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

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
ZPRS2F	9.98E-01	1.01E+00	Inadvertent pressurizer spray through aux or normal path: All components impacted	For scenarios that include fire induced pressurizer spray actuation induced LOCAs, many of the contributors initially have an RHR pump available for mitigation. Failure to trip the deadheaded pump before it is damaged leads to loss of heat removal capability and subsequent containment overpressurization. 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).
DB4F	5.64E-03	1.01E+00	125V DC BUS F - LONG TERM (TRAIN 11): 125V DC VITAL POWER BUSES: Train DF - (BTC11=S, BTC121=F)	This is an intermediate SF for DF4, which represents the unavailability of DC bus F. 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.
IPCET2	1.20E-01	1.01E+00	INDUCED RCS HOT LEG OR SURGE LINE FAILURE: RCS at setpoint pressure, Seal LOCA, smallest leak size, no CST resupply, no RCS failures	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

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

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				events, the action to align portable switchgear ventilation is credited, (instrumentation required for diagnosis is not degraded) and it fails. Loss of all AC power is considered to be an adequate cue to credit the alignment of an additional mitigation strategy, such as the use of portable, engine driven, high pressure RCS and SG injection pumps (SAMA 18).
ZPRSI1	2.80E-01	1.01E+00	Operator action to terminate spurious SI: Instrumentation OK	Addressed in the Level 1 importance list.
DB2H	5.64E-03	1.01E+00	125V DC VITAL POWER BUSES: Train DH - BTC132=S, BTC131=F	This is an intermediate SF for DH10, which represents the unavailability of DC bus H. 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.
DF4	5.64E-03	1.01E+00	125V DC BUS F - LONG TERM (TRAIN 11): BTC11=S, BTC121=F	This SF represents the unavailability of DC bus F. 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.
ZSVHES	5.80E-03	1.01E+00	480V Switchgear Ventilation - Operator Action: No fire damage to flow switches	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
OG230S	6.63E-01	1.01E+00	AVAILABILITY OF POWER FROM 230 KV OFFSITE GRID: 52HG15 impacted - for scenario ZTRY22F1	This SF represents the failure of offsite power from the 230KV source in a fire event. 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).
AWBB	6.23E-03	1.01E+00	SUPPORT FOR THE TDP AND MDP 1-2 UNAVAILABLE	This SF represents the failure of MD AFW pump 13 given the unavailability of the other two pumps. 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).

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

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
GYG	5.65E-02	1.01E+00	1/3 DIESELS UNAVAILABLE (BUS G)	This is an intermediate SF for TG1 and similar SFs, which represent the unavailability of DG 2-1. The SF appears in the importance list, but it is related to non-minimal failures that do not directly impact the sequence of events. No SAMAs are required.
SIZCR4	8.73E-01	1.01E+00	TOP EVENT SI: 8976, 8974B, and all ZSI2 components impacted	This SF represents the failure of the SI top event given fire impact on the RWST suction and recirculation valves. The sequences that include this SF often include RHR pump failure due to the failure to trip the pumps when operating in the "deadhead" condition. 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).
CI4	1.03E-01	1.01E+00	SSPS Trains A and B Not Avail but Manual Recovery Avail	This represents failure of containment isolation when both SSPS trains are unavailable. The primary contributors to these scenarios are flooding events that lead to failure of all three DC batteries/buses. Credit is already taken for manual isolation of the flooding event. A portable DC generator could be used to directly power critical loads in the event that batteries have failed (SAMA10).

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

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
PRA1A	1.96E-01	1.01E+00	PRESSURE RELIEF: PR Failed due to PORV 474 8000A faiure - for fire area 9A	This SF represents the fire related failures of PORV 474 block valve 8000A. The scenarios generally include either a failure to swap recirculation mode or failure to trip deadheaded RHR pumps to prevent pump damage. Automating the swap to recirculation mode could improve the reliability of the function (SAMA 7). 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).
GH4F	3.52E-02	1.01E+00	UNIT 1 BUS H DIESEL GENERATOR: DG 1-1 (BUS H) : GF-B,GG-S	This SF represents the failure of DG 1-1 given success of DG 1-2 (and bypass of DG 1-3). In top contributors, the failure of DG 1-1 is combined with fire induced failure of SI pump 1-2, leaving no adequate high pressure injection supply to mitigate the fire induced LOCA. 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).

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

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
AWS4	1.61E-02	1.01E+00	SUPPORT FOR BOTH MDP'S UNAVAILABLE	This is an intermediate SF for AW4S. The primary contributors containing this SF are LOOP and SBO seismic events in which MD AFW is failed due to power dependencies. Subsequent to the TD AFW failure, feed and bleed is unavailable due to loss of power to one PORV and loss of instrument air for the other. Providing a backup air supply to PORV PCV 474 could reduce the feed and bleed failures associated with loss of instrument air (SAMA 5). Also, a more robust seismically-resistant 4kV power source (SAMA 4 or SAMA 15) can provide some benefit.
ZSG234	9.83E-01	1.01E+00	PCV-19 spuriously opens due to fire: fire impact PCV-20, PCV-21 and PCV-22	This SF represents the failure of PCV-19 to open for steam relief given fire impact on the other 3 ADVs. Many of the scenarios that include this SF also include failure of the charging pumps due to loss of cooling to the pumps, which impacts mitigation of a fire induced LOCA. In these cases, instrumentation for diagnosis is degraded and there is limited time for the 30 minute alternate cooling alignment from fire water. A potential imporovement would be to provide a hard pipe connection between the fire water system and the charging pump cooling lines to simplify the alignment and reduce the time required for the action (SAMA 23).
IPCET1	7.20E-01	1.01E+00	INDUCED RCS HOT LEG OR SURGE LINE FAILURE	This SF represents the probability of failure of the RCS hot leg or surge line after core damage, which occurs for a diverse range of events. A potential means of preventing these failures would be to provide an independent means of adding water to the RCS at high pressure. These types of events could also potentially be mitigated through the use of portable, engine driven, high

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

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
				pressure RCS and SG injection pumps (SAMA 18).
TD1	1.61E-02	1.01E+00	SEISMIC TD AFW PUMP - SCT=F	This SF represents the failure of the turbine driven AFW pump in seismic events. Most of the contributors are related to large magnitude 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).
BB1H	1.42E-02	1.01E+00	Train 2H fails with Recovery - TH=S	Addressed in the Level 1 importance list.
GYF	5.65E-02	1.01E+00	DEG 2-3 GENERATOR FAILURE (1/3): 1/3 DIESELS UNAVAILABLE (BUS F)	This is an intermediate SF for TF1 and similar SFs, which represent the unavailability of DG 2-3. The SF appears in the importance list, but it is related to non-minimal failures that do not directly impact the sequence of events. No SAMAs are required.

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

EVENT NAME	PROBABILITY	RISK REDUCTION WORTH	DESCRIPTION	POTENTIAL SAMAS
FO2AZ	4.34E-03	1.01E+00	FUEL OIL TRANSFER SYSTEM: SUPPORT FOR TRAIN 0-1 AVAIL; FIRE INDUCED FAILURE OF TRAIN 0-2	A portable diesel fuel oil transfer pump is already available. The risk importance of this split fraction would fall below the review threshold if its use were credited in the model. No SAMA is required.
SOP6	9.97E-01	1.01E+00	SEIS6, Hazard Levels: 3.00E+00 to 3.99E+00	This SF represents the loss of all offsite power and is based on the 230kV switchyard seismic fragility, which is significantly stronger than the 500kV switchyard seismic fragility. 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).

