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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
12-HV-ACCP-1	CCW Pump Ventilation North Supply Fan	Auxiliary Building Ventilation	Auxiliary	633	633 Hallway	633
12-HV-ACCP-2	CCW Pump Ventilation Middle Supply Fan	Auxiliary Building Ventilation	Auxiliary	633	633 Hallway	633
12-HV-ACCP-3	CCW Pump Ventilation South Supply Fan	Auxiliary Building Ventilation	Auxiliary	633	633 Hallway	633
12-HV-ESW-1	Unit 2 East Essential Service Water Pump Room Supply Ventilation Fan	ESW Ventilation	Screenhouse	591	East ESW Pump Room	135
12-HV-ESW-2	Unit 2 East Essential Service Water Pump Room Supply Ventilation Fan	ESW Ventilation	Screenhouse	591	East ESW Pump Room	135
12-HV-ESW-3	Unit 2 West Essential Service Water Pump Room Supply Ventilation Fan	ESW Ventilation	Screenhouse	591	West ESW Pump Room	136

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
12-HV-ESW-4	Unit 2 West Essential Service Water Pump Room Supply Ventilation Fan	ESW Ventilation	Screenhouse	591	West ESW Pump Room	136
12-TK-47-AB	Diesel Fuel Oil Storage Yard Tanks AB	Diesel Fuel Oil	Grounds	609	Inner Plant Grounds	244
12-TK-47-CD	Diesel Fuel Oil Storage Yard Tanks CD	Diesel Fuel Oil	Grounds	609	Inner Plant Grounds	244
2-20-SV-1-AB	Solenoid Valve to POV-1-AB	Compressed Air	Auxiliary	587	AB EDG Room	121
2-20-SV-1-CD	Solenoid Valve to POV-1-CD	Compressed Air	Auxiliary	587	CD EDG Room	122
2-20-SV-2-AB	Solenoid Valve to POV-2-AB	Compressed Air	Auxiliary	587	AB EDG Room	121
2-20-SV-2-CD	Solenoid Valve to POV-2-CD	Compressed Air	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2) (For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-20-SV-3-AB	Solenoid Valve to XRV-220	Compressed Air	Auxiliary	587	AB EDG Room	121
2-20-SV-3-CD	Solenoid Valve to XRV-225	Compressed Air	Auxiliary	587	CD EDG Room	122
2-21A	600Vac Bus 21A	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21A11	600Vac Bus 21A Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21A2	600Vac MCC AM-A Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21A5	600Vac MCC ABD-A Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204

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2-21A6	600Vac MCCs AB-A, PS-A, TPP-A, and VCCS ABV-A, AZV-A Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21A9	600Vac MCC EZC-A Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21B	600Vac Bus 21B Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21B1	600Vac MCC ABD-B Supply Breaker (2-ELSC)	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21B11	600Vac Bus 21B Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-21B2	600Vac MCC EZC-B Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21C	600Vac Bus 21C	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21C1	600v Bus 21C Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21C10	600Vac MCC ABD-C and 2-AFW Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21C6	600Vac MCC EZC-C Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-21D	600Vac Bus 21D	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21D1	600v Bus 21D Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21D14	600Vac MCC 2-AB-D, VCC 2-ABV-D, MCC 2-PS-D Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21D5	600Vac MCC ABD-D Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-21D6	600Vac MCC EZC-D Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204


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Equipment Required to Shutdown Reactor (Unit 2) (For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-21D8	600Vac MCC AM-D Supply Breaker	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-52-BYA	Reactor Rod Control TR-A Reactor Trip Bypass Circuit Breaker	Reactor Trip Breaker (Rod Control & Inst.)	Auxiliary	609	Control Rod Drive Equipment Room	203
2-52-BYB	Reactor Rod Control Train B Reactor Trip Bypass Circuit Breaker	Reactor Trip Breaker (Rod Control & Inst.)	Auxiliary	609	Control Rod Drive Equipment Room	203
2-52-RTA	Reactor Rod Control Train 'A' Reactor Trip Circuit Breaker	Rod Control and Instrumentation	Auxiliary	609	Control Rod Drive Equipment Room	203


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Equipment Required to Shutdown Reactor (Unit 2) (For High Energy Pipe Ruptures Outside the Containment)


<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-52-RTB	Reactor Rod Control Train 'B' Reactor Trip Circuit Breaker	Rod Control and Instrumentation	Auxiliary	609	Control Rod Drive Equipment Room	203
2-AB-A	600Vac Motor Control Center AB-A	600Vac	Auxiliary	587	587 Hallway	587
2-AB-D	600Vac Motor Control Center AB-D	600Vac	Auxiliary	587	587 Hallway	587
2-ABD-A	600Vac Motor Control Center ABD-A	600Vac	Auxiliary	587	AB EDG Room	121
2-ABD-B	600Vac Motor Control Center ABD-B	600Vac	Auxiliary	587	AB EDG Room	121
2-ABD-C	600Vac Motor Control Center ABD-C	600Vac	Auxiliary	587	CD EDG Room	122
2-ABD-D	600Vac Motor Control Center ABD-D	600Vac	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2) (For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-AB-N	Control Center Valve	250Vdc Control and Instrumentation	Auxiliary	587	587 Hallway	587
2-ABV-A	600Vac Valve Control Center ABV-A	600Vac	Auxiliary	587	587 Hallway	587
2-ABV-D	600Vac Valve Control Center ABV-D	600Vac	Auxiliary	587	587 Hallway	587
2-AFW	120/208 Vac AFW Distribution Panel	120/208Vac Misc Safety Related Power Distribution	Auxiliary	587	CD EDG Room	122
2-AFWX	120/208 Vac AFW Auxiliary Distribution Panel	120/208Vac Misc Safety Related Power Distribution	Auxiliary	587	CD EDG Room	122
2-AM-A	600Vac Motor Control Center AM-A	600Vac	Auxiliary	633	633 Hallway	633

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-AM-D	600Vac Motor Control Center AM-D	600Vac	Auxiliary	633	633 Hallway	633
2-ARA-2	Reactor Protection Train 'A' Auxiliary Relay Cabinet #2	120/208Vac Misc Safety Related Power Distribution	Auxiliary	633	Control Room	123
2-ARB-2	Reactor Protection Train 'B' Auxiliary Relay Cabinet #2	120/208Vac Misc Safety Related Power Distribution	Auxiliary	633	Control Room	123
2-AZV-A	600Vac Valve Control Center AZV-A	600Vac	Auxiliary	609	609 Hallway	609
2-BATT-AB	Plant Battery AB	250Vdc	Auxiliary	609	AB BATT Equip Area	200
2-BATT-AB-SH	Plant Battery BATT-AB Ammeter Shunt	250Vdc	Auxiliary	613	4kv Room - Mezzanine Area	205

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-BATT-CD	Plant Battery CD	250Vdc	Auxiliary	626	CD BATT Equip Area	201
2-BATT-CD-SH	Plant Battery BATT-CD Ammeter Shunt Cabinet	250Vdc	Auxiliary	626	CD BATT Equip Area	201
2-BATT-N	Train 'N' Plant Battery	250Vdc Control and Instrumentation	Auxiliary	633	Plant Battery Train 'N' Auxiliary Equipment Room	263
2-BATT-N-SH	Train 'N' Plant Battery Ammeter Shunt Cabinet	250Vdc Control and Instrumentation	Auxiliary	633	633 Hallway	633
2-BC-A	Battery Charger A for N-Train Battery	250Vdc Control and Instrumentation	Auxiliary	633	633 Hallway	633
2-BC-AB1	Plant Battery BATT-AB Battery Charger #1	250Vdc	Auxiliary	613	4kv Room - Mezzanine Area	205

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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-BC-AB2	Plant Battery BATT-AB Charger #2	250Vdc	Auxiliary	613	4kv Room - Mezzanine Area	205
2-BC-AB-SH	Plant Battery Charger Ammeter BC-AB Shunt Cabinet	250Vdc	Auxiliary	613	4kv Room - Mezzanine Area	205
2-BC-B	Battery Charger B for N-Train Battery	250Vdc Control and Instrumentation	Auxiliary	633	633 Hallway	633
2-BC-CD1	Plant Battery BATT-CD Charger #1	250Vdc	Auxiliary	626	CD BATT Equip Area	201
2-BC-CD2	Plant Battery BATT-CD Charger #2	250Vdc	Auxiliary	626	CD BATT Equip Area	201
2-BC-CD-SH	Plant Battery Charger BC-CD Shunt Cabinet	250Vdc	Auxiliary	626	CD BATT Equip Area	201
2-BCTC-AB	Plant Battery Chargers BC-AB1 and BC- AB2 Transfer Switch Cabinet	250Vdc	Auxiliary	613	4kv Room - Mezzanine Area	205

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2-BCTC-CD	Plant Battery Chargers BC-CD1 and BC-CD2 Transfer Cabinet	250Vdc	Auxiliary	626	CD BATT Equip Area	201
2-BLI-110	Steam Generator OME-3-1 Wide Range Level Indicator Transmitter	Main Steam	Containment	612	Accumulator Tank #1 Area	68
2-BLI-120	Steam Generator OME-3-2 Wide Range Level Indicator Transmitter	Main Steam	Containment	612	West Containment Lower Vent Room	73
2-BLI-130	Steam Generator OME-3-3 Wide Range Level Indicator Transmitter	Main Steam	Containment	612	Accumulator Tank #3 Area	70
2-BLI-140	Steam Generator OME-3-4 Wide Range Level Indicator Transmitter	Main Steam	Containment	612	Accumulator Tank #4 Area	71
2-BLP-110	Steam Generator OME-3-1 Channel 4 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	Accumulator Tank #1 Area	68


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Equipment Required to Shutdown Reactor (Unit 2)


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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-BLP-111	Steam Generator OME-3-1 Channel 2 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	East Containment Lower Vent Room	72
2-BLP-112	Steam Generator OME-3-1 Channel 3 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	East Containment Lower Vent Room	72
2-BLP-120	Steam Generator OME-3-2 Channel 4 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	West Containment Lower Vent Room	73
2-BLP-121	Steam Generator OME-3-2 Channel 1 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	West Containment Lower Vent Room	73

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2-BLP-122	Steam Generator OME-3-2 Channel 3 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	Accumulator Tank #2 Area	69
2-BLP-130	Steam Generator OME-3-3 Channel 4 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	West Containment Lower Vent Room	73
2-BLP-131	Steam Generator OME-3-3 Channel 1 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	West Containment Lower Vent Room	73
2-BLP-132	Steam Generator OME-3-3 Channel 3 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	West Containment Lower Vent Room	73

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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-BLP-140	Steam Generator OME-3-4 Channel 4 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	East Containment Lower Vent Room	72
2-BLP-141	Steam Generator OME-3-4 Channel 2 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	East Containment Lower Vent Room	72
2-BLP-142	Steam Generator OME-3-4 Channel 3 Reactor Protection Input Narrow Range Level Transmitter	Main Steam	Containment	612	Accumulator Tank #4 Area	71
2-CA-711	Containment 85 PSI Control Air Ring Header #2 to Control Valve NRV-152 Check Valve	Control Air	Containment	625	Lower Containment, Quadrant #4	63
2-CA-713	Containment 85 PSI Control Air Ring Header to Control Valve NRV-153 Check Valve	Control Air	Containment	625	Lower Containment, Quadrant #4	63

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2-CAS	Containment Auxiliaries Subpanel (Ventilation)	Containment Ventilation	Auxiliary	633	633 Hallway	633
2-CCV-AB	250Vdc Train 'B' Critical Solenoid Valves Distribution Panel	250Vdc	Auxiliary	633	Control Room	123
2-CCV-CD	250Vdc Train 'A' Critical Solenoid Valves Distribution Panel	250Vdc	Auxiliary	633	Control Room	123

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2-CMO-410	East CCW Heat Exchanger HE-15E CCW Outlet Shutoff Valve	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CMO-411	CCW Pumps Suction Crosstie Train 'A' Misc. Service Shutoff Valve	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CMO-412	CCW Pumps Discharge Crosstie Train 'A' Shutoff Valve	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CMO-413	CCW Pumps Suction Crosstie Train 'B' Misc. Service Shutoff Valve	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CMO-414	CCW Pumps Discharge Crosstie Train 'B' Shutoff Valve	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CMO-415	CCW to Miscellaneous Service Train 'A' Shutoff Valve	Component Cooling Water	Auxiliary	609	609 Hallway	609

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(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-CMO-416	CCW to Miscellaneous Service Header 'B' 16" Motor Operated Shutoff Valve	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CMO-419	East RHR Heat Exchanger HE-17E CCW Outlet Shutoff Valve	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CMO-420	West CCW Heat Exchanger HE-15W CCW Outlet Shutoff Valve	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CMO-429	West RHR Heat Exchanger HE-17W CCW Outlet Shutoff Valve	Component Cooling Water	Auxiliary	633	633 Hallway	633
2-CPS-312	AB Emergency Diesel Jacket Water Pump QT-130-AB1 Discharge Pressure Switch	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121
2-CPS-314	AB Emergency Diesel Jacket Water Pump QT-130-AB2 Discharge Pressure Switch	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-CPS-317	CD Emergency Diesel Jacket Water Pump QT-130-CD1 Discharge Pressure Switch	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122
2-CPS-319	CD Emergency Diesel Jacket Water Pump QT-130-CD2 Discharge Pressure Switch	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122
2-CPS-410	East Component Cooling Water Pump PP-10E Discharge Pressure Switch	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CPS-420	West Component Cooling Water Pump PP-10w Discharge Pressure Switch	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CRAB	250Vdc Control Room Distribution Panel CRAB	250Vdc	Auxiliary	633	Control Room	123
2-CRCD	250Vdc Control Room Distribution Panel CRCD	250Vdc	Auxiliary	633	Control Room	123

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-CRID-I	120Vac Control Room Instrument Distribution Channel I Distribution Panel	120Vac Control Room Instrumentation Distr	Auxiliary	633	Control Room	123
2-CRID-I-CVT	120Vac Control Room Instrument Distribution Channel I Constant Voltage Transformer	120Vac Control Room Instrumentation Distr	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-CRID-II	120Vac Control Room Instrument Distribution Channel II Distribution Panel	120Vac Control Room Instrumentation Distr	Auxiliary	633	Control Room	123
2-CRID-II-CVT	120Vac Control Room Instrument Distribution Channel II Constant Voltage Transformer	120Vac Control Room Instrumentation Distr	Auxiliary	609	4kv Room - 600v Switchgear Area	204

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-CRID-III	120Vac Control Room Instrument Distribution Channel III Distribution Panel	120Vac Control Room Instrumentation Distr	Auxiliary	633	Control Room	123
2-CRID-III-CVT	120Vac Control Room Instrument Distribution Channel III Constant Voltage Transformer	120Vac Control Room Instrumentation Distr	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-CRID-III-INV	120Vac Control Room Instrumentation Distribution System Channel III Inverter	120Vac Control Room Instrumentation Distr	Auxiliary	609	Inverter Area	202
2-CRID-II-INV	120Vac Control Room Instrument Distribution System Channel II Inverter	120Vac Control Room Instrumentation Distr	Auxiliary	609	Inverter Area	202

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-CRID-I-INV	120Vac Control Room Instrument Distribution System Channel I Inverter	120Vac Control Room Instrumentation Distr	Auxiliary	609	Inverter Area	202
2-CRID-IV	120Vac Control Room Instrument Distribution Channel IV Distribution Panel	120Vac Control Room Instrumentation Distr	Auxiliary	633	Control Room	123
2-CRID-IV-CVT	120Vac Control Room Instrument Distribution Channel IV Constant Voltage Transformer	120Vac Control Room Instrumentation Distr	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-CRID-IV-INV	120Vac Control Room Instrument Distribution System Channel IV Inverter	120Vac Control Room Instrumentation Distr	Auxiliary	609	Control Room	123

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-CS-304	CVCS Reciprocating Charging Pump Inlet Isolation Valve	(CVCS) Charging	Auxiliary	587	Reciprocating Charging Pump Room	39
2-CS-306	CVCS Reciprocating Charging Pump Outlet Isolation Valve	(CVCS) Charging	Auxiliary	587	Reciprocating Charging Pump Room	39

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-CTR-415	East Component Cooling Water Heat Exchanger HE-15E CCW Outlet Temperature Recorder Thermal Sensor	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-CTR-425	West Component Cooling Water Heat Exchanger CCW Outlet Temperature Recorder Thermal Sensor	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-DCN	250Vdc Distribution Panel DCN	250Vdc Control and Instrumentation	Auxiliary	633	633 Hallway	633
2-DCR-310	Steam Generator OME-3-1 Blowdown Containment Isolation Valve	Blowdown	Auxiliary	591	Startup Blowdown Flashtank Room	29
2-DCR-320	Steam Generator OME-3-2 Blowdown Containment Isolation Valve	Blowdown	Auxiliary	591	Startup Blowdown Flashtank Room	29

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)


<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-DCR-330	Steam Generator OME-3-3 Blowdown Containment Isolation Valve	Blowdown	Auxiliary	591	Startup Blowdown Flashtank Room	29
2-DCR-340	Steam Generator OME-3-4 Blowdown Containment Isolation Valve	Blowdown	Auxiliary	591	Startup Blowdown Flashtank Room	29
2-DG-102A	AB Emergency Diesel Starting Air Compressor QT-142-AB2 Outlet Check Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-DG-102C	CD Emergency Diesel Starting Air Compressor QT-142-CD2 Outlet Check Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-DG-104A	AB Emergency Diesel Starting Air Compressor QT-142-AB1 Outlet Check Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-DG-104C	CD Emergency Diesel Starting Air Compressor QT-142-CD1 Outlet Check Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-DGAB	AB Emergency Diesel Generator OME-150-AB Control Subpanel	Diesel Generator, Control & Instrumentation	Auxiliary	587	AB EDG Room	121
2-DGAB-FFCKT	AB Emergency Diesel Generator OME-150-AB Field Flash Circuit Transformer	Diesel Generator, Control & Instrumentation	Auxiliary	587	AB EDG Room	121
2-DGAB-INV	AB Emergency Diesel Generator OME-150-AB Inverter	Diesel Generator, Control & Instrumentation	Auxiliary	587	AB EDG Room	121


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Equipment Required to Shutdown Reactor (Unit 2)


(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-DGAB-X	Equip Ctrl and Indication STN/AB Emergency Diesel Generator 150 Aux Panel	Diesel Generator, Control & Instrumentation	Auxiliary	587	AB EDG Room	121
2-DGCD	CD Emergency Diesel Generator OME-150-CD Control Subpanel	Diesel Generator, Control & Instrumentation	Auxiliary	587	CD EDG Room	122
2-DGCD-FFCKT	CD Emergency Diesel Generator OME-150-CD Field Flash CKT Transformer	Diesel Generator, Control & Instrumentation	Auxiliary	587	CD EDG Room	122
2-DGCD-INV	CD Emergency Diesel Generator OME-150-CD Inverter	Diesel Generator, Control & Instrumentation	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-DGCD-X	Equip Ctrl and Indication STN/CD Emergency Diesel Generator 150 Aux Panel	Diesel Generator, Control & Instrumentation	Auxiliary	587	CD EDG Room	122
2-DW-163N	Control Room Vent North Chill Water Circulation Manual Isolation Valve	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-DW-163S	Control Room Vent South Chill Water Circulation Manual Isolation Valve	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-ELSC	120/208 Vac Emergency Local Shutdown Distribution Panel	120/208Vac Misc Safety Related Power Distribution	Auxiliary	587	AB EDG Room	121
2-ELSCX	120/208Vac Emergency Local Shutdown Auxiliary Distribution Panel	120/208Vac Misc Safety Related Power Distribution	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-ESW-240	ESW Supply Valve to Turbine-Driven AFW Pump PP-4	Essential Service Water	Turbine	591	TDAFP Room	49
2-ESW-243	ESW Supply Valve to Motor-Driven AFW Pump PP-3W	Essential Service Water	Turbine	591	West MDAFP Room	51
2-EZC-A	600Vac Motor Control Center EZC-A	600Vac	Auxiliary	613	4kv Room - Mezzanine Area	205
2-EZC-B	600Vac Motor Control Center EZC-B	600Vac	Auxiliary	613	4kv Room - Mezzanine Area	205
2-EZC-C	600Vac Motor Control Center EZC-C	600Vac	Auxiliary	613	4kv Room - Mezzanine Area	205
2-EZC-D	600Vac Motor Control Center EZC-D	600Vac	Auxiliary	613	4kv Room - Mezzanine Area	205
2-FFC-210	Feedwater to Steam Generator #1 Channel I Flow Control Transmitter	Feedwater	Auxiliary	621	East Main Steam Stop Enclosure	10
2-FFC-211	Feedwater to Steam Generator #1 Channel II Flow Control Transmitter	Feedwater	Auxiliary	621	East Main Steam Stop Enclosure	11

