pressure) without spray or CFCUs	This SF is assoicated with top event CSCET, which considers containment failure due to RCS blowdown or combustible gas detonation. The scenarios including this SF are all large magnitude seismic events. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
AZAH7	5.00E-01	1.02E+00	HH14 affected - Conditional Recovery - Local action	Addressed in the Level 1 importance list.
OG2305	6.04E-01	1.02E+00	AVAILABILITY OF POWER FROM 230 KV OFFSITE GRID: 52HG15 impacted	The offsite power failures are generally combined with a failure of an EDG, a 4 KV Bus/supply failure, and a 480V AC bus/supply failure, or some combination of similar events. Typically, the G 480V AC bus is not available to support TD AFW and an alternate means of SG makeup is required. Because there are often induced LOCAs, primary side makeup is also necessary. These types of events could also potentially be mitigated through the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18).
AWR1	2.93E-04	1.02E+00	Failure to supply water from FWST or RWR (non seismic)	Addressed in the Level 1 importance list.
GF1	3.50E-02	1.02E+00	DG 1-3 (BUS F) STARTS & RUNS FOR 6 HR	Addressed in the Level 1 importance list.
AZAG7	5.00E-01	1.02E+00	HG14 affected - Conditional recovery - Local action	Addressed in the Level 1 importance list.
BB1G	1.97E-02	1.02E+00	UNIT 2 VITAL AC/DC SYSTEM:	Addressed in the Level 1 importance list.

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
			Train 2G fails with Recovery - TS=S	
GH4G	3.52E-02	1.02E+00	UNIT 1 BUS H DIESEL GENERATOR: DG 1-1 (BUS H) : GF-S, GG-B	This SF is associated with a failure of DG 1-1, primarily for fires in the 4-A-1 area (Chemical Lab Area, G Bus Compartment). The scenario including this SF are typically associated with fires in the 4-A-1 area (Chemical Lab Area, G Bus Compartment). In these cases, the fire impacts RHR pump 1-1 and 480V bus G in combination with the random failue of DG 1-1 and fire induced failue of 4KV bus G. The result is a failure of power to the DG fuel oil system, which leads to an SBO as it is also combined with a failure to align the backup power supply to the fuel oil system. DCPP has a viable recovery option for this typs of event, but the action to perform the task is impacted by degraded instrumentation and it has failed. These types of events could also potentially be mitigated through the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18).
GXF	3.50E-02	1.02E+00	1/3 DIESELS UNAVAILABLE (BUS F)	Addressed in the Level 1 importance list.
SCT6	4.51E-01	1.02E+00	RELAY CHATTER: SEIS6, Hazard Levels: 3.00E+00 to 3.99E+00	This SF represents the failure of the emergency AC power system due to seismically induced relay chatter. Without relay reset, onsite AC sources cannot be aligned to required loads. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).
SCT5	2.72E-01	1.02E+00	RELAY CHATTER: SEIS5, Hazard Levels: 2.500E+00 to 3.00E+00	This SF represents the failure of the emergency AC power system due to seismically induced relay chatter. Without relay reset, onsite AC sources cannot be aligned to required loads. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).

TABLE F.5-2B
DCPP LEVEL 2 (ST2)[1] IMPORTANCE LIST REVIEW

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
ZFO32	1.90E-01	1.01E+00	Failure to Align Backup Power Supply: Partial Instruments are available	This SF represents the failure to align a diesel fuel oil pump to its backup power supply when the instrumentation required for diagnosis of the action has been degraded by a fire event. The scenarios including this SF are typically associated with fires in the 4-A-1 area (Chemical Lab Area, G Bus Compartment). DCPP already has a portable diesel fuel oil transfer pump. If the model accounted for the use of this pump, the importance of this split fraction would fall below the review threshold. No SAMAs are required to address this contributor.
C2CT11	7.20E-03	1.01E+00	CONTAINMENT FAILURE AT VESSEL BREACH: High or setpoint pressure, w/o sprays or CFCUs, HPME cause DCH	This SF is related to the failure of containment at the time of vessel breach. The contributors including this SF are primarily large magnitude seismic events. Given that this SF is associated with a large scale seismic event (greater than 1.75g), a new mitigating system capable of responding after seismic events (potentially up to 4g) is considered to be required. Such a system would include a 4KV power source, a core spray type injection system (with a qualified PORV) capable of spraying the core for cooling until the reactor cavity is flooded to a level above TAF, a connection to a large seismically qualified source of water (wells or seawater), and a heat exchanger system (SAMA 4).