1 ST2 refers to the Small Early release category.

TABLE F.5-3
DCPP PHASE 1 SAMA LIST SUMMARY

SAMA NUMBER	SAMA TITLE	SAMA DESCRIPTION	SOURCE	COST ESTIMATE	PHASE 1 BASELINE DISPOSITION
1	Install a Minimum CCW Cooling Flow Line Around the RHR Heat Exchanger Outlet Valve	For scenarios in which an SI signal is generated while the RCS pressure remains above the RHR low pressure interlock for extended times, it is necessary for the operators to check the status of the RHR pumps at some point after initiation and to shut them down to prevent pump damage. If CCW is flowing to the RHR heat exchangers, however, the action to trip the RHR pumps is not required to prevent pump failure. A means of preventing RHR pump failure without adding a large, early demand on the CCW system is to add a small, normally open bypass line around the RHR heat exchanger outlet valves in the CCW flowpath.	PRA Importance List Review	$3,020,424	Implementation cost is less than MACR. Retain for Phase II analysis. See Section F.6.1.
2	Provide an Engine Driven SG Makeup Pump	For cases in which the AFW pumps have failed and/or the support systems are failed, such as the 480V AC switchgear, providing an independent means of injecting water to the steam generators could provide the secondary side heat removal function. Ensuring that the makeup pump can be aligned in time to mitigate early loss of AFW scenarios and that diverse pump suction supplies are available (e.g., Fire Water, Raw Water) is required to mitigate the top DCPP risks. (This SAMA is addressed by elements of the DCPP FLEX strategy.)	PRA Importance List Review	$17,492,616	Implementation cost is greater than the MACR. Screened from further analysis.

TABLE F.5-3
DCPP PHASE 1 SAMA LIST SUMMARY

SAMA NUMBER	SAMA TITLE	SAMA DESCRIPTION	SOURCE	COST ESTIMATE	PHASE 1 BASELINE DISPOSITION
3	Change Procedures to Explicitly Address Vulnerability of Auto SI	The DCPP fire procedure already identifies equipment that may be damaged for each fire area and provides guidance to mitigate failed equipment. A potential enhancement would be explicitly identify that fire damage may impact auto SI actuation and direct the operators to monitor valid instruments to ensure it functions when it is required.	PRA Importance List Review	$376,342	Implementation cost is less than MACR. Retain for Phase II analysis. See Section F.6.2.
4	Seismically Qualified Response System	For large scale seismic events, many of the plant's mitigating systems may be damaged to an extent that only an independent, seismically durable system would be capable of preventing core damage. Such a system would include a 4KV power source, a core spray type injection header (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. (A significant portion of this SAMA's design is addressed by elements of the DCPP FLEX strategy. One exception is that this SAMA includes a core spray-like injection for reactor cavity flooding.)	PRA Importance List Review	$160,001,440	Implementation cost is greater than the MACR. Screened from further analysis.
5	Backup Air System for PORV PCV 474	Currently, loss of offsite power results in the loss of the IA system. Changing the air supply to PCV 474 (Pressurizer PORV) to a class I backup air supply would prevent this and reduce the loss of IA contributions to	PRA Importance List Review	$3,133,404	Implementation cost is less than MACR. Retain for Phase II analysis. See Section F.6.13

TABLE F.5-3
DCPP PHASE 1 SAMA LIST SUMMARY

SAMA NUMBER	SAMA TITLE	SAMA DESCRIPTION	SOURCE	COST ESTIMATE	PHASE 1 BASELINE DISPOSITION
		core damage.			
6	Install an Additional Train of 480V Switchgear Room HVAC	Alternate Switchgear Room cooling procedures already exist for DCPP, but the loss of room cooling is still an important issue. While costly, a potential means of reducing the HVAC failure contribution would be to install an independent train of HVAC.	PRA Importance List Review	$9,993,910	Implementation cost is greater than the MACR. Screened from further analysis.
7	Automate Swap to Recirculation	The operators are well trained on the action to transition the RCS injection systems to recirculation mode, but automating the process will further improve reliability and reduce the contribution of this action to core damage scenarios.	PRA Importance List Review	$10,616,468	Implementation cost is greater than the MACR. Screened from further analysis.
8	Protect RHR Cables in Fire Areas 6-A-2 and 6-A-3	For fires in areas 6-A-2 and 6-A-3, fire induced failure of the 8700A/B and the FCV-641A/B valves lead to loss of the RHR system, which is critical for mitigating the fire scenarios. Providing additional protection for the cables associated with these components in these areas could help improve the likelihood that RHR would remain available.	PRA Importance List Review	$1,072,493	Implementation cost is less than MACR. Retain for Phase II analysis. See Section F.6.4.

TABLE F.5-3
DCPP PHASE 1 SAMA LIST SUMMARY

SAMA NUMBER	SAMA TITLE	SAMA DESCRIPTION	SOURCE	COST ESTIMATE	PHASE 1 BASELINE DISPOSITION
9	Install Spray Barriers to Protect the TD AFW Pump and Install a Waterproof MD AFW Pump	For some flooding scenarios, including those in fire areas 14-A and 3-Q-2, the AFW system is damaged by flood water from fire protection system breaks. Providing barriers to protect the TD AFW pump can reduce the likelihood that the pump will be damaged. The MD AFW pumps are susceptible to flood water incursion via ventilation ducts that must remain open to provide adequate room cooling. To protect the MD AFW pumps from these flooding events, it would be necessary to replace the existing equipment with a waterproof pump.	PRA Importance List Review	$25,520,160	Implementation cost is greater than the MACR. Screened from further analysis.
10	Alternate DC Generator	In order to mitigate DC system failures, an alternate DC generator could be used to directly power a bus (bypasses charger faults) or directly power critical loads (bypasses distribution failures). The generator should be stored in a seismically qualified area so that it would potentially be available to respond in seismic scenarios.	PRA Importance List Review	$22,572,878	Implementation cost is greater than the MACR. Screened from further analysis.
11	Install a Swing RHR Pump	For LOCA events in which the RHR pumps have failed, but cooling flow is available to the RHR heat exchangers, the availability of an additional RHR pump that can be powered from any AC division would provide a means of containment heat removal.	PRA Importance List Review	$75,042,192	Implementation cost is greater than the MACR. Screened from further analysis.

TABLE F.5-3
DCPP PHASE 1 SAMA LIST SUMMARY

SAMA NUMBER	SAMA TITLE	SAMA DESCRIPTION	SOURCE	COST ESTIMATE	PHASE 1 BASELINE DISPOSITION
12	Use an Alternate EDG to Support Long Term AFW Operation and a 480V AC Self-Cooled PDP for Primary Side Makeup	A low cost SBO mitigation strategy is to use a small, alternate EDG to power a station battery charger for steam generator level instrumentation and AFW control. In addition, if power can be supplied to a 480V AC self-cooled, high pressure positive displacement pump, primary side makeup could be maintained to make up for normal seal leakage and potentially for boil off in longer timeframes. (This SAMA is addressed by elements of the DCPP FLEX strategy.)	PRA Importance List Review	$13,560,218	Implementation cost is greater than the MACR. Screened from further analysis.
13	Not Used.				
14	Protect the Letdown Isolation Capability in Fire Area 5-A-1	In some cases, fires in area 5-A-1 can lead to uncontrolled letdown flow that opens a system relief valves and results in a LOCA path. The DCPP fire procedure already directs actions to isolate the letdown path by depowering the 8149A/B/C valves. To further reduce the risk associated with a letdown LOCA for fires in these areas, a potential enhancement would be to protect the cables associated with either LCV-459 or LCV-460 such that they could function normally and terminate/control flow through the line.	PRA Importance List Review	$5,620,896	Implementation cost is less than MACR. Retain for Phase II analysis. See Section F.6.6.