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-FFC-220	Feedwater to Steam Generator #2 Channel I Flow Control Transmitter	Feedwater	Auxiliary	587	West Feedwater Regulating Valve Area	48
2-FFC-221	Feedwater to Steam Generator #2 Channel II Flow Control Transmitter	Feedwater	Auxiliary	587	West Feedwater Regulating Valve Area	48
2-FFC-230	Feedwater to Steam Generator #3 Channel I Flow Control Transmitter	Feedwater	Auxiliary	587	West Feedwater Regulating Valve Area	48
2-FFC-231	Feedwater to Steam Generator #3 Channel II Flow Control Transmitter	Feedwater	Auxiliary	587	West Feedwater Regulating Valve Area	48
2-FFC-240	Feedwater to Steam Generator #4 Channel I Flow Control Transmitter	Feedwater	Auxiliary	612	East Feedwater Regulating Valve Area	13

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-FFC-241	Feedwater to Steam Generator #4 Channel II Flow Control Transmitter	Feedwater	Auxiliary	612	East Feedwater Regulating Valve Area	13
2-FFI-210	Auxiliary Feedwater to Steam Generator OME-3-1 Flow Indicator Transmitter	Auxiliary Feedwater	Auxiliary	621	East Main Steam Stop Enclosure	10
2-FFI-220	Auxiliary Feedwater to Steam Generator OME-3-2 Flow Indicator Transmitter	Auxiliary Feedwater	Auxiliary	621	West Main Steam Stop Enclosure	9
2-FFI-230	Auxiliary Feedwater to Steam Generator OME-3-3 Flow Indicator Transmitter	Auxiliary Feedwater	Auxiliary	621	West Main Steam Stop Enclosure	9
2-FFI-240	Auxiliary Feedwater to Steam Generator OME-3-4 Flow Indicator Transmitter	Auxiliary Feedwater	Auxiliary	621	East Main Steam Stop Enclosure	10
2-FFS-244	West Motor Driven Auxiliary Feedwater Pump PP-3W Discharge Flow Switch	Auxiliary Feedwater	Turbine	591	West MDAFP Room	51
2-FFS-245	West Motor Driven Auxiliary Feedwater Pump PP-3W Discharge Flow Switch	Auxiliary Feedwater	Turbine	591	West MDAFP Room	51

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-FFS-254	East Motor Driven Auxiliary Feedwater Pump PP-3E Discharge Flow Switch	Auxiliary Feedwater	Turbine	591	Auxiliary Feed Pump East Hallway	83
2-FFS-255	East Motor Driven Auxiliary Feedwater Pump PP-3E Discharge Flow Switch	Auxiliary Feedwater	Turbine	591	Auxiliary Feed Pump East Hallway	83
2-FFS-258	Turbine Driven Auxiliary Feedwater Pump PP-4 Discharge Flow Switch	Auxiliary Feedwater	Turbine	591	Auxiliary Feed Pump East Hallway	83
2-FFS-260	Turbine Driven Auxiliary Feedwater Pump PP-4 Discharge Flow Switch	Auxiliary Feedwater	Turbine	591	TDAFP Room	49
2-FMO-211	Turbine Driven Auxiliary Feed Pump PP-4 Discharge to Steam Generator OME-3-1 4" Motor Operated Control Valve	Auxiliary Feedwater	Auxiliary	612	East Main Steam Stop Enclosure	10

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-FMO-212	West Motor Driven Auxiliary Feedwater Pump PP-3W Supply to Steam Generator OME-3-1 4" Motor Operated Control Valve	Auxiliary Feedwater	Auxiliary	612	East Main Steam Stop Enclosure	10
2-FMO-221	Turbine Driven Auxiliary Feed Pump PP-4 Discharge to Steam Generator OME-3-2 4" Motor Operated Control Valve	Auxiliary Feedwater	Auxiliary	591	Startup Blowdown Flashtank Room	29
2-FMO-222	East Motor Driven Auxiliary Feedwater Pump PP-3E Supply to Steam Generator OME-3-2 4" Motor Operated Control Valve	Auxiliary Feedwater	Auxiliary	591	Startup Blowdown Flashtank Room	29
2-FMO-231	Turbine Driven Auxiliary Feed Pump PP-4 Supply to Steam Generator OME-3-3 4" Motor Operated Control Valve	Auxiliary Feedwater	Auxiliary	591	Startup Blowdown Flashtank Room	29
2-FMO-232	East Motor Driven Auxiliary Feedwater Pump PP-3E Supply to Steam Generator OME-3-3 4" Motor Operated Control Valve	Auxiliary Feedwater	Auxiliary	591	Startup Blowdown Flashtank Room	29

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-FMO-241	Turbine Driven Auxiliary Feed Pump PP-4 Supply to Steam Generator OME-3-4 4" Motor Operated Control Valve	Auxiliary Feedwater	Auxiliary	612	East Main Steam Stop Enclosure	10
2-FMO-242	West Motor Driven Auxiliary Feedwater Pump PP-3W Supply to Steam Generator OME-3-4 4" Motor Operated Control Valve	Auxiliary Feedwater	Auxiliary	612	East Main Steam Stop Enclosure	10
2-FRV-210	Steam Generator OME-3-1 Feedwater Regulating Valve	Feedwater	Auxiliary	612	East Feedwater Regulating Valve Area	13
2-FRV-220	Steam Generator OME-3-2 Feedwater Regulating Valve	Feedwater	Auxiliary	587	West Feedwater Regulating Valve Area	48
2-FRV-230	Steam Generator OME-3-3 Feedwater Regulating Valve	Feedwater	Auxiliary	587	West Feedwater Regulating Valve Area	48

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-FRV-240	Steam Generator OME-3-4 Feedwater Regulating Valve	Feedwater	Auxiliary	612	East Feedwater Regulating Valve Area	13
2-FRV-245	West Motor Driven Auxiliary Feed Pump PP-3W 2" Air Operated Test Valve	Auxiliary Feedwater	Turbine	591	West MDAFP Room	51
2-FRV-247	West Motor Driven Auxiliary Feed Pump PP-3W Emergency 1" Air Operated Leakoff Globe Valve	Auxiliary Feedwater	Turbine	591	West MDAFP Room	51
2-FRV-255	East Motor Driven Auxiliary Feedwater Pump PP-3E 2" Air Operated Test Valve	Auxiliary Feedwater	Turbine	591	East MDAFP Room	50
2-FRV-256	Turbine Driven Auxiliary Feed Pump PP-4 2" Air Operated Test Valve	Auxiliary Feedwater	Turbine	591	TDAFP Room	49
2-FRV-257	East Motor Driven Auxiliary Feedwater Pump PP-3E Emergency 1" Air Operated Leakoff Valve	Auxiliary Feedwater	Turbine	591	East MDAFP Room	50

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)


<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-FRV-258	Turbine Driven Auxiliary Feed Pump PP-4 Emergency 1" Air Operated Leakoff Globe Valve	Auxiliary Feedwater	Turbine	591	TDAFP Room	49
2-FW-118-1	Feedwater to Steam Generator #1 Containment Isolation Check Valve	Feedwater	Auxiliary	621	East Main Steam Stop Enclosure	10
2-FW-118-2	Feedwater to Steam Generator #2 Containment Isolation Check Valve	Feedwater	Auxiliary	621	West Main Steam Stop Enclosure	9
2-FW-118-3	Feedwater to Steam Generator #3 Containment Isolation Check Valve	Feedwater	Auxiliary	621	West Main Steam Stop Enclosure	9
2-FW-118-4	Feedwater to Steam Generator #4 Containment Isolation Check Valve	Feedwater	Auxiliary	621	East Main Steam Stop Enclosure	10
2-FW-129	East Motor Driven Aux Feedwater Pump PP-3E Disc to Unit 1 Crosstie Shutoff Valve	Auxiliary Feedwater	Turbine	591	East MDAFP Room	50

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)


<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HE-11	Reactor Coolant Pump Seal Water Heat Exchanger (Pressure Boundary Only)	Reactor Coolant Pump Seal Water INJ/Leakoff	Auxiliary	609	Seal Water Heat Exchanger Room	18
2-HE-15E	East CCW Heat Exchanger	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-HE-15W	West CCW Heat Exchanger	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-HE-17E	East Residual Heat Removal Heat Exchanger	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5
2-HE-17W	West Residual Heat Removal Heat Exchanger	Residual Heat Removal	Auxiliary	609	West RHR Heat Exchanger Room	6
2-HE-32E	East Residual Heat Removal Pump PP-35E Mechanical Seal Heat Exchanger	Component Cooling Water	Auxiliary	573	East RHR Pump Room	54

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Equipment Required to Shutdown Reactor (Unit 2) (For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HE-32W	West Residual Heat Removal Pump PP-35W Mechanical Seal Heat Exchanger	Component Cooling Water	Auxiliary	573	West RHR Pump Room	55
2-HE-34NE	North Safety Injection Pump Mech Seal Heat Exchanger	Component Cooling Water	Auxiliary	587	North Safety Injection Pump Room	42
2-HE-34NW	North Safety Injection Pump Mech Seal Heat Exchanger	Component Cooling Water	Auxiliary	587	North Safety Injection Pump Room	42
2-HE-34SE	South Safety Injection Pump Mech Seal Heat Exchanger	Component Cooling Water	Auxiliary	587	South Safety Injection Pump Room	43
2-HE-34SW	South Safety Injection Pump Mech Seal Heat Exchanger	Component Cooling Water	Auxiliary	587	South Safety Injection Pump Room	43
2-HE-35N	North Safety Injection Pump Oil Cooler	Component Cooling Water	Auxiliary	587	North Safety Injection Pump Room	42

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HE-35S	South Safety Injection Pump Oil Cooler	Component Cooling Water	Auxiliary	587	South Safety Injection Pump Room	43
2-HE-37E	East Centrifugal Charging Pump Gear Oil Cooler	Component Cooling Water	Auxiliary	587	East Centrifugal Charging Pump Room	40
2-HE-37W	West Centrifugal Charging Pump Gear Oil Cooler	Component Cooling Water	Auxiliary	587	West Centrifugal Charging Pump Room	41
2-HE-38E	East Centrifugal Charging Pump Bearing Oil Cooler	Component Cooling Water	Auxiliary	587	East Centrifugal Charging Pump Room	40
2-HE-38W	West Centrifugal Charging Pump Bearing Oil Cooler	Component Cooling Water	Auxiliary	587	West Centrifugal Charging Pump Room	41
2-HE-47-ABN	AB Emergency Diesel North Combustion Air Aftercooler	Diesel Combustion Air	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HE-47-ABS	AB Emergency Diesel South Combustion Air Aftercooler	Diesel Combustion Air	Auxiliary	587	AB EDG Room	121
2-HE-47-CDN	CD Emergency Diesel North Combustion Air Aftercooler	Diesel Combustion Air	Auxiliary	587	CD EDG Room	122
2-HE-47-CDS	CD Emergency Diesel South Combustion Air Aftercooler	Diesel Combustion Air	Auxiliary	587	CD EDG Room	122
2-HE-63N	Control Room Air Conditioning North Liquid Chiller HV-ACR-1 Evaporator	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HE-63S	Control Room Air Conditioning South Liquid Chiller HV-ACR-2 Evaporator	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HE-64N	Control Room Air Conditioning North Liquid Chiller HV-ACR-1 Condenser	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HE-64S	Control Room Air Conditioning South Liquid Chiller HV-ACR-2 Condenser	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-ACR-1	Control Room Air Conditioning North Liquid Chiller	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HV-ACR-2	Control Room Air Conditioning South Liquid Chiller	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HV-ACRA-1	Control Room Ventilation North Air Conditioning Unit	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HV-ACRA-2	Control Room Ventilation South Air Conditioning Unit	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HV-ACR-DA-1	Outside Air to Control Room Ventilation Units HV-ACRA-1 and HV-ACRA-2 Vent Damper	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HV-ACR-DA-2	Control Room Ventilation Outside Air Intake Damper	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HV-ACR-DA-3	Control Room Ventilation Return Air Damper	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-ACRF-1	Control Room Pressurizer/Cleanup Filter Supply Fan	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HV-ACRF-2	Control Room Pressurizer/Cleanup Filter Supply Fan	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-HV-AES-1	Auxiliary Building Ventilation Engineered Safety Feature Exhaust - Unit 1	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8
2-HV-AES-1 (FLT)	Auxiliary Building Ventilation Engineered Safety Feature Exhaust Air Filter	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8
2-HV-AES-1D1	Auxiliary Building Ventilation Engineered Safety Feature Exhaust Unit HV-AES-1 Charcoal Filter Bypass Damper #1	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8
2-HV-AES-1D2	Auxiliary Building Ventilation Engineered Safety Feature Exhaust Unit HV-AES-1 Charcoal Filter Bypass Damper #2	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-AES-1D3	Aux Building Ventilation Engineered Safety Feature Exhaust Unit HV-AES-1 Charcoal Filter Face Damper	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8
2-HV-AES-2	Auxiliary Building Ventilation Engineered Safety Feature Exhaust Unit	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8
2-HV-AES-2 (FLT)	Auxiliary Building Ventilation Engineered Safety Feature Exhaust Air Filter	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8
2-HV-AES-2D1	Aux Building Ventilation Engineered Safety Feature Exhaust Unit HV-AES-2 Charcoal Filter Bypass Damper #1	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8
2-HV-AES-2D2	Aux Building Ventilation Safety Feature Exhaust Unit HV-AES-2 Charcoal Filter Bypass Damper #2	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-AES-2D3	Aux Building Ventilation Engineered Safety Feature Exhaust Unit HV-AES-2 Charcoal Filter Face Damper	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8
2-HV-AFP-BRE-1	Train 'N' Battery Room East Exhaust Fan	AFW Battery Rm Ventilation	Auxiliary	633	Plant Battery Train 'N' Auxiliary Equipment Room	263
2-HV-AFP-BRE-2	Train 'N' Battery Room West Exhaust Fan	Auxiliary Building Ventilation	Auxiliary	633	Normal Blowdown Flashtank Room	8
2-HV-AFP-EAC	East Motor Driven Auxiliary Feedwater Pump Room Cooler	Turbine Building Ventilation	Turbine	591	East MDAFP Room	50
2-HV-AFP-T1AC	Turbine Driven Auxiliary Feedwater Pump Room Cooler	Turbine Building Ventilation	Turbine	591	TDAFP Room	49

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-AFP-T2AC	Turbine Driven Auxiliary Feedwater Pump Room Cooler	Turbine Building Ventilation	Turbine	591	TDAFP Room	49
2-HV-AFP-WAC	West Motor Driven Auxiliary Feedwater Pump Room Cooler	Turbine Building Ventilation	Turbine	591	West MDAFP Room	51
2-HV-DDP-AB1	AB Emergency Diesel Generator Room Ventilation Exhaust Fan HV-DGX-2 Tempering Air Damper	Emergency Diesel Generator Room Ventilation	Auxiliary	587	AB EDG Room	121
2-HV-DDP-AB2	AB Emergency Diesel Generator Room Ventilation Supply Fan HV-DGS-2 Tempering Air Damper	Emergency Diesel Generator Room Ventilation	Auxiliary	587	AB EDG Room	121
2-HV-DDP-CD1	CD Emergency Diesel Generator Room Ventilation Exhaust Fan HV-DGX-1 Tempering Air Damper	Emergency Diesel Generator Room Ventilation	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-DDP-CD2	CD Emergency Diesel Generator Room Ventilation Supply Fan HV-DGS-1 Tempering Air Damper	Diesel Room Ventilation	Auxiliary	587	CD EDG Room	122
2-HV-DGS-1	CD Emergency Diesel Generator Room Ventilation Supply Fan	Diesel Room Ventilation	Auxiliary	587	CD EDG Room	122
2-HV-DGS-2	AB Emergency Diesel Generator Room Ventilation Supply Fan	Diesel Room Ventilation	Auxiliary	587	AB EDG Room	121
2-HV-DGS-3	AB Emergency Diesel Generator Room Cabinet Ventilation Supply Fan	Diesel Room Ventilation	Auxiliary	587	AB EDG Room	121
2-HV-DGS-4	CD Emergency Diesel Generator Room Cabinet Ventilation Supply Fan	Diesel Room Ventilation	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-DGS-DAB	AB Emergency Diesel Generator Room Ventilation Supply Fan HV-DGS-1 Outside Air Shutoff Damper	Diesel Room Ventilation	Auxiliary	609	Inner Plant Grounds	244
2-HV-DGS-DCD	CD Emergency Diesel Generator Room Ventilation Supply Fan HV-DGS-2 Outside Air Shutoff Damper	Emergency Diesel Generator Room Ventilation	Auxiliary	596	Reactor Cable Tunnel Quad #3	26
2-HV-DGX-1	CD Emergency Diesel Generator Room Ventilation Exhaust Fan	Emergency Diesel Generator Room Ventilation	Auxiliary	587	CD EDG Room	122
2-HV-DGX-2	AB Emergency Diesel Generator Room Ventilation Exhaust Fan	Emergency Diesel Generator Room Ventilation	Auxiliary	587	AB EDG Room	121
2-HV-SGR-MD-1	Control Rod Drive Equipment Room and Inverter Area Ventilation Recirculating Air Inlet Damper	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-SGR-MD-2	Control Rod Drive Equipment Room and Inverter Area Ventilation Outside Air Inlet Damper	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-HV-SGR-MD-3	4kv Rm 600 Volt Switchgear Xformers TR21A & TR21C Area Vent Supply Fan HV-SGRS-8 Suction Damper	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-HV-SGR-MD-4	4kv Room 600v Switchgear Transformers Area Ventilation Supply Fan HV-SGRS-7 Suction Damper	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-HV-SGR-MD-5	600Vac Motor Control Center Mezzanine Area Ventilation Supply Fan HV-SGRS-9 Vent Damper	ELEC. SWGR. Ventilation	Auxiliary	613	4kv Room - Mezzanine Area	205
2-HV-SGRS-1A	Control Rod Drive Equipment Room and Inverter Area Ventilation North Supply Fan	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-HV-SGRS-2	4kv Room AB 4kv Switchgear Area Ventilation Supply Fan	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-SGRS-3	4kv Room CD 4kv Switchgear Area Ventilation Supply Fan	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-HV-SGRS-4A	Control Rod Drive Equipment Room and Inverter Area Ventilation South Supply Fan	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-HV-SGRS-7	4kv Room 600 Volt Switchgear Transformers TR21B and TR21D Area Ventilation Supply Fan	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-HV-SGRS-8	4kv Room 600 Volt Switchgear Transformers TR21A and TR21C Area Ventilation Supply Fan	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-HV-SGRS-9	600Vac Motor Control Center Mezzanine Area Ventilation Supply Fan	ELEC. SWGR. Ventilation	Auxiliary	613	4kv Room - Mezzanine Area	205
2-HV-SGRX-2	4kv Room AB 4kv Switchgear Area Ventilation Exhaust Fan	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-HV-SGRX-3	4kv Room CD 4kv Switchgear Area Ventilation Exhaust Fan	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-HV-SGRX-5	AB Battery Equipment Area Battery Room Ventilation Exhaust Fan	ELEC. SWGR. Ventilation	Auxiliary	609	AB BATT Equip Area	200
2-HV-SGRX-6	CD Battery Equipment Area Battery Room Ventilation Exhaust Fan	ELEC. SWGR. Ventilation	Auxiliary	626	CD BATT Equip Area	201
2-ICM-111	RHR to Reactor Coolant Loops #2 & #3 Cold Legs Containment Isolation Valve	Residual Heat Removal	Containment	598	Annulus - Quadrant #2	59
2-ICM-129	Reactor Coolant Loop #2 Hot Leg to Residual Heat Removal Pumps Suction Containment Isolation Valve	Residual Heat Removal	Containment	598	Annulus - Quadrant #2	59
2-ICM-250	Boron Injection Tank Train 'A' Outlet Containment Isolation Valve	Boron Injection	Auxiliary	612	BIT Outlet Valve Room	15
2-ICM-251	Boron Injection Tank Train 'B' Outlet Containment Isolation Valve	Boron Injection	Auxiliary	612	BIT Outlet Valve Room	15