TABLE F.5-3
DCPP PHASE 1 SAMA LIST SUMMARY

SAMA NUMBER	SAMA TITLE	SAMA DESCRIPTION	SOURCE	COST ESTIMATE	PHASE 1 BASELINE DISPOSITION
15	Install a Self-Contained Swing EDG	One of the most effective means of reducing SBO scenarios is to provide a diverse emergency power supply that can support all of the equipment normally supplied by an existing EDG. (Some of the capabilities represented by this SAMA are addressed by elements of the DCPP FLEX strategy. One difference is that the FLEX strategy uses a portable 4 kV power supply delivered from the regional response center that would not be immediatley available.)	PRA Importance List Review	$146,105,155	Implementation cost is greater than the MACR. Screened from further analysis.
16	Change Procedures to Caution About Spurious SI Signals in Specific Fire Areas	The DCPP fire procedure already include guidance that addresses spurious actuation of equipment, but its use is not currently tied to specific fire areas. A potential enhancement would be to include cautions in the procedures to identify fire areas where damage could cause specific spurious actuations and identify the attachment with the mitigating steps.	PRA Importance List Review	$372,788	Implementation cost is less than MACR. Retain for Phase II analysis. See Section F.6.7.

TABLE F.5-3
DCPP PHASE 1 SAMA LIST SUMMARY

SAMA NUMBER	SAMA TITLE	SAMA DESCRIPTION	SOURCE	COST ESTIMATE	PHASE 1 BASELINE DISPOSITION
17	Install Flood Sensors to Mitigate Fire Protection System Pipe Breaks	There are multiple scenarios related to Fire Protection system pipe breaks that, if un-isolated, lead to significant equipment damage. In order to improve the likelihood of flood termination, water sensors could be installed in areas containing critical equipment that can be impacted by fire protection system floods, such as those containing the AFW, CCW, and RHR pumps. The water level sensor could be linked to logic that would trip the fire protection pumps and/or isolate a critical valve for scenarios where there is not a coincident fire alarm.	PRA Importance List Review	$9,610,440	Implementation cost is greater than the MACR. Screened from further analysis.
18	Portable Engine Driven Primary and Secondary Side Pumps	For events such as internal floods or fires that can result in the loss of multiple, critical plant functions, recovery may be easier via the use of portable equipment that bypasses the permanently installed equipment. The use of portable engine driven pumps for primary and secondary side makeup can provide a means of maintaining RCS inventory and decay heat removal. Ensuring the equipment can be aligned in time to respond to loss of AFW cases, have diverse suction sources, and injection points will improve the flexibility of the enhancement. (This SAMA is addressed by elements of the DCPP FLEX strategy; however, the FLEX strategy uses a 480V AC pump powered by a portable generator for RCS makeup.)	PRA Importance List Review	$49,473,576	Implementation cost is greater than the MACR. Screened from further analysis.

TABLE F.5-3
DCPP PHASE 1 SAMA LIST SUMMARY

SAMA NUMBER	SAMA TITLE	SAMA DESCRIPTION	SOURCE	COST ESTIMATE	PHASE 1 BASELINE DISPOSITION
19	Primary Side Isolation Valves	The availability of primary side steam generator isolation vales would provide a simple means of isolating ruptured SGs. While secondary side isolation capability exists, these valves would help avoid challenges to secondary side integrity due to failure to rapidly cool down the primary side.	PRA Importance List Review	$137,797,270	Implementation cost is greater than the MACR. Screened from further analysis.
20	Use Alternate Signal (such as AMSAC) to De-energize the 480V AC Buses that Supply the Rod Drive Motor Generator Sets	In the event that the MG set breakers do not trip in an ATWS, an alternate signal, such as an AMSAC signal, could be used to depower the 480V AC supply that powers the MG sets to ensure the control rod drive units are shut down. The 480V trip could be delayed so that it is only performed after 30 seconds with a valid ATWS signal.	PRA Importance List Review	$11,173,059	Implementation cost is greater than the MACR. Screened from further analysis.
21	Change Fire Procedures to Include Fire Area Specific Guidance on Containment Isolation Valves	The DCPP fire procedure already identifies equipment that may be damaged for each fire area and provides guidance to mitigate failed equipment. A potential enhancement would be to explicitly identify the containment isolation valves that may be impacted for each fire area. Where possible, the fire procedures could direct manual actions to close the valves. In cases where manual isolation would not be desirable until after loss of equipment or core damage, a reference to other procedures, such as the Severe Accident Mitigation Guidelines could be provided.	PRA Importance List Review	$256,817	Implementation cost is less than MACR. Retain for Phase II analysis. See Section F.6.8.

TABLE F.5-3
DCPP PHASE 1 SAMA LIST SUMMARY

SAMA NUMBER	SAMA TITLE	SAMA DESCRIPTION	SOURCE	COST ESTIMATE	PHASE 1 BASELINE DISPOSITION
22	Install Containment Combustible Gas Igniters	Early containment failure is a contributor to the LERF release category. Although inerting containment in accident conditions could help prevent burns of combustible gases, a better solution is to install battery-backed igniters throughout upper dome of containment.	PRA Importance List Review	$13,083,120	Implementation cost is greater than the MACR. Screened from further analysis.
23	Enhance the Firewater to Charging Pump Cooling Connection	For cases in which CCW is not available for charging pump cooling, it is possible to connect the Fire Protection system to the charging pump cooling line to provide alternate pump cooling. However, the current alignment requires the use of fire hoses and may not be viable in time stressed events, such as some fire scenarios. By providing a hard piped connection with manual isolation valves, the alignment could be performed rapidly and the reliability of the action could potentially be improved.	PRA Importance List Review	$491,021	Implementation cost is less than MACR. Retain for Phase II analysis. See Section F.6.9.

Notes:

(1) Cost estimates are on a per unit basis

Table F.6-1
DCPP Phase 2 SAMA List Summary

SAMA Number	SAMA Title	SAMA Description	Source	Phase 2 Baseline Disposition
1	Install a Minimum CCW Cooling Flow Line Around the RHR Heat Exchanger Outlet Valve	For scenarios in which an SI signal is generated while the RCS pressure remains above the RHR low pressure interlock for extended times, it is necessary for the operators to check the status of the RHR pumps at some point after initiation and to shut them down to prevent pump damage. If CCW is flowing to the RHR heat exchangers, however, the action to trip the RHR pumps is not required to prevent pump failure. A means of preventing RHR pump failure without adding a large, early demand on the CCW system is to add a small, normally open bypass line around the RHR heat exchanger outlet valves in the CCW flowpath.	PRA Importance List Review	This SAMA's net value is negative and is classified as not "cost beneficial".
3	Change Procedures to Explicitly Address Vulnerability of Auto SI	The DCPP fire procedure already identifies equipment that may be damaged for each fire area and provides guidance to mitigate failed equipment. A potential enhancement would be explicitly identify that fire damage may impact auto SI actuation and direct the operators to monitor valid instruments to ensure it functions when it is required.	PRA Importance List Review	This SAMA's net value is positive and is classified as potentially "cost beneficial".
5	Backup Air System for PORV PCV 474	Currently, loss of offsite power results in the loss of the IA system. Changing the air supply to PCV 474 (Pressurizer PORV) to a class I backup air supply would prevent this and reduce the loss of IA contributions to core damage.	PRA Importance List Review	This SAMA's net value is negative and is classified as not "cost beneficial".
8	Protect RHR Cables in Fire Areas 6-A-2 and 6-A-3	Fore fires in areas 6-A-2 and 6-A-3, fire induced failure of the 8700A/B and the FCV-641A/B valves lead to loss of the RHR system, which is critical for mitigating the fire scenarios. Providing additional protection for the cables associated with these components in these areas could help improve the likelihood that RHR would remain available.	PRA Importance List Review	This SAMA's net value is negative and is classified as not "cost beneficial".

Table F.6-1
DCPP Phase 2 SAMA List Summary

SAMA Number	SAMA Title	SAMA Description	Source	Phase 2 Baseline Disposition
14	Protect the Letdown Isolation Capability in Fire Area 5-A-1	In some cases, fires in area 5-A-1 can lead to uncontrolled letdown flow that opens a system relief valves and results in a LOCA path. The DCPP fire procedure already directs actions to isolate the letdown path by depowering the 8149A/B/C valves. To further reduce the risk associated with a letdown LOCA for fires in these areas, a potential enhancement would be to protect the cables associated with either LCV-459 or LCV-460 such that they could function normally and terminate/control flow through the line.	PRA Importance List Review	This SAMA's net value is negative and is classified as not "cost beneficial".
16	Change Procedures to Caution About Spurious SI Signals in Specific Fire Areas	The DCPP fire procedure already includes guidance that addresses spurious actuation of equipment, but its use is not currently tied to specific fire areas. A potential enhancement would be to include cautions in the procedures to identify fire areas where damage could cause specific spurious actuations and identify the attachment with the mitigating steps.	PRA Importance List Review	This SAMA's net value is negative and is classified as not "cost beneficial".
21	Change Fire Procedures to Include Fire Area Specific Guidance on Containment Isolation Valves	The DCPP fire procedure already identifies equipment that may be damaged for each fire area and provides guidance to mitigate failed equipment. A potential enhancement would be to explicitly identify the containment isolation valves that may be impacted for each fire area. Where possible, the fire procedures could direct manual actions to close the valves. In cases where manual isolation would not be desirable until after loss of equipment or core damage, a reference to other procedures, such as the Severe Accident Mitigation Guidelines could be provided.	PRA Importance List Review	This SAMA's net value is positive and is classified as potentially "cost beneficial".

Table F.6-1
DCPP Phase 2 SAMA List Summary

SAMA Number	SAMA Title	SAMA Description	Source	Phase 2 Baseline Disposition
23	Enhance the Firewater to Charging Pump Cooling Connection	For cases in which CCW is not available for charging pump cooling, it is possible to connect the Fire Protection system to the charging pump cooling line to provide alternate pump cooling. However, the current alignment requires the use of fire hoses and may not be viable in time stressed events, such as some fire scenarios. By providing a hard piped connection with manual isolation valves, the alignment could be performed rapidly and the reliability of the action could potentially be improved.	PRA Importance List Review	This SAMA's net value is negative and is classified as not "cost beneficial".

TABLE F.7-1

SENSITIVITY OF DCPP BASELINE RISK TO PARAMETER CHANGES

Parameter	Description	Pop. Dose Risk Δ Base (%)	Cost Risk Δ Base (%)
Meteorology	Year 2004 MET data	-9%	-1%
	Year 2006 MET data	-11%	-5%
Evacuation Time	Evacuation delay time increased from 100 min to 200 min.	-20%	0%
Evacuation Speed	Evacuation speed decreased from 0.76 m/s to 0.38 m/s.	0%	0%
No Evacuation	No evacuation or relocation in the 7 day emergency phase.	-9%	0%
Release Height	Ground level release. Base case is top of containment.	-10%	-3%
Release Heat	Buoyant Plume. Base case is zero heat energy.	-14%	0%
Deposition Velocity	Dry deposition velocity decreased from 0.01 m/sec to 0.003 m/sec	20%	-35%
Population	Year 2045 population uniformly increased 30%	30%	29%
Resettlement Planning	No "Intermediate Phase" resettlement planning (in lieu of 6 months)	6%	-31%
	1 year "Intermediate Phase" resettlement planning (in lieu of 6 months)	-3%	32%
Economic Inputs	Generic economic inputs increased (factor of 2)	-2%	44%
Rate of Return	3% expected rate of return (in lieu of 7%)	1%	-9%
	12% expected rate of return (in lieu of 7%)	-1%	11%
Value of Farm and Non-Farm Wealth	Doubled value of farm wealth (12,241 $/hectare) and non-farm wealth (370,506 $/person) to 24,482 $/hectare and 741,012 $/person, respectively.	1%	68%

TABLE F.7-2

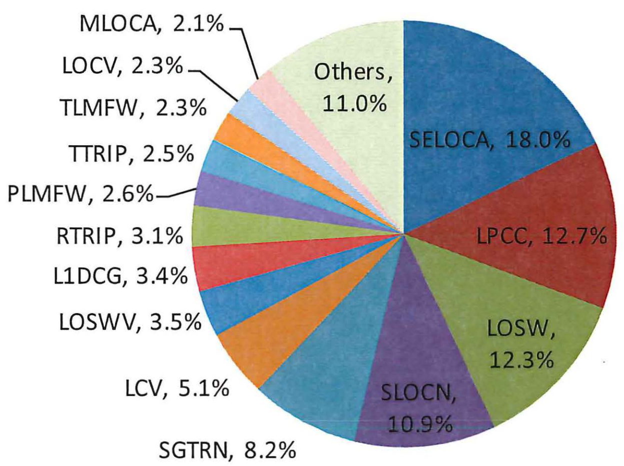
MACCS2 ECONOMIC PARAMETERS INPUTS FOR SENSITIVITY

Variable	Description	Base Case Value	Sensitivity Value
DPRATE(1)	Property depreciation rate (per yr)	0.20	0.20
DSRATE(2)	Investment rate of return (per yr)	0.07	0.07
EVACST(3)	Daily cost for a person who has been evacuated ($/person-day)	58.59	117.18
RELCST(3)	Daily cost for a person who is relocated ($/person-day)	58.59	117.18
POPCST(3)	Population relocation cost ($/person)	10,850	21,700
TIMDEC(1)	Decontamination time for each level(5)	2&4 months	2&12 months
CDFRM0(3)	Cost of farm decontamination for two levels of decontamination ($/hectare)(5)	1,221 2,713	2,442 5,426
CDNFRM(3)	Cost of non-farm decontamination per resident person for two levels of decontamination ($/person)(5)	6,510 17,360	13,020 34,720
DLBCST(3)	Average cost of decontamination labor ($/man-year)	75,950	151,900
TFWKF(1)	Time workers spend in farm land contaminated areas(5)	1/10 1/3	1/4 1/4
TFWKNF(1)	Time workers spend in non-farm land contaminated areas(5)	1/3 1/3	1/4 1/4
VALWF0(4)	Weighted average value of farm wealth ($/hectare)	12,241	12,241
VALWNF(6)	Weighted average value of non-farm wealth ($/person)	370,506	370,506

Notes to Table F.7-2:

(1) Uses NUREG/CR-4551 (Reference 20) value.
(2) DSRATE based on NUREG/BR-0058 (Reference 25).
(3) These parameters use the NUREG/CR-4551 (Reference 20) value, updated to the July 2014 using the CPI.
(4) VALWF0 is based on the 2012 Census of Agriculture (Reference 63), Bureau of Labor Statistics (Reference 64), and Bureau of Economic Analysis (Reference 2) data, updated to July 2014 using the CPI for the counties within 50 miles.
(5) Two decontamination levels are modeled. The first value is associated with a dose reduction factor of 3. The second value is associated with a dose reduction factor of 15.
(6) VALWNF is based on 2007 data from the Bureau of Labor Statistics (Reference 64), U.S. Census Bureau (References 88 and 86), National Resources Conservation Service (Reference 87), Bureau of Economic Analysis (Reference 2), 2007 and 2012 U.S. Census of Agriculture (Reference 85 and 63), and the Journal of Monetary Economics (Reference 91).