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-ICM-260	North Safety Injection Pump PP-26N Discharge Containment Isolation Valve	Safety Injection	Auxiliary	587	North Safety Injection Pump Room	42
2-ICM-265	South Safety Injection Pump PP-26S Discharge Containment Isolation Valve	Safety Injection	Auxiliary	587	South Safety Injection Pump Room	43
2-ICM-305	Recirculation Sump to East RHR/CTS Pumps Suction Containment Isolation Valve	Residual Heat Removal	Auxiliary	591	Vestibule	28
2-ICM-306	Recirculation Sump to West RHR/CTS Pumps Suction Containment Isolation Valve	Residual Heat Removal	Auxiliary	591	Vestibule	28
2-ICM-311	East Residual Heat Removal to RC Loops #1 and #4 Cold Legs Containment Isolation Valve	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5
2-ICM-321	West RHR to Reactor Coolant Loops #2 and #3 Cold Legs Containment Isolation Valve	Residual Heat Removal	Auxiliary	609	West RHR Heat Exchanger Room	6

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-IFC-315	East Residual Heat Removal Pump PP-35E Discharge Flow Switch	Residual Heat Removal	Auxiliary	573	573 Hallway	573
2-IFC-325	West Residual Heat Removal Pump PP-35W Discharge Flow Switch	Residual Heat Removal	Auxiliary	573	573 Hallway	573
2-IFI-260	Safety Injection Pump Discharge Flow Indicator	Safety Injection	Auxiliary	587	North Safety Injection Pump Room	42
2-IFI-266	Safety Injection Pump Discharge Flow Indicator	Safety Injection	Auxiliary	587	South Safety Injection Pump Room	43
2-IFI-310	East Residual Heat Removal Heat Exchanger HE-17E Outlet Low Range Flow Indicator Transmitter	Residual Heat Removal	Auxiliary	609	609 Hallway	609
2-IFI-311	East Residual Heat Removal Heat Exchanger HE-17E Outlet High Range Flow Indicator Transmitter	Residual Heat Removal	Auxiliary	609	609 Hallway	609

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-IFI-320	West Residual Heat Removal Heat Exchanger HE-17W Outlet Low Range Flow Indicator Transmitter	Residual Heat Removal	Auxiliary	609	609 Hallway	609
2-IFI-321	West Residual Heat Removal Heat Exchanger HE-17W Outlet High Range Flow Indicator Transmitter	Residual Heat Removal	Auxiliary	609	609 Hallway	609
2-IFI-335	Residual Heat Removal to Reactor Coolant Loops #2 and #3 Cold Legs Flow Indicator Transmitter	Residual Heat Removal	Auxiliary	591	Vestibule	28
2-IFI-51	Boron Injection to Reactor Coolant Loop #1 Flow Indicator Transmitter	Boron Injection	Containment	598	Annulus - Quadrant #1	58
2-IFI-52	Boron Injection to Reactor Coolant Loop #2 Flow Indicator Transmitter	Boron Injection	Containment	598	Annulus - Quadrant #2	59
2-IFI-53	Boron Injection to Reactor Coolant Loop #3 Flow Indicator Transmitter	Boron Injection	Containment	598	Annulus - Quadrant #3	56
2-IFI-54	Boron Injection to Reactor Coolant Loop #4 Flow Indicator Transmitter	Boron Injection	Containment	598	Annulus - Quadrant #4	57

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-IMO-128	Reactor Coolant Loop #2 Hot Leg to Residual Heat Removal Pumps Suction Shutoff Valve	Residual Heat Removal	Containment	617	Lower Containment, Quadrant #2	61
2-IMO-215	RWST to East Containment Spray Pump PP-9E Suction Motor Operated Shut-Off Valve	Containment Spray	Auxiliary	573	East Containment Spray Pump Room	53
2-IMO-225	RWST to West Containment Spray Pump PP-9W Suction Motor Operated Shut-Off Valve	Containment Spray	Auxiliary	573	West Containment Spray Pump Room	52
2-IMO-255	Boron Injection Tank Train 'A' Inlet Shutoff Valve	Boron Injection	Auxiliary	612	BIT Room	16
2-IMO-256	Boron Injection Tank Train 'B' Inlet Shutoff Valve	Boron Injection	Auxiliary	612	BIT Room	16
2-IMO-261	Refueling Water Storage Tank TK-33 Supply to Safety Injection Pumps Shutoff Valve	Safety Injection	Auxiliary	587	South Safety Injection Pump Room	43

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-IMO-262	Safety Injection Pumps Recirc to Refueling Water Storage Tank TK-33 Train 'A' Shutoff Valve	Safety Injection	Auxiliary	587	North Safety Injection Pump Room	42
2-IMO-263	Safety Injection Pumps Recirc to Refueling Water Storage Tank TK-33 Train 'B' Shutoff Valve	Safety Injection	Auxiliary	587	North Safety Injection Pump Room	42
2-IMO-270	Safety Injection Pumps Discharge Crosstie Train 'A' Shutoff Valve	Safety Injection	Auxiliary	587	North Safety Injection Pump Room	42
2-IMO-275	Safety Injection Pumps Discharge Crosstie Train 'B' Shutoff Valve	Safety Injection	Auxiliary	587	South Safety Injection Pump Room	43
2-IMO-310	East Residual Heat Removal Pump PP-35E Suction Shutoff Valve	Residual Heat Removal	Auxiliary	573	East RHR Pump Room	54
2-IMO-312	East Residual Heat Removal Heat Exchanger HE-17E Outlet Mini-Flow Line Shutoff Valve	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-IMO-314	East Residual Heat Removal Heat Exchanger 2-HE-17E to RC Loops #2 and #3 Cold Legs Shutoff Valve	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5
2-IMO-315	East RHR and North Safety Injection to Reactor Coolant Loops #1 and #4 Hot Legs Shutoff Valve	Residual Heat Removal	Containment	612	East Containment Lower Vent Room	72
2-IMO-316	East RHR and North Safety Injection to Reactor Coolant Loops #1 and #4 Cold Legs Shutoff Valve	Residual Heat Removal	Containment	612	East Containment Lower Vent Room	72
2-IMO-320	West Residual Heat Removal Pump PP-35W Suction Shutoff Valve	Residual Heat Removal	Auxiliary	573	West RHR Pump Room	55
2-IMO-322	West Residual Heat Removal Heat Exchanger HE-17W Outlet Mini-Flow Line Shutoff Valve	Residual Heat Removal	Auxiliary	609	West RHR Heat Exchanger Room	6

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-IMO-324	West Residual Heat Removal Heat Exchanger 2-HE-17W to RC Loops #2 and #3 Cold Legs Shutoff Valve	Residual Heat Removal	Auxiliary	609	West RHR Heat Exchanger Room	6
2-IMO-325	West RHR and South Safety Injection to Reactor Coolant Loops #2 and #3 Hot Legs Shutoff Valve	Residual Heat Removal	Containment	612	West Containment Lower Vent Room	73
2-IMO-326	West RHR and South Safety Injection to Reactor Coolant Loops #2 and #3 Cold Legs Shutoff Valve	Residual Heat Removal	Containment	612	West Containment Lower Vent Room	73
2-IMO-330	East Residual Heat Removal to Upper Containment Spray Shutoff Valve	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5
2-IMO-331	West RHR to Upper Containment Spray Shutoff Valve	Residual Heat Removal	Auxiliary	609	West RHR Heat Exchanger Room	6

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-IMO-340	East Residual Heat Removal Heat Exchanger to Charging Pumps Suction Shutoff Valve	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5
2-IMO-350	West RHR Heat Exchanger Outlet to Safety Injection Pump Suction Shutoff Valve	Residual Heat Removal	Auxiliary	609	West RHR Heat Exchanger Room	6
2-IMO-360	Safety Injection Pumps to CVCS Charging Pumps Suction Header Crosstie Shutoff Valve	(CVCS) Charging	Auxiliary	587	West Centrifugal Charging Pump Room	41
2-IMO-361	Safety Injection Pumps Suction to and From Charging Pumps Suction Train 'A' Shutoff Valve	Safety Injection	Auxiliary	587	North Safety Injection Pump Room	42
2-IMO-362	Safety Injection Pumps Suction to and From Charging Pumps Suction Train 'B' Shutoff Valve	Safety Injection	Auxiliary	587	North Safety Injection Pump Room	42
2-IMO-390	Refueling Water Storage Tank TK-33 to Residual Heat Removal Pumps Suction Shutoff Valve	Residual Heat Removal	Auxiliary	591	Vestibule	28

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-IMO-51	Boron Injection to Reactor Coolant Loop #1 Shutoff Valve	Boron Injection	Containment	598	Annulus - Quadrant #1	58
2-IMO-52	Boron Injection to Reactor Coolant Loop #2 Shutoff Valve	Boron Injection	Containment	598	Annulus - Quadrant #2	59
2-IMO-53	Boron Injection to Reactor Coolant Loop #3 Shutoff Valve	Boron Injection	Containment	598	Annulus - Quadrant #3	56
2-IMO-54	Boron Injection to Reactor Coolant Loop #4 Shutoff Valve	Boron Injection	Containment	598	Annulus - Quadrant #4	57
2-IMO-910	Refueling Water Storage Tank to CVCS Charging Pumps Suction Header Train 'A' Shutoff Valve	(CVCS) Charging	Auxiliary	587	Reciprocating Charging Pump Room	39
2-IMO-911	Refueling Water Storage Tank to CVCS Charging Pumps Suction Header Train 'B' Shutoff Valve	(CVCS) Charging	Auxiliary	587	East Centrifugal Charging Pump Room	40
2-IRV-310	East Residual Heat Removal Heat Exchanger HE-17E 8" Air Operated Outlet Flow Control Valve	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-IRV-311	Residual Heat Removal Heat Exchangers Bypass Flow 8" Air Operated Control Valve	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5
2-IRV-320	West Residual Heat Removal Heat Exchanger HE-17W 8" Air Operated Outlet Flow Control Valve	Residual Heat Removal	Auxiliary	609	West RHR Heat Exchanger Room	6
2-IRV-60	Safety Injection to Accumulator Fill Line Control Valve	Safety Injection	Containment	598	Annulus - Quadrant #2	59
2-ITR-335	Residual Heat Removal to Reactor Coolant Loops #2 & #3 Cold Legs Temperature Recorder Thermal Sensor	Residual Heat Removal	Auxiliary	591	Vestibule	28
2-LLS-120	AB Emergency Diesel Fuel Oil Day Tank QT-107-AB High Level Switch #1	Diesel Fuel Oil	Auxiliary	587	AB EDG Room	121
2-LLS-121	AB Emergency Diesel Fuel Oil Day Tank QT-107-AB Low Level Switch #1	Diesel Fuel Oil	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-LLS-122	AB Emergency Diesel Fuel Oil Day Tank QT-107-AB High Level Switch #2	Diesel Fuel Oil	Auxiliary	587	AB EDG Room	121
2-LLS-123	AB Emergency Diesel Fuel Oil Day Tank QT-107-AB Low Level Switch #2	Diesel Fuel Oil	Auxiliary	587	AB EDG Room	121
2-LLS-125	CD Emergency Diesel Fuel Oil Day Tank QT-107-CD High Level Switch #1	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-LLS-126	CD Emergency Diesel Fuel Oil Day Tank QT-107-CD Low Level Switch #1	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-LLS-127	CD Emergency Diesel Fuel Oil Day Tank QT-107-CD High Level Switch #2	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-LLS-128	CD Emergency Diesel Fuel Oil Day Tank QT-107-CD Low Level Switch #2	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-LRV-240	AB Emergency Diesel Upper Valve Gear Lube Oil Regulator #1	Diesel Lube Oil	Auxiliary	587	AB EDG Room	121
2-LRV-241	AB Emergency Diesel Upper Valve Gear Lube Oil Regulator #2	Diesel Lube Oil	Auxiliary	587	AB EDG Room	121
2-LRV-245	CD Emergency Diesel Upper Valve Gear Oil Pressure Regulating Valve #1	Diesel Lube Oil	Auxiliary	587	CD EDG Room	122
2-LRV-246	CD Emergency Diesel Upper Valve Gear Lube Oil Regulator #2	Diesel Lube Oil	Auxiliary	587	CD EDG Room	122
2-LSO-240	AB Emergency Diesel Upper Valve Gear Lubrication Control Solenoid #1	Diesel Lube Oil	Auxiliary	587	AB EDG Room	121
2-LSO-241	AB Emergency Diesel Upper Valve Gear Lubrication Control Solenoid #2	Diesel Lube Oil	Auxiliary	587	AB EDG Room	121
2-LSO-245	CD Emergency Diesel Gen Upper Valve Gear Lubrication Control Solenoid #1	Diesel Lube Oil	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-LSO-246	CD Emergency Diesel Gen Upper Valve Gear Lubrication Control Solenoid #2	Diesel Lube Oil	Auxiliary	587	CD EDG Room	122
2-MCAB	250Vdc Distribution Panel MCAB	250Vdc	Auxiliary	609	AB BATT Equip Area	200
2-MCCD	250Vdc Distribution Panel MCCD	250Vdc	Auxiliary	626	CD BATT Equip Area	201
2-MCM-221	Main Steam Lead #2 to Auxiliary Feed Pump Turbine 4" Motor Operated Shutoff Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MCM-231	Main Steam Lead #3 to Auxiliary Feed Pump Turbine 4" Motor Operated Shutoff Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MDAB	250Vdc Distribution Panel MDAB	250Vdc	Auxiliary	609	AB BATT Equip Area	200
2-MDCD	250Vdc Distribution Panel MDCD	250Vdc	Auxiliary	626	CD BATT Equip Area	201

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-MFC-110	Steam Generator OME-3-1 Channel I Steam Flow Control Transmitter	Main Steam	Containment	598	Annulus - Quadrant #1	58
2-MFC-111	Steam Generator OME-3-1 Channel II Steam Flow Control Transmitter	Main Steam	Containment	598	Annulus - Quadrant #1	58
2-MFC-120	Steam Generator OME-3-2 Channel II Steam Flow Control Transmitter	Main Steam	Containment	598	Annulus - Quadrant #2	59
2-MFC-121	Steam Generator OME-3-2 Channel I Steam Flow Control Transmitter	Main Steam	Containment	598	Annulus - Quadrant #2	59
2-MFC-130	Steam Generator OME-3-3 Channel II Steam Flow Control Transmitter	Main Steam	Containment	598	Annulus - Quadrant #3	56
2-MFC-131	Steam Generator OME-3-3 Channel I Steam Flow Control Transmitter	Main Steam	Containment	598	Annulus - Quadrant #3	56
2-MFC-140	Steam Generator OME-3-4 Channel I Steam Flow Control Transmitter	Main Steam	Containment	598	Annulus - Quadrant #4	57

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-MFC-141	Steam Generator OME-3-4 Channel II Steam Flow Control Transmitter	Main Steam	Containment	598	Annulus - Quadrant #4	57
2-MMO-210	Steam Stop Valve MRV-210 Steam Cylinder Dump 4" Motor Operated Valves Selector Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MMO-220	Steam Stop Valve MRV-220 Steam Cylinder Dump 4" Motor Operated Valves Selector Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MMO-230	Steam Stop Valve MRV-230 Steam Cylinder Dump 4" Motor Operated Valves Selector Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MMO-240	Steam Stop Valve MRV-240 Steam Cylinder Dump 4" Motor Operated Valves Selector Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MPP-210	Steam Generator OME-3-1 Channel I Steam Pressure Transmitter	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-MPP-211	Steam Generator OME-3-1 Channel II Steam Pressure Transmitter	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MPP-212	Steam Generator OME-3-1 Channel IV Reactor Protection Input Steam Pressure Transmitter	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MPP-220	Steam Generator OME-3-2 Channel I Steam Pressure Transmitter	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MPP-221	Steam Generator OME-3-2 Channel II Steam Pressure Transmitter	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MPP-222	Steam Generator OME-3-2 Channel III Reactor Protection Input Steam Pressure Transmitter	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MPP-230	Steam Generator OME-3-3 Channel I Steam Pressure Transmitter	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-MPP-231	Steam Generator OME-3-3 Channel II Steam Pressure Transmitter	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MPP-232	Steam Generator OME-3-3 Channel III Reactor Protection Input Steam Pressure Transmitter	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MPP-240	Steam Generator OME-3-4 Channel I Steam Pressure Transmitter	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MPP-241	Steam Generator OME-3-4 Channel II Steam Pressure Transmitter	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MPP-242	Steam Generator OME-3-4 Channel IV Reactor Protection Input Steam Pressure Transmitter	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MRV-210	Steam Generator OME-3-1 Stop Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-MRV-211	Steam Generator #1 Stop Valve MRV-210 Steam Cylinder Train 'A' Dump Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MRV-212	Steam Generator #1 Stop Valve MRV-210 Steam Cylinder Train 'B' Dump Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MRV-213	Steam Generator OME-3-1 Power Operated Relief Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MRV-220	Steam Generator OME-3-2 Stop Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MRV-221	Steam Generator #2 Stop Valve MRV-220 Steam Cylinder Train 'A' Dump Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MRV-222	Steam Generator #2 Stop Valve MRV-220 Steam Cylinder Train 'B' Dump Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-MRV-223	Steam Generator OME-3-2 Power Operated Relief Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MRV-230	Steam Generator OME-3-3 Stop Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MRV-231	Steam Generator #3 Stop Valve MRV-230 Steam Cylinder Train 'A' Dump Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MRV-232	Steam Generator #3 Stop Valve MRV-230 Steam Cylinder Train 'B' Dump Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MRV-233	Steam Generator OME-3-3 Power Operated Relief Valve	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-MRV-240	Steam Generator OME-3-4 Stop Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-MRV-241	Steam Generator #4 Stop Valve MRV-240 Steam Cylinder Train 'A' Dump Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MRV-242	Steam Generator #4 Stop Valve MRV-240 Steam Cylinder Train 'B' Dump Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-MRV-243	Steam Generator OME-3-4 Power Operated Relief Valve	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-NIS-I	Nuclear Instrumentation System Protection Channel I Control Panel	Equipment Control and Indication Stations	Auxiliary	633	Control Room	123
2-NIS-III	Nuclear Instrumentation System Protection Channel III Control Panel	Equipment Control and Indication Stations	Auxiliary	633	Control Room	123
2-NLI-151	Pressurizer OME-4 Level Indicator Transmitter	Reactor Coolant	Containment	612	Instrumentation Room	67

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NLP-151	Pressurizer OME-4 Protection Channel I Level Transmitter	Reactor Coolant	Containment	612	Instrumentation Room	67
2-NLP-152	Pressurizer OME-4 Protection Channel II Level Transmitter	Reactor Coolant	Containment	612	Instrumentation Room	67
2-NLP-153	Pressurizer OME-4 Protection Channel III Level Transmitter	Reactor Coolant	Containment	612	Instrumentation Room	67
2-NMO-151	Pressurizer Relief Valve NRV-151 Upstream 3" Motor Operated Shutoff Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-NMO-152	Pressurizer Relief Valve NRV-152 Upstream 3" Motor Operated Shutoff Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-NMO-153	Pressurizer Relief Valve NRV-153 Upstream 3" Motor Operated Shutoff Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-NPP-151	Pressurizer OME-4 Protection Channel I Pressure Transmitter	Reactor Coolant	Containment	612	Instrumentation Room	67

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NPP-152	Pressurizer OME-4 Protection Channel II Pressure Transmitter	Reactor Coolant	Containment	612	Instrumentation Room	67
2-NPP-153	Pressurizer OME-4 Protection Channel III Pressure Transmitter	Reactor Coolant	Containment	612	Instrumentation Room	67
2-NPS-121	Reactor Coolant Loop #2 Hot Leg Wide Range Pressure Transmitter	Reactor Coolant	Containment	612	West Containment Lower Vent Room	73
2-NPS-122	Reactor Coolant Loop #1 Hot Leg Wide Range Pressure Transmitter	Reactor Coolant	Containment	612	East Containment Lower Vent Room	72
2-NPS-153	Pressurizer OME-4 Protection Channel IV Pressure Transmitter	Reactor Coolant	Containment	612	Instrumentation Room	67

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NRI-1	Nuclear Instrumentation Source Range Monitor	Reactor Coolant	Auxiliary	633	Control Room	123
2-NRI-21	Nuclear Instrumentation Source Range Radiation Detector	Nuclear Instrumentation	Containment	626	Reactor Cavity	105
2-NRI-21-AMP	Nuclear Instrumentation Wide Range Radiation Amplifier Cabinet	Nuclear Instrumentation	Auxiliary	596	Reactor Cable Tunnel, Quadrant #1	25
2-NRI-21-PRCSR	Nuclear Instrumentation Wide Range Signal Processor Cabinet	Nuclear Instrumentation	Auxiliary	633	Control Room	123
2-NRI-23	Nuclear Instrumentation Source Range Radiation Detector	Nuclear Instrumentation	Containment	626	Reactor Cavity	105
2-NRI-23-AMP	Nuclear Instrumentation Source Range Radiation Detector NRI-23 Amplifier Cabinet	Nuclear Instrumentation	Auxiliary	596	Reactor Cable Tunnel, Quadrant #1	25
2-NRI-23-ISOL	Nuclear Instrumentation Source Range Signal Isolator Cabinet	Nuclear Instrumentation	Auxiliary	596	Reactor Cable Tunnel, Quadrant #1	25