F.10 FIGURES



Initiator	Description
SELOCA	RCP Seal LOCA
LPCC	Loss of Component Cooling Water system
LOSW	Loss of Auxiliary Salt Water System
SLOCN	Non-Isolable Small Break LOCA
SGTRN	Non-Isolated Steam Generator Tube Rupture
LCV	Loss of Condenser Vacuum
LOSWV	Loss of Switchgear Ventilation
L1DCG	Loss o DC Bus G
RTRIP	Reactor Trip
PLMFW	Partial Loss of Main Feedwater
TTRIP	Turbine Trip
TLMFW	Total Loss of Main Feedwater
LOCV	Loss of Control Room Ventilation
MLOCA	Medium Break LOCA
Others	Remaining Internal Events

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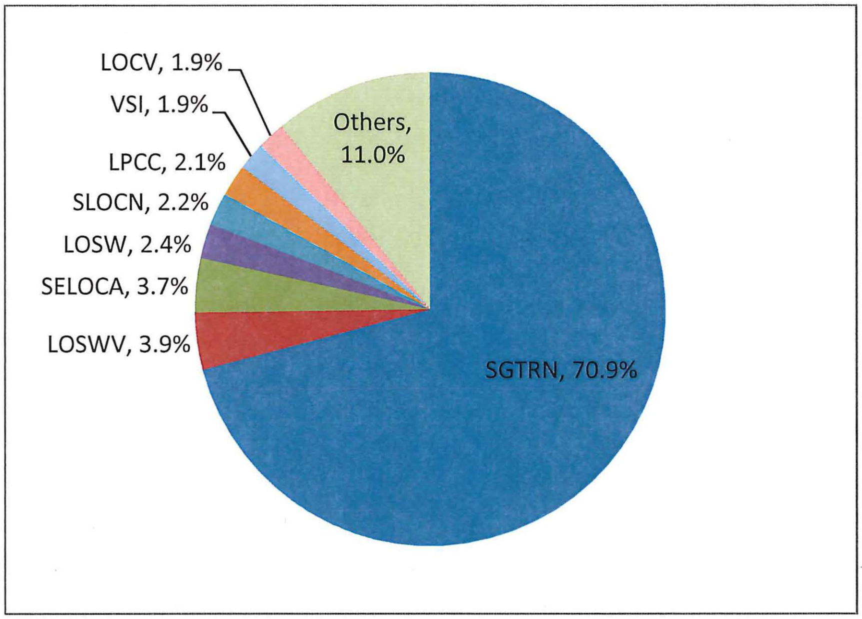
Figure F.2-1
DC03 Internal Contribution to CDF by Initiating Event



Initiator	Description
SGTRN	Non-Isolated Steam Generator Tube Rupture
LOSWV	Loss of Switchgear Ventilation
SELOCA	RCP Seal LOCA
LOSW	Loss of Auxiliary Salt Water System
SLOCN	Non-Isolable Small Break LOCA
LPCC	Loss of Component Cooling Water system
VSI	Interfacing System LOCA at RHR Pump Suction
LOCV	Loss of Control Room Ventilation
Others	Remaining Internal Events

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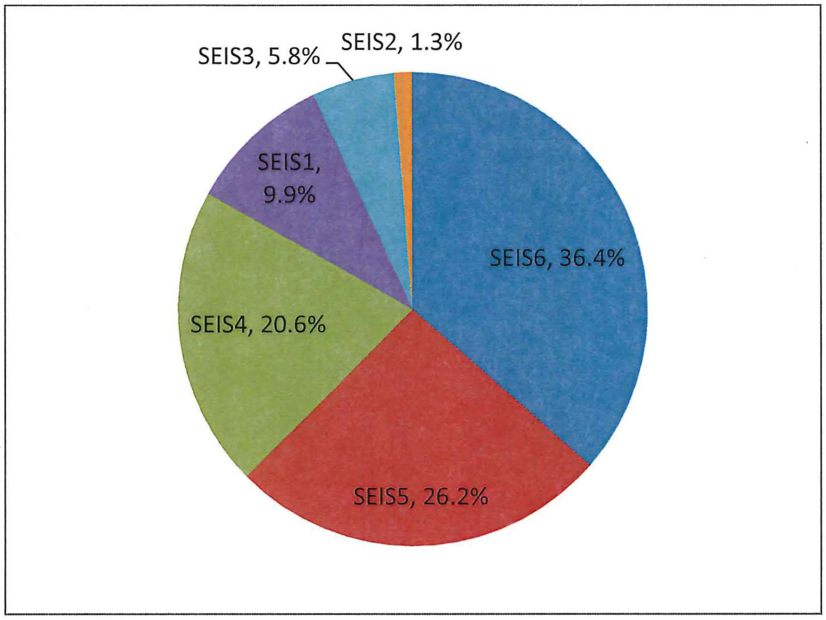
Figure F.2-2
DC03 Internal Contribution to LERF by Initiating Event



Initiator	Description
SEIS6	SEISMIC LEVEL 6
SEIS5	SEISMIC LEVEL 5
SEIS4	SEISMIC LEVEL 4
SEIS1	SEISMIC LEVEL 1
SEIS3	SEISMIC LEVEL 3
SEIS2	SEISMIC LEVEL 2

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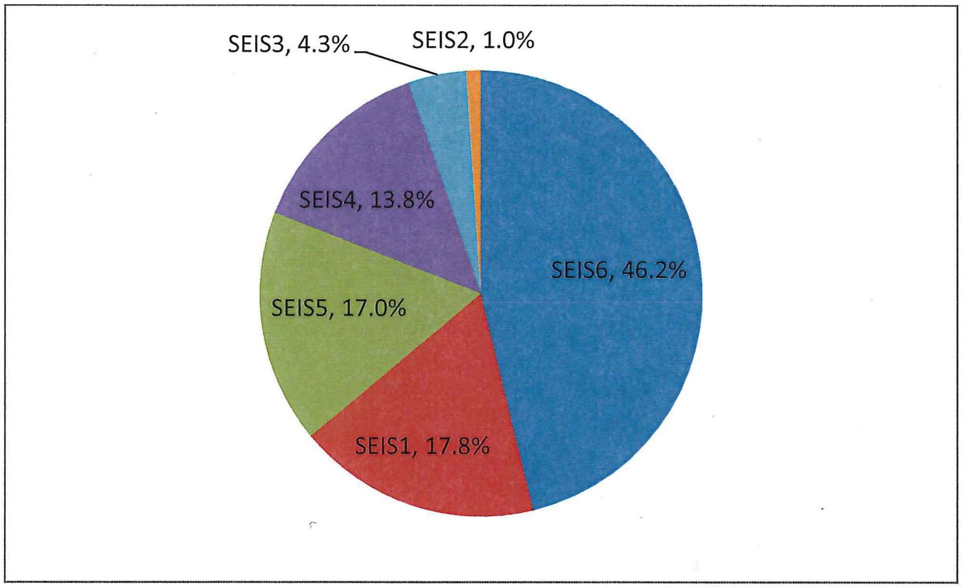
Figure F.2-3
DC03 Seismic Contribution to CDF by Initiating Event



Initiator	Description
SEIS6	SEISMIC LEVEL 6
SEIS1	SEISMIC LEVEL 1
SEIS5	SEISMIC LEVEL 5
SEIS4	SEISMIC LEVEL 4
SEIS3	SEISMIC LEVEL 3
SEIS2	SEISMIC LEVEL 2