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NRI-23-PRCSR	Nuclear Instrumentation Source Range Signal Processor Cabinet	Nuclear Instrumentation	Auxiliary	633	Control Room	123
2-NRI-5	Nuclear Instrumentation Source Range Monitor	Reactor Coolant	Auxiliary	633	Control Room	123
2-NRV-151	Pressurizer Train 'B' Pressure Relief Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-NRV-152	Pressurizer Train 'B' Pressure Relief Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-NRV-153	Pressurizer OME-4 Train 'A' Pressure Relief Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-NSO-62	Pressurizer OME-4 Post Accident Vent Train 'A' Solenoid Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NSO-61	Post-Accident Vent Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-NSO-63	Post-Accident Vent Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-NSO-64	Pressurizer OME-4 Post Accident Vent Train 'B' Solenoid Valve	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-NTP-110A	Reactor Coolant Loop #1 Hot Leg Channel I Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #1	60
2-NTP-110B	Reactor Coolant Loop #1 Hot Leg Channel I Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #1	60
2-NTP-111A	Reactor Coolant Loop #1 Hot Leg Channel I Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #1	60

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NTP-111B	Reactor Coolant Loop #1 Hot Leg Channel I Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #1	60
2-NTP-112A	Reactor Coolant Loop #1 Hot Leg Channel I Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #1	60
2-NTP-112B	Reactor Coolant Loop #1 Hot Leg Channel I Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #1	60
2-NTP-120A	Reactor Coolant Loop #2 Hot Leg Channel II Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #2	61
2-NTP-120B	Reactor Coolant Loop #2 Hot Leg Channel II Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #2	61
2-NTP-121A	Reactor Coolant Loop #2 Hot Leg Channel II Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #2	61

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NTP-121B	Reactor Coolant Loop #2 Hot Leg Channel II Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #2	61
2-NTP-122A	Reactor Coolant Loop #2 Hot Leg Channel II Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #2	61
2-NTP-122B	Reactor Coolant Loop #2 Hot Leg Channel II Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #2	61
2-NTP-130A	Reactor Coolant Loop #3 Hot Leg Channel III Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #3	62
2-NTP-130B	Reactor Coolant Loop #3 Hot Leg Channel III Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #3	62
2-NTP-131A	Reactor Coolant Loop #3 Hot Leg Channel III Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #3	62

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NTP-131B	Reactor Coolant Loop #3 Hot Leg Channel III Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #3	62
2-NTP-132A	Reactor Coolant Loop #3 Hot Leg Channel III Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #3	62
2-NTP-132B	Reactor Coolant Loop #3 Hot Leg Channel III Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #3	62
2-NTP-140A	Reactor Coolant Loop #4 Hot Leg Channel IV Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #4	63
2-NTP-140B	Reactor Coolant Loop #4 Hot Leg Channel IV Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #4	63
2-NTP-141A	Reactor Coolant Loop #4 Hot Leg Channel IV Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #4	63

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NTP-141B	Reactor Coolant Loop #4 Hot Leg Channel IV Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #4	63
2-NTP-142A	Reactor Coolant Loop #4 Hot Leg Channel IV Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #4	63
2-NTP-142B	Reactor Coolant Loop #4 Hot Leg Channel IV Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	598	Lower Containment, Quadrant #4	63
2-NTP-210A	Reactor Coolant Loop #1 Cold Leg Channel I Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	625	Lower Containment, Quadrant #1	60
2-NTP-210B	Reactor Coolant Loop #1 Cold Leg Channel I Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	625	Lower Containment, Quadrant #1	60
2-NTP-220A	Reactor Coolant Loop #2 Cold Leg Channel II Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	617	Lower Containment, Quadrant #2	61

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-NTP-220B	Reactor Coolant Loop #2 Cold Leg Channel II Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	617	Lower Containment, Quadrant #2	61
2-NTP-230A	Reactor Coolant Loop #3 Cold Leg Channel III Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	617	Lower Containment, Quadrant #3	62
2-NTP-230B	Reactor Coolant Loop #3 Cold Leg Channel III Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	617	Lower Containment, Quadrant #3	62
2-NTP-240A	Reactor Coolant Loop #4 Cold Leg Channel IV Reactor Protection Input Narrow Range Thermal Sensor	Reactor Coolant	Containment	625	Lower Containment, Quadrant #4	63
2-NTP-240B	Reactor Coolant Loop #4 Cold Leg Channel IV Reactor Protection Input Spare Narrow Range Thermal Sensor	Reactor Coolant	Containment	625	Lower Containment, Quadrant #4	63
2-OME-150-AB	AB Emergency Diesel Generator	Diesel Generator, Control & Instrumentation	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)


<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-OME-150-CD	CD Emergency Diesel Generator	Diesel Generator, Control & Instrumentation	Auxiliary	587	CD EDG Room	122
2-OME-3-1	Steam Generator No. 1	Main Steam	Containment	609	Lower Containment, Quadrant #1	60
2-OME-3-2	Steam Generator No. 2	Main Steam	Containment	609	Lower Containment, Quadrant #2	61
2-OME-3-3	Steam Generator No. 3	Main Steam	Containment	609	Lower Containment, Quadrant #3	62
2-OME-3-4	Steam Generator No. 4	Main Steam	Containment	609	Lower Containment, Quadrant #4	63
2-OME-34E	East Essential Service Water Pump PP-7E Discharge Strainer	Essential Service Water	Screenhouse	591	East ESW Pump Room	135

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Equipment Required to Shutdown Reactor (Unit 2)


(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-OME-34W	West Essential Service Water Pump PP-7W Discharge Strainer	Essential Service Water	Screenhouse	591	West ESW Pump Room	136
2-OME-39	Auxiliary Feed Pump Turbine	Auxiliary Feedwater/Main Steam	Turbine	591	TDAFP Room	49
2-POV-1-AB	Starting Air Syst/Pilot Operated 4-Way Valve for Air Start of XRVs for Diesel Engine	Compressed Air	Auxiliary	587	AB EDG Room	121
2-POV-1-CD	Starting Air Syst/Pilot Operated 4-Way Valve for Air Start of XRVs for Diesel Engine	Compressed Air	Auxiliary	587	CD EDG Room	122
2-POV-2-AB	Starting Air Syst/Pilot Operated 4-Way Valve for Air Start of XRVs for Diesel Engine	Compressed Air	Auxiliary	587	AB EDG Room	121
2-POV-2-CD	Starting Air Syst/Pilot Operated 4-Way Valve for Air Start of XRVs for Diesel Engine	Compressed Air	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-PP-10E	East CCW Pump	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-PP-10W	West CCW Pump	Component Cooling Water	Auxiliary	609	609 Hallway	609
2-PP-120-AB	Engine Driven Pump	Diesel Fuel Oil	Auxiliary	587	AB EDG Room	121
2-PP-120-CD	Engine Driven Pump	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-PP-26N	North Safety Injection Pump	Safety Injection	Auxiliary	587	North Safety Injection Pump Room	42
2-PP-26S	South Safety Injection Pump	Safety Injection	Auxiliary	587	South Safety Injection Pump Room	43
2-PP-35E	East Residual Heat Removal Pump	Residual Heat Removal	Auxiliary	573	East RHR Pump Room	54
2-PP-35W	West Residual Heat Removal Pump	Residual Heat Removal	Auxiliary	573	West RHR Pump Room	55

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-PP-3E	East Motor Driven Auxiliary Feedwater Pump	Auxiliary Feedwater	Turbine	591	East MDAFP Room	50
2-PP-3W	West Motor Driven Auxiliary Feedwater Pump	Auxiliary Feedwater	Turbine	591	West MDAFP Room	51
2-PP-4	Turbine Driven Auxiliary Feed Pump	Auxiliary Feedwater	Turbine	591	TDAFP Room	49
2-PP-50E	East Centrifugal Charging Pump	(CVCS) Charging	Auxiliary	587	East Centrifugal Charging Pump Room	40
2-PP-50W	West Centrifugal Charging Pump	(CVCS) Charging	Auxiliary	587	West Centrifugal Charging Pump Room	41
2-PP-7E	East Essential Service Water Pump	Essential Service Water	Screenhouse	591	East ESW Pump Room	135
2-PP-7W	West Essential Service Water Pump	Essential Service Water	Screenhouse	591	West ESW Pump Room	136
2-PP-82N	Control Room Air Conditioning North Chill Water Circulation Pump	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-PP-82S	Control Room Air Conditioning South Chill Water Circulation Pump	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-PPP-301	Lower Containment Channel III Pressure Protection Transmitter	Containment Ventilation	Auxiliary	612	612 Airlock Area	12
2-PPP-302	Lower Containment Channel II Pressure Protection Transmitter	Containment Ventilation	Auxiliary	612	612 Airlock Area	12
2-PPP-303	Lower Containment Channel I Pressure Protection Transmitter	Containment Ventilation	Auxiliary	612	612 Airlock Area	12
2-PRV-1-AB	Pressure Regulator for Starting Air Solenoid 20-SV-1-AB	Compressed Air	Auxiliary	587	AB EDG Room	121
2-PRV-1-CD	Pressure Regulator for Starting Air Solenoid 20-SV-1-CD	Compressed Air	Auxiliary	587	AB EDG Room	121
2-PRZ	Pressurizer Control Panel	Reactor Coolant	Auxiliary	633	Control Room	123
2-PS-A	600Vac Motor Control Center PS-A	600Vac	Screenhouse	594	Traveling Screen MCC Upper Room	221

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-PS-D	600Vac Motor Control Center PS-D	600Vac	Screenhouse	594	Traveling Screen MCC Upper Room	221
2-QCM-250	Reactor Coolant Pump Seal Water Return Train 'A' Containment Isolation 4" Motor Operated Valve	(CVCS) Letdown	Containment	598	Annulus - Quadrant #2	59
2-QCM-350	Reactor Coolant Pump Seal Water Return Train 'B' Containment Isolation 4" Motor Operated Valve	(CVCS) Letdown	Auxiliary	591	Vestibule	28
2-QCR-300	Reactor Coolant Letdown Train 'B' Containment Isolation Valve	(CVCS) Letdown	Auxiliary	591	Vestibule	28
2-QCR-301	CVCS Letdown Isolation	(CVCS) Letdown	Containment	598	Annulus - Quadrant #2	59
2-QFA-210	RCP Seal Water Injection to Reactor Coolant Pump PP-45-1 Low Flow Alarm Transmitter	Reactor Coolant Pump Seal Water INJ/Leakoff	Auxiliary	587	587 Hallway	587

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QFA-220	RCP Seal Water Injection to Reactor Coolant Pump PP-45-2 Low Flow Alarm Transmitter	Reactor Coolant Pump Seal Water INJ/Leakoff	Auxiliary	587	587 Hallway	587
2-QFA-230	RCP Seal Water Injection to Reactor Coolant Pump PP-45-3 Low Flow Alarm Transmitter	Reactor Coolant Pump Seal Water INJ/Leakoff	Auxiliary	587	587 Hallway	587
2-QFA-240	RCP Seal Water Injection to Reactor Coolant Pump PP-45-4 Low Flow Alarm Transmitter	Reactor Coolant Pump Seal Water INJ/Leakoff	Auxiliary	587	587 Hallway	587
2-QFI-200	CVCS Charging Pumps Discharge Flow Indicator Transmitter	(CVCS) Charging	Auxiliary	587	587 Hallway	587
2-QMO-200	CVCS Charging to Regenerative Heat Exchanger Train 'A' Shutoff Valve	(CVCS) Charging	Auxiliary	587	Reciprocating Charging Pump Room	39

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QMO-201	CVCS Charging to Regenerative Heat Exchanger Train 'B' Shutoff Valve	(CVCS) Charging	Auxiliary	587	Reciprocating Charging Pump Room	39
2-QMO-225	East Centrifugal Charging Pump Mini-Flow to RCP Seal Water Heat Exchanger HE-11 2" Motor Operated Shutoff Valve	(CVCS) Charging	Auxiliary	587	East Centrifugal Charging Pump Room	40
2-QMO-226	West Centrifugal Charging Pump Mini-Flow to RCP Seal Water Heat Exchanger HE-11 2" Motor Operated Shutoff Valve	(CVCS) Charging	Auxiliary	587	West Centrifugal Charging Pump Room	41
2-QMO-451	Reactor Coolant Letdown Volume Control Tank TK-10 to CVCS Charging Pumps Train 'A' Shutoff 4" Motor Operated Valve	(CVCS) Letdown	Auxiliary	609	Volume Control Tank East Hallway	19
2-QMO-452	Reactor Coolant Letdown Volume Control Tank TK-10 to CVCS Charging Pumps Train 'B' Shutoff 4" Motor Operated Valve	(CVCS) Letdown	Auxiliary	609	Volume Control Tank East Hallway	19
2-QRV-10	Reactor Coolant Pump #1 Seal #1 Leakoff to RCP Seal Water Return Filter QC-109 2" Air Operated Shutoff Valve	Reactor Coolant Pump Seal Water INJ/Leakoff	Containment	617	Lower Containment, Quadrant #1	60

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QRV-150	Reactor Coolant Pumps Startup Seal System Bypass to Seal Water Return Filter QC-109 0.75" Air Operated Shutoff Valve	Reactor Coolant Pump Seal Water INJ/Leakoff	Containment	598	Annulus - Quadrant #2	59
2-QRV-20	Reactor Coolant Pump #2 Seal #1 Leakoff to RCP Seal Water Return Filter QC-109 2" Air Operated Shutoff Globe Valve	Reactor Coolant Pump Seal Water INJ/Leakoff	Containment	625	Lower Containment, Quadrant #2	61
2-QRV-251	CVCS Centrifugal Charging Pumps Discharge Flow 3" Air Operated Control Globe Valve	(CVCS) Charging	Auxiliary	587	Reciprocating Charging Pump Room	39
2-QRV-30	Reactor Coolant Pump #3 Seal #1 Leakoff to RCP Seal Water Return Filter QC-109 2" Air Operated Shutoff Globe Valve	Reactor Coolant Pump Seal Water INJ/Leakoff	Containment	612	Lower Containment, Quadrant #3	62
2-QRV-40	Reactor Coolant Pump #4 Seal #1 Leakoff to RCP Seal Water Return Filter QC-109 2" Air Operated Shutoff Globe Valve	Reactor Coolant Pump Seal Water INJ/Leakoff	Containment	612	Lower Containment, Quadrant #4	63

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QT-100-AB	AB Emergency Diesel Air Intake Filter	Diesel Combustion Air	Grounds	609	Inner Plant Grounds	244
2-QT-100-CD	CD Emergency Diesel Air Intake Filter	Diesel Combustion Air	Grounds	609	Inner Plant Grounds	244
2-QT-101-AB	AB Emergency Diesel Air Intake Silencer	Diesel Combustion Air	Auxiliary	587	AB EDG Room	121
2-QT-101-CD	CD Emergency Diesel Air Intake Silencer	Diesel Combustion Air	Auxiliary	587	CD EDG Room	122
2-QT-104-AB	AB Emergency Diesel Exhaust Silencer	Diesel Combustion Air	Grounds	609	Inner Plant Grounds	244
2-QT-104-CD	CD Emergency Diesel Exhaust Silencer	Diesel Combustion Air	Grounds	609	Inner Plant Grounds	244
2-QT-106-AB1	AB Emergency Diesel Fuel Oil Transfer Pump #1	Diesel Fuel Oil	Auxiliary	587	AB EDG Fuel Oil Transfer Pump Room	126
2-QT-106-AB2	AB Emergency Diesel Fuel Oil Transfer Pump #2	Diesel Fuel Oil	Auxiliary	587	AB EDG Fuel Oil Transfer Pump Room	126

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)


<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QT-106-CD1	CD Emergency Diesel Fuel Oil Transfer Pump #1	Diesel Fuel Oil	Auxiliary	587	CD EDG Fuel Oil Transfer Pump Room	125
2-QT-106-CD2	CD Emergency Diesel Fuel Oil Transfer Pump #2	Diesel Fuel Oil	Auxiliary	587	CD EDG Fuel Oil Transfer Pump Room	125
2-QT-107-AB	AB Emergency Diesel Fuel Oil Day Tank	Diesel Fuel Oil	Auxiliary	587	AB EDG Room	121
2-QT-107-CD	CD Emergency Diesel Fuel Oil Day Tank	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-QT-110-AB	AB Emergency Diesel Lube Oil Cooler	Diesel Lube Oil	Auxiliary	587	AB EDG Room	121
2-QT-110-CD	CD Emergency Diesel Lube Oil Cooler	Diesel Lube Oil	Auxiliary	587	CD EDG Room	122
2-QT-111-AB	AB Emergency Diesel Lube Oil Before and After Pump	Diesel Lube Oil	Auxiliary	579	AB EDG Lube Oil Pit	257
2-QT-111-CD	CD Emergency Diesel Lube Oil Before and After Pump	Diesel Lube Oil	Auxiliary	579	CD EDG Lube Oil Pit	258

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Equipment Required to Shutdown Reactor (Unit 2)


(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QT-112-AB	AB Emergency Diesel Full Flow Lube Oil Filter	Diesel Lube Oil	Auxiliary	579	AB EDG Lube Oil Pit	257
2-QT-112-CD	CD Emergency Diesel Full Flow Lube Oil Filter	Diesel Lube Oil	Auxiliary	579	CD EDG Lube Oil Pit	258
2-QT-113-AB1	AB Emergency Diesel Full Flow Lube Oil Strainer #1	Diesel Lube Oil	Auxiliary	579	AB EDG Lube Oil Pit	257
2-QT-113-AB2	AB Emergency Diesel Full Flow Lube Oil Strainer #2	Diesel Lube Oil	Auxiliary	579	AB EDG Lube Oil Pit	257
2-QT-113-CD1	CD Emergency Diesel Full Flow Lube Oil Strainer #1	Diesel Lube Oil	Auxiliary	579	CD EDG Lube Oil Pit	258
2-QT-113-CD2	CD Emergency Diesel Full Flow Lube Oil Strainer #2	Diesel Lube Oil	Auxiliary	579	CD EDG Lube Oil Pit	258
2-QT-114-AB	AB Emergency Diesel Lube Oil Cooler QT-110-AB Lube Oil Thermostatic Inlet/Bypass Valve	Diesel Lube Oil	Auxiliary	587	AB EDG Room	121
2-QT-114-CD	CD Emergency Diesel Lube Oil Cooler QT-110-CD Lube Oil Thermostatic Inlet/Bypass Valve	Diesel Lube Oil	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QT-115-AB	AB Emergency Diesel Lube Oil Sump Tank	Diesel Lube Oil	Auxiliary	579	AB EDG Lube Oil Pit	257
2-QT-115-CD	CD Emergency Diesel Lube Oil Sump Tank	Diesel Lube Oil	Auxiliary	579	CD EDG Lube Oil Pit	258
2-QT-116-AB	AB Emergency Diesel Lube Oil Heater Tank	Diesel Lube Oil	Auxiliary	579	AB EDG Lube Oil Pit	257
2-QT-116-CD	CD Emergency Diesel Lube Oil Heater Tank	Diesel Lube Oil	Auxiliary	579	CD EDG Lube Oil Pit	258
2-QT-117-AB	AB Emergency Diesel Lube Oil Heater QT-116-AB Pump	Diesel Lube Oil	Auxiliary	579	AB EDG Lube Oil Pit	257
2-QT-117-CD	CD Emergency Diesel Lube Oil Heater QT-116-CD Pump	Diesel Lube Oil	Auxiliary	579	CD EDG Lube Oil Pit	258
2-QT-118-AB	AB Emergency Diesel Bypass Lube Oil Filter	Diesel Lube Oil	Auxiliary	579	AB EDG Lube Oil Pit	257
2-QT-118-CD	CD Emergency Diesel Bypass Lube Oil Filter	Diesel Lube Oil	Auxiliary	579	CD EDG Lube Oil Pit	258

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)