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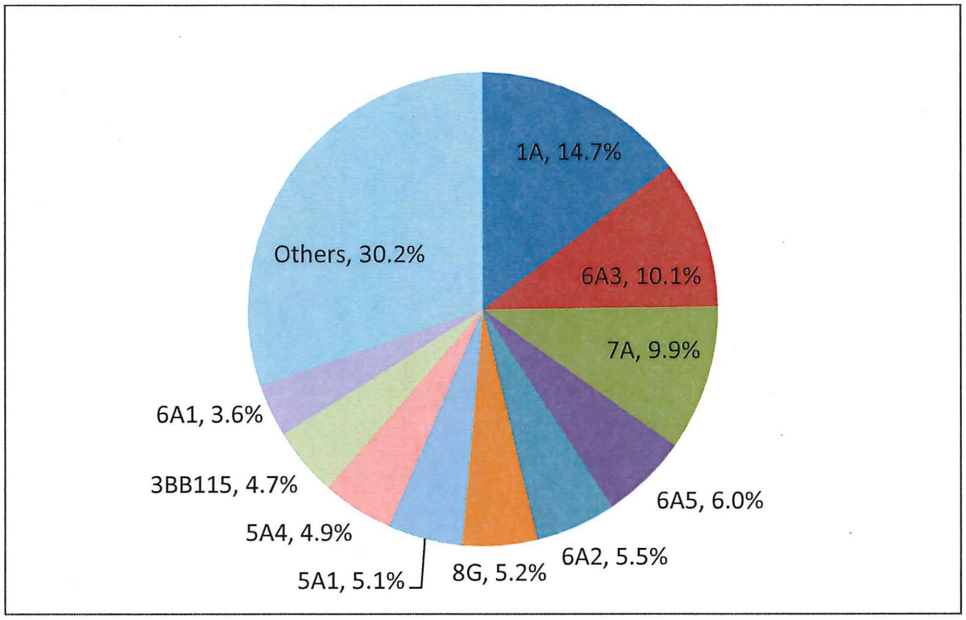
Figure F.2-4
DC03 Seismic Contribution to LERF by Initiating Event



Initiator	Description
1A	Containment
6A3	Vital Battery Charger Room Bus H
7A	Cable Spreading Room
6A5	P250 Room
6A2	Vital Battery Charger Room Bus G
8G	SSPS Room
5A1	Vital 480VAC SWGR Room
5A4	Non-Vital 480VAC Bus SWGR and MCC Room
6A1	Vital Battery Charger Room Bus F
Others	Remaining Unit 1 Fire Areas

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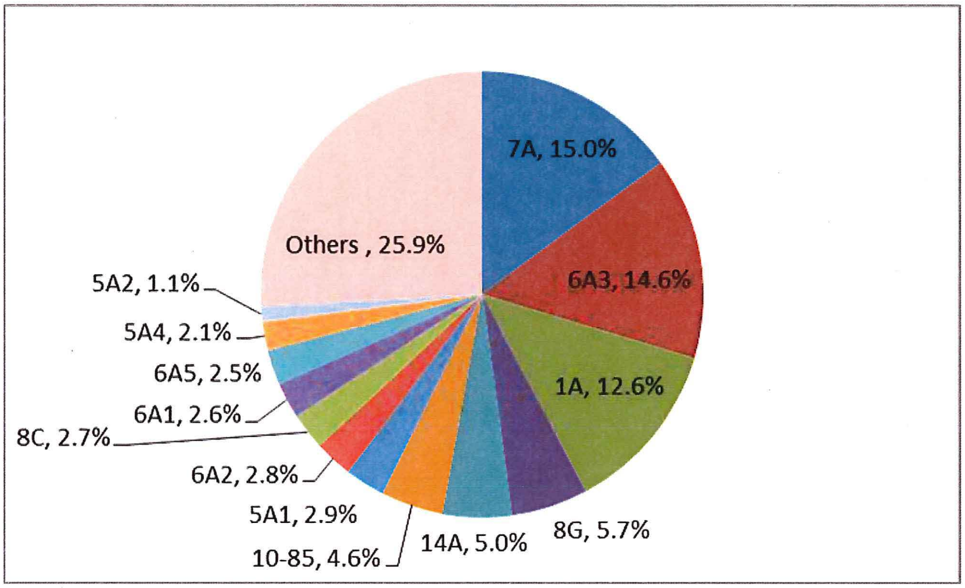
Figure F.2-5
DC03 Fire Contribution to Unit 1 CDF by Initiating Event



Initiator	Description
7A	Cable Spreading Room
6A3	Vital Battery Charger Room Bus H
1A	Containment
8G	SSPS Room
14A	Turbine Building
10-85	12kV SWGR Room
5A1	Vital 480VAC SWGR Room
6A2	Vital Battery Charger Room Bus G
8C	Main Control Room
6A1	Vital Battery Charger Room Bus F
6A5	P250 Room
5A4	Non-Vital 480VAC Bus SWGR and MCC Room
5A2	Vital 480VAC SWGR Room
Others	Remaining Unit 1 Fire Areas

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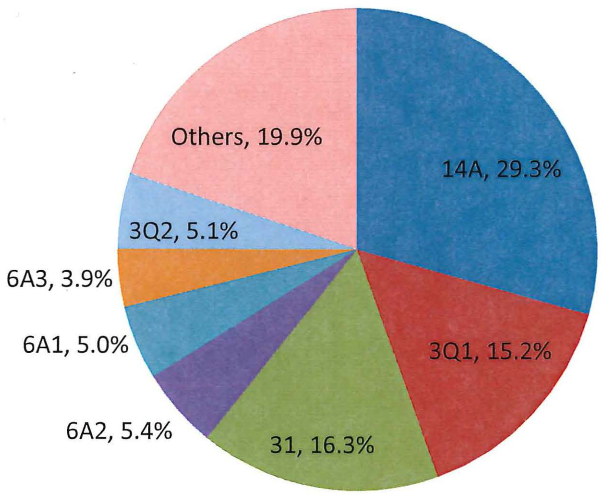
Figure F.2-6
DC03 Fire Contribution to Unit 1 LERF by Initiating Event



Initiator	Description
14A	Turbine Building
3Q1	Turbine Driven AFW Pump Room
31	Fuel Handling Building
6A2	Vital Battery Charger Room Bus G
6A1	Vital Battery Charger Room Bus F
6A3	Vital Battery Charger Room Bus H
3Q2	Motor Drivn AFW Pumps Room
Others	Remaining Unit 1 Fire Areas

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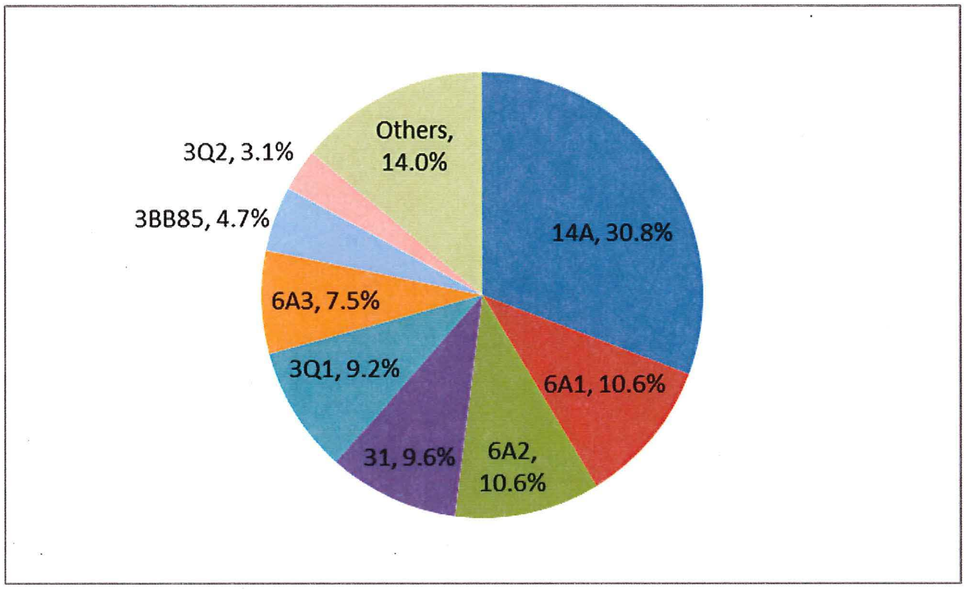
Figure F.2-7
DC03 Flooding Contribution to CDF by Initiating Event



Initiator	Description
14A	Turbine Building
6A1	Vital Battery Charger Room Bus F
6A2	Vital Battery Charger Room Bus G
31	Fuel Handling Building
3Q1	Turbine Driven AFW Pump Room
3BB85	Containment Pen Area Elev 85'
3Q2	Motor Drivn AFW Pumps Room
Others	Remaining Unit 1 Fire Areas