<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QT-119-AB	AB Emergency Diesel Bypass Lube Oil Filter QT-118-AB Pump	Diesel Lube Oil	Auxiliary	579	AB EDG Lube Oil Pit	257
2-QT-119-CD	CD Emergency Diesel Bypass Lube Oil Filter QT-118-CD Pump	Diesel Lube Oil	Auxiliary	579	CD EDG Lube Oil Pit	258
2-QT-130-AB1	AB Emergency Diesel Jacket Water Pump #1	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121
2-QT-130-AB2	AB Emergency Diesel Jacket Water Pump #2	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121
2-QT-130-CD1	CD Emergency Diesel Jacket Water Pump #1	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122
2-QT-130-CD2	CD Emergency Diesel Jacket Water Pump #2	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122
2-QT-131-AB	AB Emergency Diesel Jacket Water Cooler	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121
2-QT-131-CD	CD Emergency Diesel Jacket Water Cooler	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)


(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QT-132-AB	AB Emergency Diesel Jacket Water Cooler QT-131-AB Jacket Water Thermostatic Inlet/Bypass Valve	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121
2-QT-132-CD	CD Emergency Diesel Jacket Water Cooler QT-131-CD Jacket Water Thermostatic Inlet/Bypass	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122
2-QT-133-AB	AB Emergency Diesel Jacket Water Surge Tank	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121
2-QT-133-CD	CD Emergency Diesel Jacket Water Surge Tank	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122
2-QT-134-AB	AB Emergency Diesel Auxiliary Jacket Water Heater	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121
2-QT-134-CD	CD Emergency Diesel Auxiliary Jacket Water Heater (Tank)	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122
2-QT-135-AB	AB Emergency Diesel Auxiliary Jacket Water Pump	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121
2-QT-135-CD	CD Emergency Diesel Auxiliary Jacket Water Pump	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QT-141-AB1	AB Emergency Diesel Starting Air Receiver #1	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-QT-141-AB2	AB Emergency Diesel Starting Air Receiver #2	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-QT-141-CD1	CD Emergency Diesel Starting Air Receiver #1	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-QT-141-CD2	CD Emergency Diesel Starting Air Receiver #2	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-QT-143-AB1	AB Emergency Diesel Control Air Dryer #1	Diesel Control Air	Auxiliary	587	AB EDG Room	121
2-QT-143-AB2	AB Emergency Diesel Control Air Dryer #2	Diesel Control Air	Auxiliary	587	AB EDG Room	121
2-QT-143-CD1	CD Emergency Diesel Control Air Dryer #1	Diesel Control Air	Auxiliary	587	CD EDG Room	122
2-QT-143-CD2	CD Emergency Diesel Control Air Dryer #2	Diesel Control Air	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-QT-144-AB	AB Emergency Diesel Fuel Oil Transfer Filter	Diesel Fuel Oil	Auxiliary	587	AB EDG Room	121
2-QT-144-CD	CD Emergency Diesel Fuel Oil Transfer Filter	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-QT-502-AB	AB Emergency Diesel Turbocharger	Diesel Combustion Air	Auxiliary	587	AB EDG Room	121
2-QT-502-CD	CD Emergency Diesel Turbocharger	Diesel Combustion Air	Auxiliary	587	CD EDG Room	122
2-QT-506	Turbine Driven Aux Feed Pump PP-4 Trip and Throttle Valve	Auxiliary Feedwater/Main Steam	Turbine	591	TDAFP Room	49
2-QT-507	TDAFP Governor Valve	Main Steam	Turbine	591	TDAFP Room	49
2-RC	Reactor Control Rods Control Panel	Rod Control and Instrumentation	Auxiliary	633	Control Room	123
2-RH-117	RHR Bypass Isolation Manual Valve	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-RHR	Residual Heat Removal Control Panel	Residual Heat Removal	Auxiliary	633	Control Room	123
2-RPC-I	Reactor Protection Channel I Cabinet #1, 2, 3 & 4	Reactor Protection	Auxiliary	633	Control Room	123
2-RPC-II	Reactor Protection Channel II Cabinet #5, 6 & 7	Reactor Protection	Auxiliary	633	Control Room	123
2-RPC-III	Reactor Protection Channel III Cabinet #9, 10 & 11	Reactor Protection	Auxiliary	633	Control Room	123
2-RPC-IV	Reactor Protection Channel IV Cabinet #12	Reactor Protection	Auxiliary	633	Control Room	123
2-RPS-A	Reactor Protection and Safeguard Actuation Train 'A' Cabinet	Reactor Protection	Auxiliary	633	Control Room	123
2-RPS-B	Reactor Protection and Safeguard Actuation Train 'B' Cabinet	Reactor Protection	Auxiliary	633	Control Room	123
2-RPSX-A	Reactor Protection and Safeguard Actuation Train "A" Auxiliary Cabinet	Reactor Protection	Auxiliary	633	Control Room	123

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)


<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-RPSX-B	Reactor Protection and Safeguard Actuation Train "B" Auxiliary Cabinet	Reactor Protection	Auxiliary	633	Control Room	123
2-SA	Station Auxiliaries Control Panel	4160Vac	Auxiliary	633	Control Room	123
2-SG	Steam Generator and Auxiliary Feed Pump Control Panel	Auxiliary Feedwater	Auxiliary	633	Control Room	123
2-SI-152N	RHR to SI Pumps Check Valve	Residual Heat Removal	Containment	612	East Containment Lower Vent Room	72
2-SI-152S	RHR to SI Pumps Check Valve	Residual Heat Removal	Containment	612	West Containment Lower Vent Room	73
2-SI-210	Boron Injection to Charging Pump Crosstie Check Valve	Boron Injection	Auxiliary	612	BIT Room	16
2-SSV-A1	250Vdc Train 'A' Nuclear Sampling Feeder Panel #1	250Vdc	Auxiliary	587	Nuclear Sampling Room	36

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Equipment Required to Shutdown Reactor (Unit 2)


(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SSV-A2	250Vdc Train 'A' Nuclear Sampling Feeder Panel #2	250Vdc	Auxiliary	587	Nuclear Sampling Room	36
2-SSV-B	250Vdc Train 'B' Nuclear Sampling Feeder Panel	250Vdc	Auxiliary	587	Nuclear Sampling Room	36
2-SV-102	Residual Heat Removal to Reactor Coolant Loops #2 & #3 Cold Legs Safety Valve	Residual Heat Removal	Containment	598	Annulus - Quadrant #2	59
2-SV-103	Reactor Coolant Loop #2 Hot Leg to Residual Heat Removal Pumps Safety Valve	Residual Heat Removal	Containment	598	Annulus - Quadrant #2	59
2-SV-104E	East Residual Heat Removal Heat Exchanger HE-17E Outlet Safety Valve	Residual Heat Removal	Auxiliary	609	East RHR Heat Exchanger Room	5
2-SV-104W	West Residual Heat Removal Heat Exchanger HE-17W Outlet Safety Valve	Residual Heat Removal	Auxiliary	609	West RHR Heat Exchanger Room	6
2-SV-120-AB	2-XTC-301 & 2-XTC-302 Control Air Safety Valve	Control Air	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SV-120-CD	2-XTC-306 and 2-XTC-307 Control Air Safety Valve	Control Air	Auxiliary	587	CD EDG Room	122
2-SV-139-AB	AB Emergency Diesel Starting Air to Turbocharger Safety Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-SV-139-CD	CD Emergency Diesel Starting Air to Turbocharger Safety Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-SV-140-1	Turbine Driven Aux Feed Pump Governor Oil Cooler Cooling Water Inlet Safety Valve	Auxiliary Feedwater	Turbine	591	TDAFP Room	49
2-SV-140-2	Turbine Driven Aux Feed Pump Oil Cooler Cooling Water Inlet Safety Valve	Auxiliary Feedwater	Turbine	591	TDAFP Room	49
2-SV-169E	East Motor Driven Auxiliary Feedwater Pump PP-3E Suction Safety Valve	Auxiliary Feedwater	Turbine	591	East MDAFP Room	50
2-SV-169W	West Motor Driven Auxiliary Feed Pump PP-3W Suction Safety Valve	Auxiliary Feedwater	Turbine	591	West MDAFP Room	51

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SV-1A-1	Steam Generator OME-3-1 Safety Valve 1A	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-SV-1A-2	Steam Generator OME-3-2 Safety Valve 1A	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-SV-1A-3	Steam Generator OME-3-3 Safety Valve 1A	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-SV-1A-4	Steam Generator OME-3-4 Safety Valve 1A	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-SV-1B-1	Steam Generator OME-3-1 Safety Valve 1B	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-SV-1B-2	Steam Generator OME-3-2 Safety Valve 1B	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SV-1B-3	Steam Generator OME-3-3 Safety Valve 1B	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-SV-1B-4	Steam Generator OME-3-4 Safety Valve 1B	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-SV-200-AB	AB Emergency Diesel Fuel Oil Manifolds to Fuel Oil Day Tank Safety Valve	Diesel Fuel Oil	Auxiliary	587	AB EDG Room	121
2-SV-200-CD	CD Emergency Diesel Fuel Oil Manifolds to Fuel Oil Day Tank Safety Valve	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-SV-201-AB1	AB Emergency Diesel Front Bank Fuel Oil Manifold Safety Valve	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-SV-201-AB2	AB Emergency Diesel Rear Bank Fuel Oil Manifold Safety Valve	Diesel Fuel Oil	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SV-201-CD1	CD Emergency Diesel Front Bank Fuel Oil Manifold Safety Valve	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-SV-201-CD2	CD Emergency Diesel Rear Bank Fuel Oil Manifold Safety Valve	Diesel Fuel Oil	Auxiliary	587	CD EDG Room	122
2-SV-2A-1	Steam Generator OME-3-1 Safety Valve 2A	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-SV-2A-2	Steam Generator OME-3-2 Safety Valve 2A	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-SV-2A-3	Steam Generator OME-3-3 Safety Valve 2A	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-SV-2A-4	Steam Generator OME-3-4 Safety Valve 2A	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-SV-2B-1	Steam Generator OME-3-1 Safety Valve 2B	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SV-2B-2	Steam Generator OME-3-2 Safety Valve 2B	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-SV-2B-3	Steam Generator OME-3-3 Safety Valve 2B	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-SV-2B-4	Steam Generator OME-3-4 Safety Valve 2B	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-SV-3-1	Steam Generator OME-3-1 Safety Valve #3	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-SV-3-2	Steam Generator OME-3-2 Safety Valve #3	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9
2-SV-3-3	Steam Generator OME-3-3 Safety Valve #3	Main Steam	Auxiliary	633	West Main Steam Stop Enclosure	9

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SV-3-4	Steam Generator OME-3-4 Safety Valve #3	Main Steam	Auxiliary	633	East Main Steam Stop Enclosure	10
2-SV-45A	Pressurizer OME-4 Safety Valve 'A'	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-SV-45B	Pressurizer OME-4 Safety Valve 'B'	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-SV-45C	Pressurizer OME-4 Safety Valve 'C'	Reactor Coolant	Containment	650	Pressurizer Enclosure, Interior	81
2-SV-50	RC Pumps Seal #1 and Startup Seal System Bypass to Seal Water Return Filters Safety Valve	Reactor Coolant Pump Seal Water INJ/Leakoff	Containment	598	Annulus - Quadrant #3	56
2-SV-54	Reactor Coolant Pump Seal Water Heat Exchanger HE-11 Safety Valve	(CVCS) Letdown	Auxiliary	609	Seal Water Heat Exchanger Room	18

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SV-56	CVCS Charging Pumps Suction Header Safety Valve	(CVCS) Charging	Auxiliary	587	Reciprocating Charging Pump Room	39
2-SV-61-AB	AB Emergency Diesel Auxiliary Jacket Water Heater QT-134-AB Safety Valve	Diesel Jacket Water	Auxiliary	587	AB EDG Room	121
2-SV-61-CD	CD Emergency Diesel Auxiliary Jacket Water Heater QT-134-CD Safety Valve	Diesel Jacket Water	Auxiliary	587	CD EDG Room	122
2-SV-78-AB1	AB Emergency Diesel Starting Air Receiver QT-141-AB1 Safety Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-SV-78-AB2	AB Emergency Diesel Starting Air Receiver QT-141-AB2 Safety Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-SV-78-CD1	CD Emergency Diesel Starting Air Receiver QT-141-CD1 Safety Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SV-78-CD2	CD Emergency Diesel Starting Air Receiver QT-141-CD2 Safety Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-SV-79-AB1	AB Emergency Diesel Control Air Dryer QT-143-AB1 Safety Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-SV-79-AB2	AB Emergency Diesel Control Air Dryer QT-143-AB2 Safety Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-SV-79-CD1	CD Emergency Diesel Control Air Dryer QT-143-CD1 Safety Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-SV-79-CD2	CD Emergency Diesel Control Air Dryer QT-143-CD2 Safety Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-SV-96	Safety Injection Pumps Suction Header Safety Valve	Safety Injection	Auxiliary	587	South Safety Injection Pump Room	43

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-SV-97	Boron Injection Tank TK-11 Outlet Safety Valve	Boron Injection	Auxiliary	612	BIT Room	16
2-SV-98N	North Safety Injection Pump PP-26N Discharge Header Safety Valve	Safety Injection	Auxiliary	587	North Safety Injection Pump Room	42
2-SV-98S	South Safety Injection Pump PP-26S Discharge Header Safety Valve	Safety Injection	Auxiliary	587	South Safety Injection Pump Room	43
2-T21A	4kv Bus T21A Switchgear	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21A10	Transformer TR21A to 600Vac Bus 21A Supply Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21A11	AB Emergency Diesel Generator to 4kv Bus T21A Supply Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-T21A12	Circuit Breaker From 69kv to Bus T21A	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21A2	West Motor Driven Aux Feedwater Pump PP-3W Supply Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21A4	West Residual Heat Removal Pump PP-35W Supply Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21A5	West Essential Service Water Pump PP-7W Supply Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21A7	West Component Cooling Water Pump PP-10W Supply Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21A8	West Centrifugal Charging Pump PP-50W Supply Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-T21A9	4kv Bus 2A to Bus T21A Tie Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21B	4kv Bus T21B Switchgear	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21B1	4kv Bus 2B to 4kv Bus T21B Tie Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21B2	Circuit Breaker From 69kv Bus to Bus T21B	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21B4	AB Emergency Diesel Generator to 4kv Bus T21B Supply Breaker	4160Vac	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-T21C	4kv Bus T21C Switchgear	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-T21C1	4kv Bus 2c to 4kv Bus T21C Tie Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21C2	Circuit Breaker - 4kv From 69kv to Bus T21C	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21C3	CD Emergency Diesel Generator to 4kv Bus T21C Supply Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21D	4kv Bus T21D Switchgear	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21D1	4kv Emergency Power Bus EP to 4kv Bus T21D Supply Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21D10	East Essential Service Water Pump PP-7E Supply Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-T21D11	East Motor Driven Auxiliary Feedwater Pump PP-3E Supply Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21D12	4kv Bus 2d to 4kv Bus T21D Tie Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21D2	Transformer TR21D to 600Vac Bus 21D Supply Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21D3	East Component Cooling Water Pump PP-10E Supply Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21D6	East RHR Pump PP-35E Supply Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-T21D7	East Centrifugal Charging Pump PP-50e Supply Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-T21D8	CD Emergency Diesel Generator to 4kv Bus T21D Supply Breaker	4160Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-TDAB	250 Vdc Train 'B' Transfer Cabinet	250Vdc	Auxiliary	609	AB BATT Equip Area	200
2-TDCD	250 Vdc Train 'A' Transfer Cabinet	250Vdc	Auxiliary	626	CD BATT Equip Area	201
2-TK-11	Boron Injection Tank	Boron Injection	Auxiliary	612	BIT Room	16
2-TK-253-1	Pressurizer Train 'B' Pressure Relief Valve NRV-152 Reserve Control Air Tank	Control Air	Containment	625	Lower Containment, Quadrant #3	62
2-TK-253-2	Pressurizer Train 'A' Pressure Relief Valve NRV-153 Reserve Control Air Tank	Control Air	Containment	625	Lower Containment, Quadrant #3	62
2-TK-253-3	Pressurizer Train 'B' Pressure Relief Valve NRV-152 Emergency Air Tank	Control Air	Containment	650	Upper Containment, Quadrant #4	86

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-TK-253-4	Pressurizer Train 'A' Pressure Relief Valve NRV-153 Emergency Air Tank	Control Air	Containment	650	Upper Containment, Quadrant #4	86
2-TK-32	Condensate Storage Tank	Condensate Storage Tank Supply	Grounds	609	Condensate Storage Tank Area	20
2-TK-33	Refueling Water Storage Tank	RWST Supply	Grounds	609	RWST Area	21
2-TK-37	Component Cooling Water Surge Tank	Component Cooling Water	Auxiliary	650	650 Hallway	650
2-TK-76N	Control Room Air Conditioning North Chill Water Expansion Tank	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-TK-76S	Control Room Air Conditioning South Chill Water Expansion Tank	Control Room Ventilation	Auxiliary	650	Control Rm A/C Room	129
2-TR21A	600v Bus 21A Supply Transformer	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-TR21B	600v Bus 21B Supply Transformer	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-TR21C	600v Bus 21C Supply Transformer	600Vac	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-TR21D	600v Bus 21D Supply Transformer	600Vac	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-TR-AFW	Auxiliary Feedwater 120/208Vac Distribution Panel AFW Supply Transformer	120/208Vac Misc Safety Related Power Distribution	Auxiliary	587	CD EDG Room	122
2-TR-ELSC	120/208Vac Emergency Local Shutdown Distribution Transformer	120/208Vac Misc Safety Related Power Distribution	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
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<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-VDAB-1	250Vdc Valve Distribution Panel VDAB-1	250Vdc	Auxiliary	633	Control Room	123
2-VDAB-2	250Vdc Valve Distribution Panel VDAB-2	250Vdc	Auxiliary	633	Control Room	123
2-VDCD-1	250Vdc Valve Distribution Panel VDCD-1	250Vdc	Auxiliary	633	Control Room	123
2-VDCD-2	250Vdc Valve Distribution Panel VDCD-2	250Vdc	Auxiliary	633	Control Room	123
2-VRV-315	Control Room Ventilation Unit HV-ACRA-1 Chill Water Inlet/Bypass Valve	Control Room Ventilation	Auxiliary	650	Control Room A/C Room	129
2-VRV-325	Control Room Ventilation Unit HV-ACRA-2 Chill Water Inlet/Bypass Valve	Control Room Ventilation	Auxiliary	650	Control Room A/C Room	129
2-VTS-201	East Motor Driven Auxiliary Feedwater Pump Room Cooler 2- HV-AFP-EAC Temperature Switch	Turbine Building Ventilation	Turbine	591	East MDAFP Room	50

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-VTS-203	Turbine Driven Auxiliary Feed Pump Room Cooler 2- HV-AFP-T1AC Temperature Switch	Turbine Building Ventilation	Turbine	591	TDAFP Room	49
2-VTS-204	Turbine Driven Auxiliary Feed Pump Room Cooler 2-HV-AFP-T2AC Temperature Switch	Turbine Building Ventilation	Turbine	591	TDAFP Room	49
2-VTS-206	West Motor Driven Auxiliary Feedwater Pump Room Cooler 2-HV-AFP-WAC Temperature Switch	Turbine Building Ventilation	Turbine	591	West MDAFP Room	51
2-VTS-340	AB Emergency Diesel Generator Room Ventilation Supply Fan HV-DGS-2 Outside Air Thermostat	Emergency Diesel Generator Room Ventilation	Grounds	609	RWST Area	21
2-VTS-341	AB Emergency Diesel Generator Room Ventilation Fans HV- DGX-2 Thermostat	Emergency Diesel Generator Room Ventilation	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-VTS-345	CD Emergency Diesel Generator Room Ventilation Supply Fan HV-DGS-1 Outside Air Thermostat	Emergency Diesel Generator Room Ventilation	Auxiliary	596	Reactor Cable Tunnel, Quadrant #3	26
2-VTS-346	CD Emergency Diesel Generator Room Ventilation Exhaust Fan HV-DGX-1 Thermostat	Emergency Diesel Generator Room Ventilation	Auxiliary	587	CD EDG Room	122
2-VTS-350	Control Rod Drive Equip Room and Inv Area Vent North Supply Fan HV-SGRS-1a Temperature Switch	ELEC. SWGR. Ventilation	Auxiliary	609	Inverter Area	202
2-VTS-351	Control Rod Drive Equip Room and Inv Area Vent North Supply Fan HV-SGRS-1a Temperature Switch	ELEC. SWGR. Ventilation	Auxiliary	609	Control Rod Drive Equipment Room	203
2-VTS-352	4kv Room 600 Volt Switchgear Xfrms TR21B and TR21D Area Vent Supply Fan HV-SGRS-7 Temperature Switch	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-VTS-353	600Vac Motor Control Center Mezzanine Area Vent Supply Fan HV-SGRS-9 Temperature Switch	ELEC. SWGR. Ventilation	Auxiliary	613	4kv Room - Mezzanine Area	205
2-VTS-354	Ctrl Rod Drv Equip Room and Inv Area Vent Outside Air Inlet Damper HV-Sgr-MD-2 Temperature Switch	ELEC. SWGR. Ventilation	Auxiliary	609	Inverter Area	202
2-VTS-355	Ctrl Rod Drive Equip Room and Inv Area Vent Recirc Air Inlet Damper HV-Sgr-MD-1 Temperature Switch	ELEC. SWGR. Ventilation	Auxiliary	609	Inverter Area	202
2-VTS-356	Crd Equipment Room and Inverter Area Ventilation North Supply Fan HV-SGRS-4A Temp Switch	ELEC. SWGR. Ventilation	Auxiliary	609	Inverter Area	202
2-VTS-357	Ctrl Rod Drive Equip Room and Inv Area Ventilation South Supply Fan HV-SGRS-4A Temperature Switch	ELEC. SWGR. Ventilation	Auxiliary	609	Control Rod Drive Equipment Room	203
2-VTS-702	Unit 2 East ESW Pump Room Temperature Switch	ESW Ventilation	Screenhouse	591	East ESW Pump Room	135