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Figure F.2-8
DC03 Flooding Contribution to LERF by Initiating Event

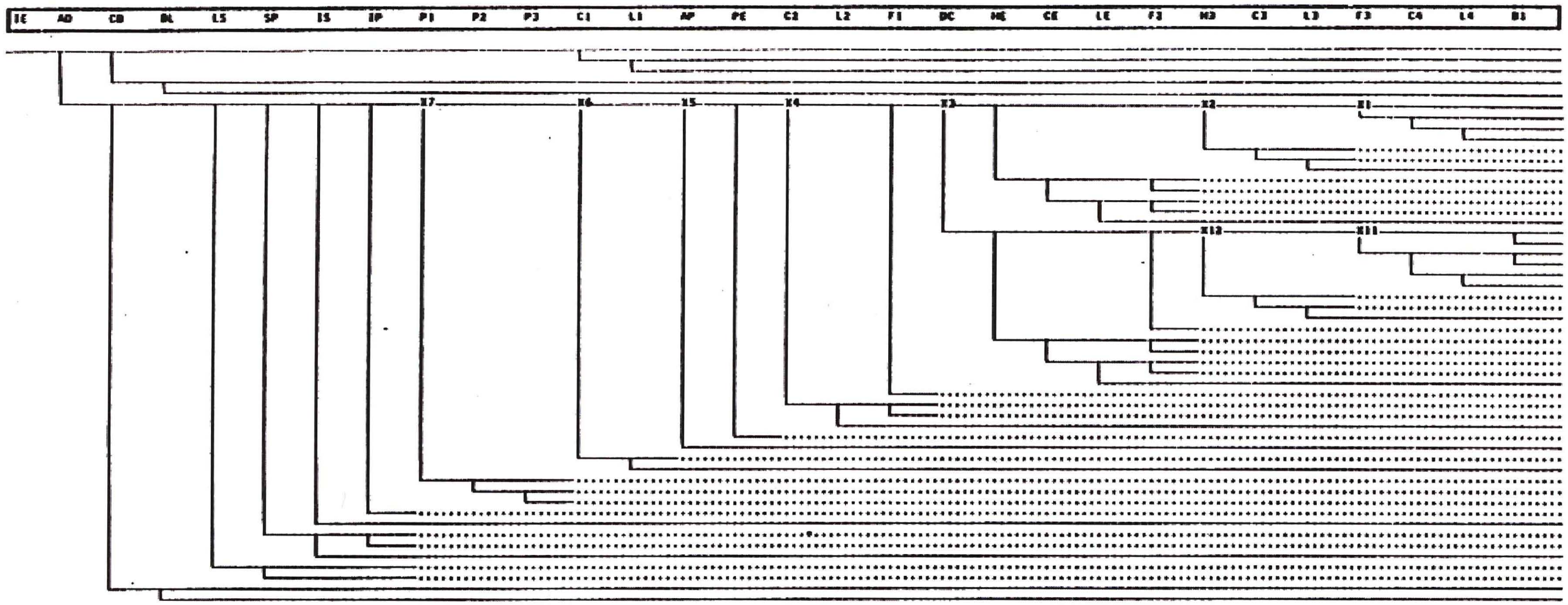

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Figure F.2-9
Containment Event Tree

Top Event	Failure Description	Accident Progression Phase
IE	Entry State	Damaged Core in Vessel
AD	Failure To Arrest Core Damage and Prevent Vessel Breach	
CB	Containment Bypass Prior to Core Damage	
BL	Large Bypass Prior to Core Damage	
LS	Induced PORV Failure	
SP	RCP Seal Cooling Unavailable	
IS	Induced Steam Generator Tube Rupture	
IP	Induced RCS Hot Leg or Surge Line Failure	
P1	RCS Pressure at Vessel Breach Exceeds 200 psia	
P2	RCS Pressure at Vessel Breach Exceeds 650 psia	
P3	RCS Pressure at Vessel Breach Exceeds 2000 psia	
C1	Containment Failure Prior to Vessel Breach	
L1	Large Containment Failure Prior to Vessel Breach	
AP	Containment is Failed by an In-Vessel Steam Explosion	Post-Vessel Breach and Early Containment Behavior
PE	High Pressure Melt Ejection	
C2	Containment Failure at Vessel Breach	
L2	Large Containment Failure at Vessel Breach	
F1	Containment Fan Coolers Inoperable After Vessel Breach	
DC	Debris is Not Cooled	
HE	Hydrogen Burn Within 4 Hours of Vessel Breach	
CE	Containment Failure Due to Early Hydrogen Burn	
LE	Large Containment Failure From Early Burn	
F2	Containment Fan Coolers Fail After Early Burn or Debris Uncoolable	Long Term Containment Behavior
H3	Late Burn of Combustible Gases	
C3	Late Containment Failure Due to Burn	
L3	Large Late Containment Failure	
F3	Long Term Operation Failure of Containment Fan Coolers	
C4	Long Term Overpressurization	
L4	Large Long Term Containment Failure	
B1	Basemat Penetration	

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Figure F.2-10
Containment Event Tree Top Events

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* URLs delineated in some references may no longer be valid.

Addendum 1 Evaluation of PRA Open Items / Issues on SAMA Process

Action Title/ Applicable SR	Action Description	Current Status/ Comment	Importance to SAMA Application
Internal flooding - NRC IN 98-31, SER 3-98, A0468801	AR A0468801 was written to document PG&E'S evaluation of an event at WNP-2, where a fire system water hammer led to flooding of emergency core cooling system (ECCS) pump rooms. The evaluation was not complete by the time the 1997 PRA internal flood update was performed. This PG&E evaluation should be reviewed as part of the 1999/2000 PRA update to see if any assumptions or new insights need to be added to the PRA internal flooding analysis.	This will be considered in the updating of the Internal Flooding PRA.	None. No direct impact on current model anticipated. • No expected change in core damage frequency (CDF) or Level 2 results. • No expected change in the SAMA cost benefit analysis.
Hard coded conditional HEP in top event MU	Originally, in the model there was one HEP for the operators to makeup to the RWST in the general transient tree. During the HEP dependency study it was noticed that the HEP was used even if the operators had failed to swap over to recirculation cooling. As a work around for this, a conditional probability of 0.1 was used. A new HEP needs to be developed for this situation that is more realistic.	A new conditional prob of 0.5 was used in sensitivity study.	If the failure probability of the RWST makeup action is too low, the SAMA analysis could be impacted. However, a SAMA was identified to automate swap to recirc mode (SAMA 7), which would preclude the need to refill the RWST, if successful. Even if it assumed that the benefit of SAMA 7 is directly proportional to the RWST makeup HEP, a multiplier of 5 on the SAMA 7 averted cost risk (to account for the difference in proposed HEPs) would still not yield a cost beneficial result. The result of multiplying the 95th percentile averted cost-risk by a factor of 5 is still far below the $10.6 million implementation cost: 5 * $1,019,665 = $5,098,325. This issue will not change the SAMA identification process or the conclusions of the cost benefit analysis.