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-VTS-704	Unit 2 West ESW Pump Room Temperature Switch	ESW Ventilation	Screenhouse	591	West ESW Pump Room	136
2-VTS-802	4kv Room AB 4kv Switchgear Area Ventilation Supply Fan HV-SGRS-2 Thermal Sensor	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - AB 4kv Switchgear Area	140
2-VTS-803	4kv Room CD 4kv Switchgear Area Ventilation Supply Fan HV-SGRS-3 Thermal Sensor	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - CD 4kv Switchgear Area	206
2-VTS-805	4kv Room 600v SWGR Xfmrs TR21B and TR21D Area Vent Supply Fan HV-SGRS-7 Temp Switch Thermal Sensor	ELEC. SWGR. Ventilation	Auxiliary	613	4kv Room - Mezzanine Area	205
2-VTS-808	4kv Room 600v SWGR Xfmrs TR21A and TR21C Area Vent Supply Fan HV-SGRS-8 Temp Switch Temp Switch	ELEC. SWGR. Ventilation	Auxiliary	609	4kv Room - 600v Switchgear Area	204
2-WFA-702	East Essential Service Water Supply Header Flow Transmitter	Essential Service Water	Turbine	569	ESW Pipe Tunnel	131

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-WFA-706	West Essential Service Water Supply Header Flow Transmitter	Essential Service Water	Turbine	569	ESW Pipe Tunnel	131
2-WMO-703	East Essential Service Water Pump PP-7E Discharge Shutoff Valve	Essential Service Water	Screenhouse	591	East ESW Pump Room	135
2-WMO-704	West Essential Service Water Pump PP-7W Discharge Shutoff Valve	Essential Service Water	Screenhouse	591	West ESW Pump Room	136
2-WMO-706	West Essential Service Water Supply Header Crosstie to Unit 1 Shutoff Valve	Essential Service Water	Turbine	569	ESW Pipe Tunnel	131
2-WMO-708	East Essential Service Water Supply Header Crosstie to Unit 1 Shutoff Valve	Essential Service Water	Turbine	569	ESW Pipe Tunnel	131
2-WMO-712	East CS Hx HE-18E ESW Inlet Shutoff Valve	Essential Service Water	Auxiliary	633	633 Hallway	633
2-WMO-716	West CS Hx ESW Inlet Shutoff Valve	Essential Service Water	Auxiliary	633	633 Hallway	633

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-WMO-722-AB	West Essential Service Water Supply Header to AB Emergency Diesel Heat Exchangers Shutoff Valve	Essential Service Water	Auxiliary	587	CD EDG Room North Pipe Tunnel	171
2-WMO-724-AB	East Essential Service Water Supply Header to AB Emergency Diesel Heat Exchangers Shutoff Valve	Essential Service Water	Auxiliary	587	CD EDG Room North Pipe Tunnel	171
2-WMO-726-CD	East Essential Service Water Supply Header to CD Emergency Diesel Heat Exchangers Shutoff Valve	Essential Service Water	Auxiliary	587	CD EDG Room North Pipe Tunnel	171
2-WMO-728-CD	West Essential Service Water Supply Header to CD Emergency Diesel Heat Exchangers Shutoff Valve	Essential Service Water	Auxiliary	587	CD EDG Room North Pipe Tunnel	171
2-WMO-732	East Component Cooling Water Heat Exchanger HE-15E Essential Service Water Inlet Shutoff Valve	Essential Service Water	Auxiliary	609	609 Hallway	609
2-WMO-734	East Component Cooling Water Heat Exchanger HE-15E Essential Service Water Outlet Shutoff Valve	Essential Service Water	Auxiliary	609	609 Hallway	609

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-WMO-736	West Component Cooling Water Heat Exchanger Essential Service Water Inlet Shutoff Valve	Essential Service Water	Auxiliary	609	609 Hallway	609
2-WMO-738	West Component Cooling Water Heat Exchanger Essential Service Water Outlet Shutoff Valve	Essential Service Water	Auxiliary	609	609 Hallway	609
2-WPI-706	West Essential Service Water Supply Header Pressure Indicator Transmitter	Essential Service Water	Turbine	569	ESW Pipe Tunnel	131
2-WPI-708	East Essential Service Water Supply Header Pressure Indicator Transmitter	Essential Service Water	Turbine	569	ESW Pipe Tunnel	131
2-WPS-702	East Essential Service Water Supply Header Pressure Switch	Essential Service Water	Turbine	569	ESW Pipe Tunnel	131

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-WPS-706	West Essential Service Water Supply Header Pressure Switch	Essential Service Water	Turbine	569	ESW Pipe Tunnel	131
2-WRV-711-1N	ESW from CRAC N Lqd Chiller 2-HV-ACR-1 Cndsr Wtr Reg Vlv (Ckt 1)	Essential Service Water	Auxiliary	650	Control Rm A/C Room	129
2-WRV-711-2N	ESW from CRAC N Lqd Chiller 2-HV-ACR-1 Cndsr Wtr Reg Vlv (Ckt 2)	Essential Service Water	Auxiliary	650	Control Rm A/C Room	129
2-WRV-712-1S	ESW from CRAC S Lqd Chiller 2-HV-ACR-2 Cndsr Wtr Reg Vlv (Ckt 1)	Essential Service Water	Auxiliary	650	Control Rm A/C Room	129
2-WRV-712-2S	ESW from CRAC S Lqd Chiller 2-HV-ACR-2 Cndsr Wtr Reg Vlv (Ckt 2)	Essential Service Water	Auxiliary	650	Control Rm A/C Room	129
2-WRV-722-CD	CD Emergency Diesel North Combustion Air Aftercooler HE-47-CDn ESW Inlet/Bypass Valve	Essential Service Water	Auxiliary	587	CD EDG Room	122
2-WRV-724-CD	CD Emergency Diesel South Combustion Air Aftercooler HE-47-CDS ESW Inlet/Bypass Valve	Essential Service Water	Auxiliary	587	CD EDG Room	122

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-WRV-726-AB	AB Emergency Diesel North Combustion Air Aftercooler HE-47- ABN ESW Inlet/Bypass Valve	Essential Service Water	Auxiliary	587	AB EDG Room	121
2-WRV-728-AB	AB Emergency Diesel South Combustion Air Aftercooler HE-47- ABS ESW Inlet/Bypass Valve	Essential Service Water	Auxiliary	587	AB EDG Room	121
2-XPS-300	Diesel Combustion Air/AB Front Bank Air Chest Extreme High Pressure Switch	Diesel Combustion Air	Auxiliary	587	AB EDG Room	121
2-XPS-305	Diesel Combustion Air/CD Front Bank Air Chest Extreme High Pressure Switch	Diesel Combustion Air	Auxiliary	587	CD EDG Room	122
2-XRV-152	Backup Air to 2-NRV-152 Pressure Regulator Valve	Control Air	Containment	650	Upper Containment, Quadrant #4	86
2-XRV-153	Backup Air to 2-NRV-153 Pressure Regulator Valve	Control Air	Containment	650	Upper Containment, Quadrant #4	86

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-XRV-154	Backup Air to 2-NRV-152 Low Pressure Trip Valve	Control Air	Containment	650	Upper Containment, Quadrant #4	86
2-XRV-155	Backup Air to 2-NRV-152 Positive Air Shutoff Valve	Control Air	Containment	650	Upper Containment, Quadrant #4	86
2-XRV-156	Backup Air to 2-NRV-153 Low Pressure Trip Valve	Control Air	Containment	650	Upper Containment, Quadrant #4	86
2-XRV-157	Backup Air to 2-NRV-153 Positive Air Shutoff Valve	Control Air	Containment	650	Upper Containment, Quadrant #4	86
2-XRV-220	AB Emergency Diesel Starting Air Jet Assist Control Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-XRV-221	AB Emergency Diesel Front Bank Starting Air Shutoff Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-XRV-222	AB Emergency Diesel Rear Bank Starting Air Shutoff Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-XRV-223	AB Emergency Diesel Starting Air to Turbocharger Pressure Reducing Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-XRV-225	CD Emergency Diesel Starting Air Jet Assist Control Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-XRV-226	CD Emergency Diesel Front Bank Starting Air Shutoff Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-XRV-227	CD Emergency Diesel Rear Bank Starting Air Shutoff Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-XRV-228	CD Emergency Diesel Starting Air to Turbocharger Pressure Reducing Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-XRV-231	AB Emergency Diesel Starting Air to Control Air Dryer #1 Pressure Reducing Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-XRV-232	AB Emergency Diesel Starting Air to Control Air Dryer #2 Pressure Reducing Valve	Diesel Starting Air	Auxiliary	587	AB EDG Room	121
2-XRV-236	CD Emergency Diesel Starting Air to Control Air Dryer #1 Pressure Reducing Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-XRV-237	CD Emergency Diesel Starting Air to Control Air Dryer #2 Pressure Reducing Valve	Diesel Starting Air	Auxiliary	587	CD EDG Room	122
2-XRV-240	2-XTC-301 and 2-XTC-302 Control Air Pressure Reducing Valve (AB)	Diesel Control Air	Auxiliary	587	AB EDG Room	121
2-XRV-245	2-XTC-306 and 2-XTC-307 Control Air Pressure Reducing Valve (CD)	Diesel Control Air	Auxiliary	587	CD EDG Room	122
2-XRV-RACK-152	Pressurizer Train 'B' Pressure Relief Valve NRV-152 Valve Rack Emergency Air Pressure Regulator	Control Air	Containment	652	Upper Containment, Quadrant #4	82

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Equipment Required to Shutdown Reactor (Unit 2)
(For High Energy Pipe Ruptures Outside the Containment)

<u>Equip Id</u>	<u>Equipment Description</u>	<u>System</u>	<u>Building</u>	<u>Elev</u>	<u>Room</u>	<u>Rm#</u>
2-XRV-RACK-153	Pressurizer Train 'A' Pressure Relief Valve NRV-153 Valve Rack Emergency Air Pressure Regulator	Control Air	Containment	652	Upper Containment, Quadrant #4	82
2-XSO-255	East Motor Driven Auxiliary Feed Pump Test Valve	AFW	Turbine	591	East Motor Driven Auxiliary Feed Pump Room	50
2-XSO-345	West Motor Driven Auxiliary Feed Pump Test Valve	AFW	Turbine	591	West Motor Driven Auxiliary Feed Pump Room	51
2-XSO-505	Pressurizer Train 'B' Pressure Relief Valve NRV-152 Control Solenoid	Control Air	Containment	652	Pressurizer Enclosure, Interior	81
2-XSO-507	Pressurizer Train 'A' Pressure Relief Valve NRV-153 Control Solenoid	Control Air	Containment	652	Pressurizer Enclosure, Interior	81

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OTHER HIGH ENERGY SYSTEMS/LINES

System	
Sampling System	Steam Generator Sample Lines
	Steam Generator Blowdown Sample Lines
	Pressurizer Sample Lines
	Reactor Coolant System Sample Lines

System	From	To
Bleed Steam	Turbine	Heater 6
	Turbine	Heater 6A
	Turbine	Heater 6B
Blowdown	Control Valves	Seat Drains
Condensate	Heater Bypass	Feed Pump
	Heater 2A	Heater 3A
	Heater 2B	Heater 3B
	Heater 3A	Heater 4A
	Heater 3B	Heater 4B
	Heater 4A	Feed Pump
	Heater 4B	Feed Pump
	Heater 4A & 4B	Feed Pump
	Heater 4A & 4B	Feed Pump E
Reheater Coil Drain	Moisture Separator	Reheater Drain Tank
	Reheater Coil Drain	
	Reheater Drain Tank	Heater 6A

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Peak Environmental Qualification Conditions for LOCA, MSLB, and Feedwater Line Break Inside Containment

LOCA

Location	Temperature (°F)	Pressure (psig)
Upper Compartment	160 ¹	11.6 ²
Lower Compartment	235 ³	11.6 ²
Instrument and F/A Room	235 ^{4,3}	13.9 ⁵

MSLB and Feedwater Line Break

Location	Temperature (°F)	Pressure (psig)
Upper Compartment	135 (U1) ⁶ , 128 (U2) ⁶	20.8 ⁵
Lower Compartment	325 ⁷	20.8 ⁵

¹ UFSAR Figure 14.3.4-7

² UFSAR Figure 14.3.4-6A

³ UFSAR Figure 14.3.4-8

⁴ Deleted

⁵ UFSAR Table 14.3.4-40 reports this value calculated for the Steamline Break in the Steam Generator Doghouse. The Steam Generator Doghouse peak pressure is a bounding value for Upper and Lower Containment.

⁶ UFSAR Figure 14.3.4-11 (Unit 1) and Figure 14.3.4-11A (Unit 2)

⁷ UFSAR Figure 14.3.4-12 (Unit 1) and Figure 14.3.4-12B (Unit 2)

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AIRBORNE SOURCE TERM DOSES AND DOSE RATES

Containment Centerline Dose Rates and Doses ¹						
Time	Gamma Dose Rate [rad/hr]	Beta Dose Rate [rad/hr]	Total Dose Rate [rad/hr]	Gamma Dose [rad]	Beta Dose [rad]	Total Dose [rad]
1 second	4.293E+06	2.028E+07	2.46E+07	5.962E+02	2.817E+03	3.41E+03
30 minutes	1.905E+06	7.674E+06	9.58E+06	1.330E+06	5.196E+06	6.53E+06
1 hour	1.418E+06	6.592E+06	8.01E+06	2.145E+06	8.756E+06	1.09E+07
2 hours	9.818E+05	4.849E+06	5.83E+06	3.319E+06	1.443E+07	1.77E+07
8 hours	4.013E+05	1.508E+06	1.91E+06	6.889E+06	3.046E+07	3.73E+07
1 day	2.181E+05	5.753E+05	7.93E+05	1.131E+07	4.382E+07	5.51E+07
7 days	8.274E+04	2.350E+05	3.18E+05	3.014E+07	9.492E+07	1.25E+08
30 days	4.543E+03	1.708E+04	2.16E+04	4.480E+07	1.385E+08	1.83E+08
90 days	3.484E+01	5.456E+03	5.49E+03	4.580E+07	1.487E+08	1.94E+08
180 days	2.515E+01	5.352E+03	5.38E+03	4.586E+07	1.603E+08	2.06E+08
365 days	2.431E+01	5.175E+03	5.20E+03	4.597E+07	1.837E+08	2.30E+08
Inside Containment Wall Surface Dose Rates and Doses ⁽¹⁾						
Time	Gamma Dose Rate [rad/hr]	Beta Dose Rate [rad/hr]	Total Dose Rate [rad/hr]	Gamma Dose [rad]	Beta Dose [rad]	Total Dose [rad]
1 second	3.408E+06	2.028E+07	2.37E+07	4.734E+02	2.817E+03	3.29E+03
30 minutes	1.906E+06	7.674E+06	9.58E+06	1.205E+06	5.196E+06	6.40E+06
1 hour	1.499E+06	6.592E+06	8.09E+06	2.046E+06	8.756E+06	1.08E+07
2 hours	1.080E+06	4.849E+06	5.93E+06	3.314E+06	1.443E+07	1.77E+07
8 hours	4.627E+05	1.508E+06	1.97E+06	7.346E+06	3.046E+07	3.78E+07
1 day	2.259E+05	5.753E+05	8.01E+05	1.228E+07	4.382E+07	5.61E+07
7 days	6.730E+04	2.350E+05	3.02E+05	2.832E+07	9.492E+07	1.23E+08
30 days	5.276E+03	1.708E+04	2.24E+04	4.141E+07	1.385E+08	1.80E+08
90 days	3.538E+01	5.456E+03	5.49E+03	4.274E+07	1.487E+08	1.91E+08
180 days	1.313E+01	5.352E+03	5.37E+03	4.277E+07	1.603E+08	2.03E+08
365 days	1.268E+01	5.175E+03	5.19E+03	4.283E+07	1.837E+08	2.27E+08

¹ Per Calculation RS-C-0046

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SUBMERGED LOWER VOLUME / CONTAINMENT SUMP DOSE RATES & DOSES¹

Time	Gamma Dose Rate (rad/hr)	Beta Dose Rate (rad/hr)	Total Dose Rate (rad/hr)	Gamma Dose (rad)	Beta Dose (rad)	Total Dose (rad)
1 second	1.201E+06	1.791E+05	1.38E+06	1.668E+02	2.488E+01	1.92E+02
30 minutes	9.675E+05	1.388E+05	1.11E+06	5.377E+05	7.812E+04	6.16E+05
1 hour	8.100E+05	1.177E+05	9.28E+05	9.799E+05	1.418E+05	1.12E+06
2 hours	6.118E+05	9.462E+04	7.06E+05	1.682E+06	2.467E+05	1.93E+06
8 hours	2.834E+05	5.775E+04	3.41E+05	4.061E+06	6.719E+05	4.73E+06
1 day	1.315E+05	3.291E+04	1.64E+05	7.072E+06	1.364E+06	8.44E+06
7 days	3.467E+04	8.429E+03	4.31E+04	1.511E+07	3.346E+06	1.85E+07
30 days	9.922E+03	3.262E+03	1.32E+04	2.527E+07	6.123E+06	3.14E+07
90 days	3.470E+03	1.753E+03	5.22E+03	3.307E+07	9.351E+06	4.24E+07
180 days	1.733E+03	1.221E+03	2.95E+03	3.838E+07	1.249E+07	5.09E+07
365 days	7.349E+02	7.538E+02	1.49E+03	4.328E+07	1.673E+07	6.00E+07

¹ Per Calculation RS-C-0046

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BETA DOSE FACTORS¹

DOSE FROM AIRBORNE SOURCE AFTER ATTENUATION (PERCENTAGE OF DOSE PASSING THROUGH SHIELD)

Thickness of Unit Density Material (mils)

Time	10	20	30	40	50	60	70
1 second	78.68%	68.30%	60.73%	54.66%	49.58%	45.22%	41.38%
30 minutes	75.18%	64.48%	56.96%	51.04%	46.14%	41.94%	38.30%
1 hour	75.37%	65.13%	57.92%	52.22%	47.48%	43.41%	39.83%
2 hours	75.21%	65.41%	58.57%	53.16%	48.62%	44.71%	41.28%
8 hours	70.04%	60.58%	54.41%	49.62%	45.62%	42.23%	39.24%
1 day	58.35%	48.97%	43.53%	39.50%	36.24%	33.49%	31.11%
7 days	31.56%	23.58%	20.49%	18.47%	16.88%	15.57%	14.44%
30 days	24.49%	16.73%	14.23%	12.73%	11.60%	10.68%	9.90%
90 days	24.78%	16.40%	13.60%	12.01%	10.87%	9.98%	9.24%
180 days	25.51%	16.28%	13.08%	11.34%	10.18%	9.30%	8.59%
365 days	26.67%	16.08%	12.22%	10.24%	9.03%	8.18%	7.52%

¹ Per Calculation RS-C-0046

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BETA DOSE FACTORS¹

DOSE FROM AIRBORNE SOURCE AFTER ATTENUATION (PERCENTAGE OF DOSE PASSING THROUGH SHIELD)

Thickness of Aluminum (mils)

Time	10	20	30	40	50	60	70
1 second	62.82%	47.77%	37.66%	30.25%	24.53%	20.03%	16.43%
30 minutes	59.01%	44.39%	34.79%	27.80%	22.49%	18.33%	15.05%
1 hour	59.89%	45.77%	36.38%	29.42%	24.07%	19.84%	16.46%
2 hours	60.44%	46.99%	37.93%	31.11%	25.77%	21.51%	18.05%
8 hours	56.09%	44.21%	36.31%	30.30%	25.53%	21.64%	18.42%
1 day	44.98%	35.09%	28.78%	24.07%	20.33%	17.27%	14.74%
7 days	21.26%	16.33%	13.36%	11.16%	9.42%	8.00%	6.83%
30 days	14.81%	11.21%	9.15%	7.65%	6.45%	5.48%	4.68%
90 days	14.25%	10.50%	8.53%	7.12%	6.01%	5.11%	4.36%
180 days	13.81%	9.80%	7.93%	6.61%	5.58%	4.74%	4.04%
365 days	13.09%	8.65%	6.92%	5.77%	4.87%	4.14%	3.53%

¹ Per Calculation RS-C-0046

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BETA DOSE FACTORS¹

DOSE FROM AIRBORNE SOURCE AFTER ATTENUATION (PERCENTAGE OF DOSE PASSING THROUGH SHIELD)

Thickness of Steel (mils)

Time	10	20	30	40	50	60	70
1 second	38.44%	20.75%	11.76%	6.82%	4.01%	2.39%	1.43%
30 minutes	35.52%	19.00%	10.83%	6.41%	3.89%	2.41%	1.52%
1 hour	37.10%	20.53%	12.05%	7.34%	4.59%	2.92%	1.88%
2 hours	38.62%	22.20%	13.46%	8.42%	5.39%	3.50%	2.30%
8 hours	36.91%	22.27%	14.05%	9.08%	5.96%	3.95%	2.64%
1 day	29.27%	17.77%	11.29%	7.33%	4.83%	3.22%	2.16%
7 days	13.58%	8.23%	5.23%	3.40%	2.24%	1.49%	1.00%
30 days	9.31%	5.64%	3.58%	2.33%	1.53%	1.02%	0.68%
90 days	8.68%	5.26%	3.34%	2.17%	1.43%	0.95%	0.64%
180 days	8.06%	4.88%	3.10%	2.01%	1.33%	0.88%	0.59%
365 days	7.05%	4.26%	2.70%	1.76%	1.16%	0.77%	0.52%

¹ Per Calculation RS-C-0046

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PIPES CONSIDERED IN CALCULATING OUTSIDE CONTAINMENT DOSES¹

System	Designation ²	Outside Diameter OD (inches)	Wall Thickness, T (inches)	OD/T
CC	M-14	4.5	0.438	10.3
CC	M-14	3.5	0.438	7.99
CC	M-14	2.0	0.344	5.81
CC	B-14	6.625	0.134	49.44
CC	B-14	8.625	0.148	58.28
SI	K-14	4.5	0.337	13.35
SI	B-14	4.5	0.12	37.5
SI	B-14	6.625	0.134	49.44
SI	K-14	2.375	0.276	8.61
SI	K-14	1.9	0.2	9.5
SI	K-14	1.05	0.154	6.82
RHR	G-14	14.0	0.438	31.96
RHR	G-14	3.5	0.216	16.20
RHR	G-14	8.625	0.322	26.79
CS	E-14	10.75	0.365	29.45
CS	E-14	8.625	0.322	26.79
CS	E-14	6.625	0.28	23.66
CS	E-14	3.5	0.216	16.20
CS	E-14	1.315	0.133	9.89
CS	B-14	8.625	0.148	58.28
CS	G-14	12.75	0.406	31.40
CS	G-14	2.375	0.154	15.42

Key:

CC - Centrifugal Charging

SI - Safety Injection


RHR - Residual Heat Removal

CS - Containment Spray

¹ AEP: NRC: 05781, Attachment 4

² Note: Pipe designation indicates materials of construction, seismic classification, and quality level. For further information, AEPSC specifications should be consulted.

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PEAK ENVIRONMENTAL QUALIFICATION CONDITIONS FOR HELB OUTSIDE CONTAINMENT

COMPARTMENT	TEMPERATURE (°F)	PRESSURE (psia)
East Main Steam Enclosure	440	18.7
West Main Steam Enclosure	485	20.6
Main Steam Accessway	347.8	18.2
Diesel Generator Pipe Tunnel	300	15.3
Turbine Driven Pump Room	298	16.7
ESW Tunnel	300	15.1
Turbine Room (Turbine Bldg. 609' Elev.)	473.8	15.45
Startup Blowdown Flashtank Room	216.5	15.2

NOTE:

Only major areas are identified in the table above.

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POSTULATED MAJOR HIGH ENERGY LINE BREAKS

System	Line Size (in)	No. of Line Breaks	Description/Location	Building	Area
MS	30	2	Containment Penetrations	Auxiliary	ESE
MS	30	2	Containment Penetrations	Auxiliary	WSE
MS	30	2	5-way Restraint	Auxiliary	ESE
MS	30	2	5-way Restraint	Auxiliary	WSE
MS	4	2	At 30 in. Header	Turbine	Near Main Turbine
MS	4	1	AFP Turbine	Turbine	TDAFP Room
FW	14	2	Containment Penetrations	Auxiliary	ESE
FW	14	2	Containment Penetrations	Auxiliary	WSE
FW	20	1	Heater 6 Nozzle	Turbine	Heater 6 (A&B)
AFW/FW	6	2	At 14 in. Heater	Auxiliary	ESE
AFW/FW	6	2	At 14 in. Heater	Auxiliary	WSE
CVCS-LD	2	1	Letdown Heat Exchanger	Auxiliary	Letdown Heat Exchanger Room

Notes:

1. Breaks in high energy systems that are not listed above are postulated to occur anywhere in the high energy portion of piping.

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WEST STEAM ENCLOSURE/MAIN STEAM ACCESSWAY VENT AREA AND VOLUME INPUTS TO TMD

Element No. ¹	Vent Area (ft ²)	Volume (ft ³)
1	Atmosphere	Atmosphere
2	827	2919
3	875	4737
4	988	5736
5	487	6145
6	336	3900
7	530	9078
8	816	9078
9	558	9078
10	258	2033
11	507	7006
12	320	3266

¹ Element numbers refer to Figures 14.4.6-1 and 14.4.6-2.

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EAST STEAM ENCLOSURE VENT AREA AND VOLUME INPUTS TO TMD

Element No.¹	Vent Area (ft²)	Volume (ft³)
1	Atmosphere	Atmosphere
2	898	4608
3	899	5102
4	880	4102
5	532	8145
6	547	7093
7	834	4041

¹ Element numbers refer to Figures 14.4.6-3 and 14.4.6-4.

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MODEL PARAMETERS **(WEST MAIN STEAM ENCLOSURE AND MAIN STEAM ACCESSWAY)**

LARGE BREAK

Element No.¹	Volume (ft³)	Height (ft)	Elevation (ft)	Heat Slab Area (ft²)
2	10600	29	633	2400
3	10600	29	633	2500
4	8400	11.5	621.5	1500
5	4500	21	600.5	3950
6	173000	20	587	3950
7	173000	20	587	1900
8	11300	18	662	1900
9	11300	18	662	

¹ Element numbers refer to Figure 14.4.6-5.

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MODEL PARAMETERS
(WEST MAIN STEAM ENCLOSURE AND MAIN STEAM ACCESSWAY)
SMALL BREAK

Element No.¹	Volume (ft³)	Height (ft)	Elevation (ft)
2	10600	29	633
3	10600	29	633
4	8400	11.5	622
5	4500	21	601
6	173000	20	587
7	173000	20	587
8	11300	18	664
9	11300	18	664

¹ Element numbers refer to Figure 14.4.6-5.

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**MODEL PARAMETERS
(EAST MAIN STEAM ENCLOSURE)
LARGE BREAK**

Element No. ¹	Volume (ft ³)	Height (ft)	Elevation (ft)	Heat Slab Area (ft ²)
2	10600	29	633	2250
3	10600	29	633	2550
4	8100	11.5	621.5	2500
5	5800	9.5	612	4700
6	9600	16.	612	1400
7	6900	18	662	1400
8	6900	18	662	
9				

¹ Element numbers refer to Figure 14.4.6-6.

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MODEL PARAMETERS
(EAST MAIN STEAM ENCLOSURE)
SMALL BREAK

Element No. ¹	Volume (ft ³)	Height (ft)	Elevation (ft)
2	10600	29	633
3	10600	29	633
4	8100	11.5	622
5	5800	9.5	612
6	9600	16.	612
7	6900	18	664
8	6900	18	664

¹ Element numbers refer to Figure 14.4.6-6.

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MASS AND ENERGY RELEASE FOR STEAM LINE BREAK IN MAIN STEAM ENCLOSURE LARGE BREAK

Time (sec)	Mass/Flow (lbm/sec)	Enthalpy (Btu/lbm)
0	0	1198
0.001 ¹	6508	1198
0.5	6508	1198
1.5	6124	1199
4.0	5599	1201
4.5	6091	1201
7.0	6091	1201
12.5	5788	1202
13.0	1976	1202
30.0	1158	1204
40.0	994.7	1204
60.0	890.3	1203
74.0	874.9	1205
75.0	866.8	1209
85.0	644.1	1245
95.0	256.2	1276
105.0	29.1	1294
200.0	29.2	1310
400.0	34.6	1312
600.0	34.6	1311
1800.00	34.6	1311
1800.01	0	1311
3600.0	0	1311

¹ Full break opening assumed in 0.001 sec.

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MASS AND ENERGY RELEASE FOR STEAM LINE BREAK IN MAIN STEAM ENCLOSURE SMALL BREAK

Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)
0.5	2102.	1196.
10.0	1832.	1199.
25.0	1645.	1201.
50.0	1575.	1202.
100.0	1568.	1202.
108.0	1568.	1202.
109.0	1673.	1201.
117.0	2057.	1197.
135.0	1823.	1200.
150.0	1642.	1202.
179.0	1453.	1203.
181.0	1447.	1204.
200.0	1410.	1208.
258.0	1099.	1238.
259.0	1089.	1239.
275.0	226.1	1281.
300.0	29.9	1296.
400.0	34.4	1297.
500.0	34.6	1298.
600.0	34.6	1299.

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FEEDWATER LINE BREAK AT THE CONTAINMENT PENETRATION (APPLICABLE TO EAST OR WEST STEAM ENCLOSURE)

Mass and Enthalpy Forward Flow

m = 4400 lbm/sec	} Energy Flow = 1.896×10^6
n = 431 Btu/lbm	

Back Flow

m = 6800 lbm/sec	} 3.713×10^6
n = 546 Btu/lbm	

25 seconds

Total = 5.609×10^6
(Up to 25 Seconds)

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STEAM LINE BREAK - FORWARD FLOW EAST/WEST STEAM ENCLOSURES (Pressure Response)

Time (sec)	Mass Flow 10 ³ lb/sec	Energy Release 10 ⁶ Btu/sec
0.0	5.55	6.62
0.1	4.15	4.94
0.2	3.05	3.64
0.4	2.95	3.52
0.6	2.90	3.46
0.8	2.78	3.31
1.0	2.75	3.28
1.5	2.67	3.19
2.0	3.45	3.38
2.5	9.50	5.26
3.0	9.42	5.21
3.5	9.38	5.19
4.0	9.33	5.16
4.5	9.28	5.13
5.0	9.23	5.10
5.5	9.16	5.07
6.0	9.10	5.04
6.5	9.03	5.01
7.0	8.95	4.97
7.5	8.86	4.93
8.0	8.80	4.91
8.5	8.70	4.86
9.0	8.58	4.81
9.5	8.46	4.76
10.0	8.33	4.70

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STEAM LINE BREAK - FORWARD FLOW EAST/WEST STEAM ENCLOSURES **(Pressure Response)**

Time (sec)	Mass Flow 10³ lb/sec	Energy Release 10⁶ Btu/sec
12.0	7.67	4.42
14.0	6.75	4.05
16.0	5.49	3.53
18.0	4.04	2.95
19.0	3.37	2.67

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EAST STEAM ENCLOSURE STEAMLINE BREAK - BACKFLOW
(PRESSURE RESPONSE)

Time (sec)	Mass Flow 10³ lb/sec	Energy Release 10⁶ Btu/sec
0.0	7.54	8.99
0.1	5.09	6.07
0.2	4.61	5.50
0.3	4.41	5.26
0.4	4.34	5.17
0.5	4.26	5.08
0.6	4.19	4.99
0.7	4.36	5.20
0.8	4.80	5.72
0.9	4.78	5.70
1.0	4.77	5.69
1.5	4.90	5.84
2.0	5.00	5.96
2.5	4.75	5.66
3.0	4.71	5.61
3.5	4.65	5.54
4.0	4.59	5.47
4.5	4.52	5.39
5.0	4.35	5.19
5.5	4.15	4.95
6.0	3.98	4.75
6.5	3.96	4.72
7.0	4.26	4.50

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EAST STEAM ENCLOSURE STEAMLINE BREAK - BACKFLOW (PRESSURE RESPONSE)

Time (sec)	Mass Flow 10^3 lb/sec	Energy Release 10^6 Btu/sec
7.5	4.93	4.70
8.0	5.71	5.03
8.5	6.45	5.37
9.0	7.14	5.81
9.5	7.70	6.05
10.0	8.23	6.39

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WEST STEAM ENCLOSURE STEAMLINER BREAK - BACKFLOW (PRESSURE RESPONSE)

Time (sec)	Mass Flow 10 ³ lb/sec	Energy Release 10 ⁶ Btu/sec
0.0	7.54	8.99
0.1	5.09	6.07
0.2	4.61	5.50
0.3	4.41	5.26
0.4	4.30	5.13
0.5	4.58	5.46
0.6	4.97	5.92
0.7	5.09	6.07
0.8	5.11	6.09
0.9	5.13	6.11
1.0	5.07	6.04
1.5	5.29	6.31
2.0	5.11	6.10
2.5	4.96	5.91
3.0	4.93	5.88
3.5	4.81	5.77
4.0	4.68	5.58
4.5	4.59	5.47
5.0	4.53	5.40
5.5	4.65	5.16
6.0	5.28	5.17
6.5	5.90	5.55
7.0	6.46	5.78
7.5	6.88	5.93

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WEST STEAM ENCLOSURE STEAMLINER BREAK - BACKFLOW (PRESSURE RESPONSE)

Time (sec)	Mass Flow 10^3 lb/sec	Energy Release 10^6 Btu/sec
8.0	7.32	6.10
8.5	7.79	6.32
9.0	8.23	6.53
9.5	8.61	6.72
10.0	8.92	6.88

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**FEEDWATER LINE BREAK AT THE TEE BETWEEN THE 20 INCH AND 30 INCH
LINES, 20 INCH LINE RUNNING TO STEAM GENERATORS 2 AND 3
(APPLICABLE TO MAIN STEAM ACCESSWAY)**

Mass and Enthalpy

Forward Flow

m = 9050 lbm/sec

n = 431 Btu/lbm

Back Flow

m = 9050 lbm/sec

n = 431 Btu/lbm

1.5 seconds

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RELATION OF NODE CALCULATED PRESSURE TO PRESSURE CAPABILITY OF SLABS

Area	Node Number	Long Term Pressure Following Anticipated Transient Psi ¹	Weakest Slab Capability for Static Differential Pressure Psi
East Steam Enclosure	2	5.5	13.4
(See Figure 14.4.6-3)	3	5.5	11.6
	4	5.5	11.6
	5	5.5	11.6 ²
	6	5.5	11.6 ⁽²⁾
	7	5.5	13.4
West Steam Enclosure	2	4.7	10.9 ⁽¹⁾
(See Figure 14.4.6-1)	3	4.7	10.9 ⁽¹⁾
	4	4.7	22.1
	5	4.7	4.5 ³ (W SL1)
	6	4.7	26.2
	11	4.7	4.5 ⁽³⁾ (W SL1)
	12	4.7	22.1
Main Steam Accessway	7	5.8	9.3
(See Figure 14.4.6-1)	8	5.3	9.3
	9	5.1	9.4
	10	1.0	15.7

¹ Tables 14.4.6-18, -19 and -20 show results of dynamic analyses for the respective slabs.

² Other than lightly reinforced portion panel section E-W4, which will be allowed to fail without causing any damage to equipment required to safely shutdown the plant.

³ See Section 14.4.9.

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PEAK PRESSURE DIFFERENTIAL MAIN STEAM LINE BREAK WEST STEAM ENCLOSURE

Element No. ¹	Peak Pressure Differential (psi)
1	0
2	11.9
3 (Break Location)	11.3
4	8.7
5	11.7
6	6.2
7	4.2
8	4.1
9	3.7
10	.65
11	8.8
12	7.6

¹ Element numbers refer to Figure 14.4.6-1.

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PEAK DIFFERENTIAL PRESSURE FEEDWATER LINE BREAK IN WEST STEAM ENCLOSURE

Element No. ¹	Peak Pressure (psig)
1	0
2	4.2
3 (Break Location)	4.3
4	2.7
5	3.7
6	2.1
7	1.7
8	1.6
9	1.4
10	.3
11	3.2
12	2.6

¹ Element numbers refer to Figure 14.4.6-1.

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PEAK DIFFERENTIAL PRESSURE FEEDWATER LINE BREAK IN MAIN STEAM ACCESSWAY

Element No. ¹	Peak Pressure (psi)
1	0
2	1.8
3	1.8
4	1.8
5	2.0
6	2.5
7 (Break Location)	5.8
8	5.3
9	5.1
10	1.0
11	2.0
12	1.8

¹ Element numbers refer to Figure 14.4.6-1.

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PEAK DIFFERENTIAL PRESSURE MAIN STEAM LINE BREAK IN EAST STEAM ENCLOSURE

Element No. ¹	Peak Pressure (psi)
1	0
2	7.7
3	7.8
4 (Break Location)	11.8
5	8.3
6	12.0
7	11.0

¹ Element numbers refer to Figure 14.4.6-3.

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PEAK DIFFERENTIAL PRESSURE FEEDWATER LINE BREAK IN EAST STEAM ENCLOSURE

Element No. ¹	Peak Pressure (psig)
1	0
2	2.7
3	2.8
4 (Break Location)	4.1
5	3.0
6	4.2
7	3.9

¹ Element numbers refer to Figure 14.4.6-3.

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RELATION OF NODES USED IN MAIN STEAM ACCESSWAY ANALYSIS TO PANEL IDENTIFICATION PRESENTED IN TABLE 14.4.6-17

Node No. ¹	Affected Slabs
7	W-SL3, W-SL4, W-WN3, W-WS7, WS9, W-W7
8	W-SL3, W-SL4, W-SL5, W-WN3, W-WS7, W-WS8, W-WS9
9	W-SL3, W-SL5, W-WN4, W-WN3, W-WS8, W-WS9, W-WS10
10	W-W8, W-W9, W-WN4, W-W10, W-W9A

¹ Node numbers refer to Figure 14.4.6-1.

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PRESSURE CAPABILITY OF WALLS & SLABS AROUND MAIN STEAM LINE ENCLOSURE EAST OF CONTAINMENT

1. MATERIAL PROPERTIES

- a. Concrete $f'_c = 3500$ psi;
- b. Reinforcing steel $f_y = 40000$ psi

2. PRESSURE CAPABILITIES TABULATED

- a. Are ultimate values under static conditions;
- b. Do not include any other loading condition

Panel ID	Thickness (in.)	Pressure Capability (psi)	Remarks
E-SL2	12	11.6	Punching Shear Around Col. Governs
E-SL3	30	72.5 ¹	
E-WN1	24	16.1 ⁽¹⁾	
E-WN2	24	80.0 ⁽¹⁾	
E-WS1	24	16.0 ⁽¹⁾	
E-WS2	24	83.2 ⁽¹⁾	
E-W1	24	13.4 ⁽¹⁾	
E-W2	24	78.0 ⁽¹⁾	
E-W3	24	11.6 ⁽¹⁾	E-W3 & E-W4, both curved are solved using planar projections
E-W4	24	4.5	Critical Value of 4.5 PSI. Results from 1 way action of lightly reinforced portion of panel between the two large openings. The side portions of the panel have capability of 86.1 ⁽¹⁾

See Figure 14.4.6-3 for wall and slab identification.

¹ Indicates diagonal tension failure governs.

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RELATION OF NODES USED IN EAST STEAM ENCLOSURE ANALYSIS TO PANEL IDENTIFICATION PRESENTED IN TABLE 14.4.6-15

Node No. ¹	Affected Slabs
2	E-WS1, E-W1
3	E-WS1, E-W3
4	E-WS3, E-WN1
5	E-W1, E-WS1, E-SL2, E-W4, E-W3, E-WS2, E-W2
6	E-W3, E-W4, E-SL2, E-WN1, E-WN2, E-W1, E-W2
7	E-W1, E-WN1

¹ Node numbers refer to Figure 14.4.6-3.