Addendum 1 Evaluation of PRA Open Items / Issues on SAMA Process

Action Title/ Applicable SR	Action Description	Current Status/ Comment	Importance to SAMA Application
Seismic trip and PORV challenge	In revision 2 of calculation file F.6, the assumption that there was a PORV challenge on every seismic initiating event was removed. This was because in most cases, the plant had already tripped from the seismic event (via seismic trip) and did not experience a load rejection when 500 kV was lost. The first item is that this assumes the seismic trip works successfully all the time. To be more correct, the seismic trip should be added to the model and then the effect of the seismic trip can be evaluated probabilistically. Second item is the seismic trip has a setpoint of about 0.3 g's which is about 2/3's the way through the first seismic initiator (which goes to 0.53). This would imply that below 0.35 there should be a PORV challenge, if 500 kV was lost (which is not yet modeled). To better model this SEIS1 initiator should be changed to 0.4, and the details of the 500 kV and seismic trip should be modeled. Note RISKMAN is limited to only six acceleration levels, so this would require re-adjusting the exist boundary between SEIS1 and SEIS2. Also note this corresponds to the double design earthquake (DDE) earthquake, which was the safe shutdown earthquake prior to the HOSGRI upgrades which put the SSE to 0.75 g's. 12/19/02 EGD Also note we do not model a PORV challenge on seismically induced LOSP, which should be adequate for SEIS 2 through 6 due to seismic trip, but maybe a noticeable contributor in SEIS1.	Modeling PORV challenge due to seismic induced LOSP has insignificant impact on the seismic induced CDF/LERF.	None. Insignificant impact on CDF, Level 2 results, and SAMA analysis.

Addendum 1 Evaluation of PRA Open Items / Issues on SAMA Process

Action Title/ Applicable SR	Action Description	Current Status/ Comment	Importance to SAMA Application
Address anchorage of relay panels in cable spreading rooms	NRC letter dated 12/4/97 informed DCPP that the intent of GL 88-20, supplement 4, had been met. The attachment to the NRC report was a consultant's report entitled, "Technical Evaluation Report on the Submittal-Only review of the Diablo Canyon Power Plant (Units 1 and 2) Individual Plant Examination Of External Events," dated September, 1997. On page 28 of the consultant's report, they state in (B)(1) "..it is unclear if the licensee performed an analysis of the anchorage of relay panels within the cable spreading room." the concern is whether this equipment is a seismic induced hazard. Please address this issue and reference documentation.	To confirm that an analysis had been performed of the anchorage of relay panels within the cable spreading room.	This is a documentation issue and no impact on the SAMA analysis.

Addendum 1 Evaluation of PRA Open Items / Issues on SAMA Process

Action Title/ Applicable SR	Action Description	Current Status/ Comment	Importance to SAMA Application
Address potential for d/g lockout from cardox	NRC letter dated 12/4/97 informed DCPP that the intent of GL 88-20, supplement 4, had been met. The attachment to the NRC report was a consultant's report entitled, "Technical Evaluation Report On The Submittal-Only Review Of The Diablo Canyon Power Plant (Units 1 and 2) individual plant examination of external events," dated September, 1997. Page 28 of the consultant's report, under (B)(2), they state "..it is unclear if the analysis considered the potential for diesel generator (lockout or starvation) failure caused by seismically induced activation of the co-located CO2 system. Also, it is unclear if the licensee analyzed the potential for icing or freezing or relays within the cable spreading room given seismically induced activation of the CO2 system, or the potential for the weight of the CO2 suppressant, which condenses on the cable trays, to fail safety-related cabling because of structural failure. Please address these three issues and reference documentation.	Address Seismic-induced loss of CO2 and its impact.	The electrical power reliability, including the EDGs, has been addressed in the SAMA analysis. The risk contribution due to a failure of EDGs from a seismically failed CO2 system is expected to be minor. • No significant change in CDF or Level 2 results. • No significant change in the SAMA cost benefit analysis.
Split fraction event tree rules for seismic RCP seal modeling	The backstop split fraction SEX is seen in sequence 124 (DC01 ECCS AOT application) and others. This is a result of the lack of a rule that looks for no CCW flow with AS=S but with no support for CCP 1-1. The complementary rule exists (with no support for CCP 1-2). The result of this discrepancy is to give slightly more conservative results since a guaranteed failure is used in this particular instance rather than a calculated split fraction. Update SE event tree logic with provision for no CCP 1-1 support.	Need to add SF and rule for the scenarios with No CCW and no support for CCP 1-1.	Current results are conservative. Even with conservative results, this was not an issue for the SAMA analysis and resolution of the issue will have no significant impact on the application.

Addendum 1 Evaluation of PRA Open Items / Issues on SAMA Process

Action Title/ Applicable SR	Action Description	Current Status/ Comment	Importance to SAMA Application
CCW model has Header 'C' and HEP combined	While researching HEPs, it was noticed that credit is taken for the operator to reduce heat loads for LLOCA (and MLOCA and SLBI), even though they may not have enough time. In other words, we are using the HEP for heat load reduction for all initiators. For LLOCA, MLOCA and SLBI, we generally have HI-HI containment pressure ("P" signal), which will isolate CCW non-vital Header C. The various CCW calculations support one CCW pump as adequate for flow and heat loads when Header C is isolated. This implies that failure of the HEP roughly approximates the hardware failure of Header C to isolate. To more accurately model the worth of the HEP and FCV-355 (Header C), they should probably be split out into separate items. Also note that the current modeling does not model the support for Header C automatic isolation (SSPS for "P" signal and Bus H for MOV power). This should have little affect on CDF or LERF, but will affect some basic event importances. 07/11/02 Further research during the NRC inspection also noticed FCV-355. We need to investigate if Header 'C' Isolation is required for Phase "B" actuation even if two CCW pumps are running. 11/12/02 Upon reviewing E.11 revision 9, it was noticed by AXA that the calc file talks about isolating Header 'C' (implied by INIT=SLBI for general transient) and failing to trip the RCPS should give a failure of the seals. There is logic in top event for this in RP, but no logic for it in SE. so on INIT=SLBI if the RCPS are still running, and charging has failed the rules use split fraction SE2. But it should use SE2 only if -INIT=SLBI, and if INIT=SLBI (and charging AHS failed, it should use SEF). On reviewing past calculation files it appears that it has been this way since Revision 1 and possibly Revision 0 of C.4.2. A quick review of INIT=SLBI in PLG-0637 did not clarify anything as none of the SBLI sequences showed any SE failing (almost like it was bypassed in the tree.	Revise rule for split fraction SE2 and SEF associated with SLBI initiator. This has an insignificant impact on the CDF/LERF.	Not significant since impact on CDF/Level 2 results is also insignificant. • No significant change in CDF or Level 2 results. • No significant change in the SAMA cost benefit analysis.

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Diablo Canyon Power Plant LRA Changes Reflected in the LRA Update Amendment 49

Affected LRA Section	Reason for Change
Table 3.3.2-5	Errata. Plant-specific Note 6 was changed to Plant-specific Note 9.

Table 3.3.2-5 Auxiliary Systems – Summary of Aging Management Evaluation – Makeup Water System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Tanks	PB	Carbon Steel	Concrete	Loss of material	Inspection of Internal Surfaces of Miscellaneous Ducting and Piping Components (B2.1.22)	None	None	G, ~~6~~9

Diablo Canyon Power Plant License Renewal Application, Appendix E Changes Reflected in the Amendment 2

The following LRA, Appendix E sections that were submitted by Pacific Gas and Electric Company Letter DCL-14-103, "10 CFR 54.21(b) Annual Update to the Diablo Canyon Power Plant License Renewal Application (LRA), Amendment 48 and LRA Appendix E, Applicant's Environmental Report – Operating License Renewal Stage, Amendment 1," Enclosure 2, dated December 22, 2014, contain reference and typographical corrections. All corrections are shown as electronic markups (deletions crossed out and insertions italicized).

Section 2.2.2.1
Section 2.4
Sections 2.5.1 and 2.5.2
Section 2.7
Sections 2.8 and 2.8.1
Sections 2.13.5 and 2.13.6
Section 2.14
Section 3.1
Section 4.0.2

LRA Appendix E, Tables 2.13-1 and 2.13-2 have been updated.

2.2.2.1 Species and Relative Abundance

In addition to the aquatic ~~species~~ *special* status species listed in Table 2.2-3, Table 2.4-1 presents a list of terrestrial special status species with the potential to occur on the Diablo Canyon lands including some freshwater species discussed above.