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PRESSURE CAPABILITY OF WALLS AND SLABS AT MAIN STEAM ENCLOSURE WEST OF CONTAINMENT

1. MATERIAL PROPERTIES

- a. Concrete $f'_c = 3500$ psi;
- b. Reinforcing steel $f_y = 40000$ psi

2. PRESSURE CAPABILITIES TABULATED

- a. Are ultimate values under static conditions;
- b. Do not include any other loading condition

Panel ID	Thickness (in.)	Pressure Capability (psi)	Remarks
W-SL1	12	4.5	
W-SL2	12	26.2 ¹	
W-WN1	24	10.9	
W-WN2	24	48.6 ⁽¹⁾	
W-WS1	24	36.7	
W-WS2	24	22.1	
W-WS3	24	46.4	
W-WS4	24	62.7	
W-WS5	12	40.2 ⁽¹⁾	
W-WS6	12	34.9 ⁽¹⁾	
W-W1	12	27.3	
W-W2	12	26.8 ⁽¹⁾	
W-W3	36	54.9	
W-W4	36	36.5 ⁽¹⁾	
W-W5	36	84.5	
W-W6	36	113.1	
W-W7	36	121.6 ⁽¹⁾	

See Figure 14.4.2-10 for wall and slab identification.

¹ Indicates diagonal tension failure governs

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RELATION OF NODES USED IN WEST STEAM ENCLOSURE ANALYSIS TO PANEL IDENTIFICATION PRESENTED IN TABLE 14.4.6-16

Node No. ¹	Affected Slabs
2	W-W3, W-W4, W-W5, W-WN1
3	W-WN1
4	W-WS1, W-WS2
5	W-W4, W-W5, W-WN1, W-SL1
6	W-W5, W-W6, W-WN2, W-SL2, W-WS6, W-WS5
11	W-W4, W-W5, W-SL1, W-WS2, W-WS3
12	W-WS1, W-WS2, W-W3, W-W4

¹ Node numbers refer to Figure 14.4.6-1.

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PRESSURE CAPABILITY OF WALLS AND SLABS OF AUXILIARY BUILDING ADJACENT TO MAIN STEAM LINE ACCESSWAY


- 1. MATERIAL PROPERTIES**
 - a. Concrete $f'_c = 3500$ psi;
 - b. Reinforcing steel $f_y = 40000$ psi
- 2. PRESSURE CAPABILITIES TABULATED**
 - a. Are ultimate values under static conditions;
 - b. Do not include any other loading condition

Panel ID	Thickness (in.)	Pressure Capability (psi)	Remarks
W-SL3	24	9.8 ¹	
W-SL4	12	46.5 ⁽¹⁾	
W-SL5	12	47.9 ⁽¹⁾	
W-WN3	36	37.4 ⁽¹⁾	
W-WN4	36	126.0 ⁽¹⁾	
W-WS7	12	9.3	
W-WS8	12	9.4	
W-WS9	28	26.6 ⁽¹⁾	
W-W8	12	15.7	
W-W9	12	41.0	
W-W10	42	30.0	
W-W9A	12	38.4	

See Figure 14.4.8-1 for layout and identification of walls and slabs.

¹ Indicates diagonal tension failure governs

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EFFECTS OF PRESSURES AND CIRCUMFERENTIAL BREAK IMPINGEMENT LOADS ON WALLS AND SLABS

(1) PANELS AT MAIN STEAM LINES ENCLOSURE EAST OF CONTAINMENT

Panel Identification	Governing Pipe Break	Peak Applied Impingement Force (Kips)	Peak Applied Pressure (Psi)	Required Ductility Factor	Allowable Ductility Factor	Adequacy of Panel	Remarks
E-SL2	4F (MSB)	0	12.0	2.33	3.0	O.K.	
E-SL3	4F (MSB)	0	12.0	1.00	3.0	O.K.	
W-WN1	4G (MSB)	0	12.0	1.42	3.00	O.K.	Assuming 4G has same pressure build up as 4F
E-WN2	4F (MSB)	0	12.0	1.00	3.00	O.K.	
E-WN1	1C (MSB)	0	12.0	1.42	2.00	O.K.	Assuming 1C has same pressure build up as 1F
E-WS2	1F (MSB)	0	12.0	1.00	3.00	O.K.	
E-W1	1F or 4F (MSB)	0	12.0	2.13	3.00	O.K.	
E-W2	1F or 4F (MSB)	0	12.0	1.00	3.00	O.K.	
E-W3	1F or 4F (MSB)	0	12.0	1.51	3.00	O.K.	
E-W4	1F or 4F	0	12.0	1.00	3.00	O.K.	Assuming central portion of panel is allowed to fail, but the larger side portions are adequate

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EFFECTS OF PRESSURES AND CIRCUMFERENTIAL BREAK IMPINGEMENT LOADS ON WALLS AND SLABS

(2) PANELS AT MAIN STEAM LINES ENCLOSURE WEST OF CONTAINMENT

Panel Identification	Governing Pipe Break	Peak Applied Impingement Force (Kips)	Peak Applied Pressure (Psi)	Required Ductility Factor	Allowable Ductility Factor	Adequacy of Panel	Remarks
W-SL1	2E or 3E (MSB)	0	11.7	60.44	10.0	N.G	Slab modified and determined to be acceptable (see 14.4.9.1)
W-SL2	2E or 3E (MSB)	0	6.2	1.00	3.00	O.K.	
W-WN1	3D (MSB)	0	11.9	2.56	10.00	O.K.	Assuming 3D has same pressure build up as 3E
W-WN2	2E or 3E (MSB)	0	6.2	1.00	3.00	O.K.	
W-WS1	2E (MSB)	0	11.9	1.00	10.00	O.K.	
W-WS2	2D (MSB)	0	11.9	1.00	10.00	O.K.	Assuming 2D has same pressure build up as 2E
W-WS3	2E (MSB)	0	11.7	1.00	10.00	O.K.	
W-WS4							Not affected by any pipe break within the west enclosure
W-WS5	2E or 3E (MSB)	0	6.2	1.00	3.00	O.K.	
W-WS6	2E or 3E (MSB)	0	6.2	1.00	3.00	O.K.	
W-W1	2E or 3E (MSB)	0	6.2	1.00	10.0	O.K.	

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EFFECTS OF PRESSURES AND CIRCUMFERENTIAL BREAK IMPINGEMENT LOADS ON WALLS AND SLABS

(2) PANELS AT MAIN STEAM LINES ENCLOSURE WEST OF CONTAINMENT

Panel Identification	Governing Pipe Break	Peak Applied Impingement Force (Kips)	Peak Applied Pressure (Psi)	Required Ductility Factor	Allowable Ductility Factor	Adequacy of Panel	Remarks
W-W2	2E or 3E (MSB)	0	6.2	1.00	3.00	O.K.	
W-W3	2E or 3F (MSB)	0	11.9	1.00	10.00	O.K.	
W-W4	2E or 3E (MSB)	0	11.9	1.00	3.00	O.K.	
W-W5	2E or 3E (MSB)	0	11.9	1.00	10.00	O.K.	
W-W6	2E or 3E (MSB)	0	11.9	1.00	10.00	O.K.	

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EFFECTS OF PRESSURES AND CIRCUMFERENTIAL BREAK IMPINGEMENT LOADS ON WALLS AND SLABS

⁽³⁾ AUXILIARY BUILDING PANELS ADJACENT TO MAIN STEAM LINES ACCESSWAY

Panel Identification	Governing Pipe Break	Peak Applied Impingement Force (Kips)	Peak Applied Pressure (Psi)	Required Ductility Factor	Allowable Ductility Factor	Adequacy of Panel	Remarks
W-SL3	F8 (FWB)	355	5.8	1.00	3.00	O.K.	
W-SL4	F8 (FWB)	0	5.8	1.00	3.00	O.K.	
W-SL5	F8 (FWB)	0	5.3	1.00	3.00	O.K.	
W-WN3	F8 (FWB)	0	5.8	1.00	3.00	O.K.	
W-WN4	F8 (FWB)	0	1.0	1.00	3.00	O.K.	
W-WS7	F8 (FWB)	0	5.8	1.17	10.00	O.K.	
W-WS8	F8 (FWB)	0	5.8	1.05	10.00	O.K.	
W-WS9	F8 (FWB)	0	5.8	1.00	3.00	O.K.	
W-W7	F8 (FWB)	0	5.8	1.00	3.00	O.K.	
W-W8	F8 (FWB)	0	1.0	1.00	10.00	O.K.	
W-W9	F8 (FWB)	0	1.0	1.00	10.00	O.K.	
W-W9A	F8 (FWB)	0	1.0	1.00	10.00	O.K.	
W-W10	F10 (FWB)	355	5.1	1.00	10.00	O.K.	Assuming F10 has same pressure build up as F8

⁽³⁾ MSB = main steam line break
FWB = feedwater line break
N.G. = no good

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PANELS TO BE PROTECTED FROM MAIN STEAM LINE LONGITUDINAL BREAKS

Longitudinal Breaks	Panels To Be Protected	Remarks
1F	E-SL1, E-WN1, E-WS1	
4F	E-SL2, E-WN1, E-WS1	
1G	E-SL2, E-W1	
4G	E-SL2, E-W1	
2E	W-WS2, W-SL1, W-WN1	
3E	W-WS2, W-SL1, W-WN1	
2D	W-SL1, W-W4	
3D	W-SL1, W-W4	


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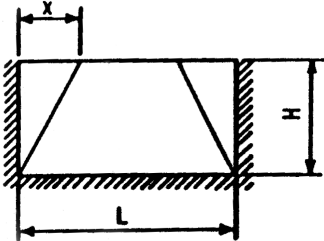
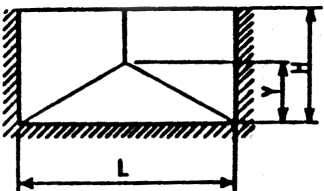
FEEDWATER LINE BREAKS

Longitudinal Breaks	Panels To Be Protected	Remarks
F26, F25	E-SL2	
F15, F16, F17	W-SL1	Calculations made for F15
F9, F10, F11, F12, F13	W-WS7	Calculations made for F9 only


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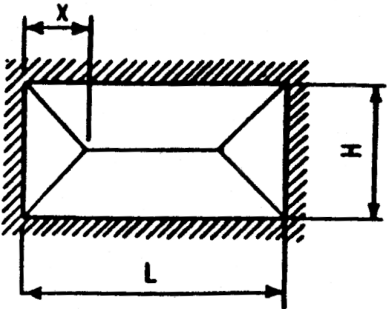
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ULTIMATE SHEAR STRESS AT DISTANCE d_e FROM THE SUPPORTS FOR TWO-WAY ELEMENTS

I. THREE EDGES FIXED AND ONE EDGE FREE	LIMITS	ULTIMATE HORIZONTAL SHEAR STRESS (V_μ)H	LIMITS	ULTIMATE VERTICAL SHEAR STRESS(V_μ)r
	$\frac{L}{2}$	$\frac{3r_\mu \left(1 - \frac{d_e}{x}\right)^2}{\frac{d_e}{x} \left(5 - \frac{4d_e}{x}\right)}$	$0 \leq d_e/H \leq \frac{1}{2}$	$\frac{3r_\mu \left(1 - \frac{d_e}{H}\right) \left(1 - \frac{x}{L} - d_e \frac{x}{HL}\right)}{\frac{d_e}{H \left(3 - \frac{x}{L} - 4d_e \frac{x}{HL}\right)}}$
	l	$\frac{r_\mu \left(1 - \frac{d_e}{x}\right)}{2 \left(\frac{d_e}{x}\right)}$	$\frac{1}{2} \leq d_e/H \leq 1$	$\frac{r_\mu \left(1 - \frac{d_e}{H}\right) \left(1 - \frac{x}{L} - d_e \frac{x}{HL}\right)}{\frac{d_e}{H \left(1 - 2d_e \frac{x}{HL}\right)}}$
	$\frac{L}{4}$	$\frac{3r_\mu \left(1 - \frac{2d_e}{L}\right) \left(2 - \frac{y}{H} - 2d_e \frac{y}{LH}\right)}{2d_e \left(6 - \frac{y}{H} - 8d_e \frac{y}{LH}\right)}$	$0 \leq d_e/y \leq 1$	$\frac{3r_\mu \left(1 - \frac{d_e}{y}\right)^2}{\frac{d_e}{y \left(5 - 4 \frac{d_e}{y}\right)}}$
	$\frac{1}{2}$	$\frac{r_\mu \left(1 - \frac{2d_e}{L}\right) \left(2 - \frac{y}{H} - 2d_e \frac{y}{LH}\right)}{4d_e \left(1 - 2d_e \frac{y}{LH}\right)}$	$\frac{1}{2} \leq d_e/y \leq 1$	$\frac{r_\mu \left(1 - \frac{d_e}{y}\right)}{\frac{2d_e}{y}}$

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II. FOUR EDGES FIXED	NOTE: L MAY EITHER BE LONGER OR SHORTER THAN H	
	$\frac{3r_{\mu}\left(1 - \frac{d_e}{x}\right)^2}{d_e x \left(5 - 4\frac{d_e}{x}\right)}$	$0 \leq d_e / H \leq \frac{1}{4}$
	$\frac{r_{\mu}\left(1 - \frac{d_e}{x}\right)}{2\left(\frac{d_e}{x}\right)}$	$\frac{1}{4} \leq d_e / H \leq \frac{1}{2}$

r_{μ} = ULTIMATE PRESSURE LOAD ON ELEMENT d_e = EFFECTIVE DEPTH OF ELEMENT

NOTE: EXPRESSIONS IN THIS TABLE ARE TAKEN FROM REF. 2

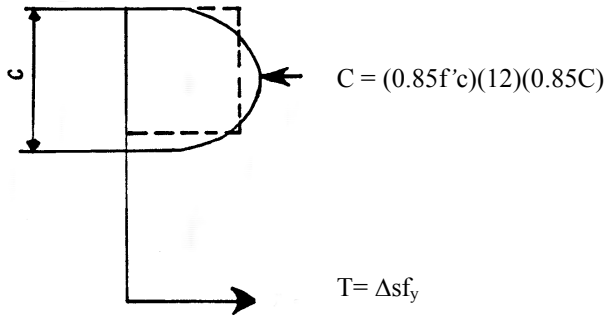
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Material Properties

Concrete: $f'_c = 3500$ psi
Reinforcing Steel: $f_y = 40,000$ psi

Ultimate Moment of 1 ft wide Rectangular Section



$$T = C$$

$$C = \frac{\Delta sf_y}{(0.85f'_c)(12)(0.85)}$$

$$M_u = T(d - 0.425c)$$

$$\text{After Substitutions, } M_u = 3.33\Delta s(d - 0.56\Delta s) \quad (1)$$

Permissible Diagonal Tension Shear Stress

$$V_c = \phi \left[1.9\sqrt{f'_c} + 2500\rho \right] \leq 2.28\phi\sqrt{f'_c} \quad (2)$$

Permissible Punching Shear Stress

$$V_c = 4\phi\sqrt{f'_c} \quad (3)$$

Strength Increase Due to Dynamic Effects (Ref: 2)


(1) Where shear or diagonal tension governs, no increase is allowed.

(2) Where flexure governs, the following increases were used:

$$\Delta f'_c = +25\%, \quad \Delta f_y = +10\%$$

Ultimate Moment of 1 ft Wide Rectangular Section: $M_u = 3.67\Delta s(d - 0.49\Delta s)$

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Peak Environmental Qualification Conditions for LOCA, MSLB, and Feedwater Line Break Inside Containment

LOCA

Location	Temperature (°F)	Pressure (psig)
Upper Compartment	160 ¹	11.6 ²
Lower Compartment	235 ³	11.6 ²
Instrument and F/A Room	235 ^{4,3}	13.9 ⁵

MSLB and Feedwater Line Break

Location	Temperature (°F)	Pressure (psig)
Upper Compartment	135 (U1) ⁶ , 128 (U2) ⁶	20.8 ⁵
Lower Compartment	325 ⁷	20.8 ⁵

¹ UFSAR Figure 14.3.4-7

² UFSAR Figure 14.3.4-6A

³ UFSAR Figure 14.3.4-8

⁴ Deleted

⁵ UFSAR Table 14.3.4-40 reports this value calculated for the Steamline Break in the Steam Generator Doghouse. The Steam Generator Doghouse peak pressure is a bounding value for Upper and Lower Containment.

⁶ UFSAR Figure 14.3.4-11 (Unit 1) and Figure 14.3.4-11A (Unit 2)

⁷ UFSAR Figure 14.3.4-12 (Unit 1) and Figure 14.3.4-12B (Unit 2)

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AIRBORNE SOURCE TERM DOSES AND DOSE RATES

Containment Centerline Dose Rates and Doses ¹						
Time	Gamma Dose Rate [rad/hr]	Beta Dose Rate [rad/hr]	Total Dose Rate [rad/hr]	Gamma Dose [rad]	Beta Dose [rad]	Total Dose [rad]
1 second	4.293E+06	2.028E+07	2.46E+07	5.962E+02	2.817E+03	3.41E+03
30 minutes	1.905E+06	7.674E+06	9.58E+06	1.330E+06	5.196E+06	6.53E+06
1 hour	1.418E+06	6.592E+06	8.01E+06	2.145E+06	8.756E+06	1.09E+07
2 hours	9.818E+05	4.849E+06	5.83E+06	3.319E+06	1.443E+07	1.77E+07
8 hours	4.013E+05	1.508E+06	1.91E+06	6.889E+06	3.046E+07	3.73E+07
1 day	2.181E+05	5.753E+05	7.93E+05	1.131E+07	4.382E+07	5.51E+07
7 days	8.274E+04	2.350E+05	3.18E+05	3.014E+07	9.492E+07	1.25E+08
30 days	4.543E+03	1.708E+04	2.16E+04	4.480E+07	1.385E+08	1.83E+08
90 days	3.484E+01	5.456E+03	5.49E+03	4.580E+07	1.487E+08	1.94E+08
180 days	2.515E+01	5.352E+03	5.38E+03	4.586E+07	1.603E+08	2.06E+08
365 days	2.431E+01	5.175E+03	5.20E+03	4.597E+07	1.837E+08	2.30E+08
Inside Containment Wall Surface Dose Rates and Doses ⁽¹⁾						
Time	Gamma Dose Rate [rad/hr]	Beta Dose Rate [rad/hr]	Total Dose Rate [rad/hr]	Gamma Dose [rad]	Beta Dose [rad]	Total Dose [rad]
1 second	3.408E+06	2.028E+07	2.37E+07	4.734E+02	2.817E+03	3.29E+03
30 minutes	1.906E+06	7.674E+06	9.58E+06	1.205E+06	5.196E+06	6.40E+06
1 hour	1.499E+06	6.592E+06	8.09E+06	2.046E+06	8.756E+06	1.08E+07
2 hours	1.080E+06	4.849E+06	5.93E+06	3.314E+06	1.443E+07	1.77E+07
8 hours	4.627E+05	1.508E+06	1.97E+06	7.346E+06	3.046E+07	3.78E+07
1 day	2.259E+05	5.753E+05	8.01E+05	1.228E+07	4.382E+07	5.61E+07
7 days	6.730E+04	2.350E+05	3.02E+05	2.832E+07	9.492E+07	1.23E+08
30 days	5.276E+03	1.708E+04	2.24E+04	4.141E+07	1.385E+08	1.80E+08
90 days	3.538E+01	5.456E+03	5.49E+03	4.274E+07	1.487E+08	1.91E+08
180 days	1.313E+01	5.352E+03	5.37E+03	4.277E+07	1.603E+08	2.03E+08
365 days	1.268E+01	5.175E+03	5.19E+03	4.283E+07	1.837E+08	2.27E+08

¹ Per Calculation RS-C-0046

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SUBMERGED LOWER VOLUME / CONTAINMENT SUMP DOSE RATES & DOSES¹

Time	Gamma Dose Rate (rad/hr)	Beta Dose Rate (rad/hr)	Total Dose Rate (rad/hr)	Gamma Dose (rad)	Beta Dose (rad)	Total Dose (rad)
1 second	1.201E+06	1.791E+05	1.38E+06	1.668E+02	2.488E+01	1.92E+02
30 minutes	9.675E+05	1.388E+05	1.11E+06	5.377E+05	7.812E+04	6.16E+05
1 hour	8.100E+05	1.177E+05	9.28E+05	9.799E+05	1.418E+05	1.12E+06
2 hours	6.118E+05	9.462E+04	7.06E+05	1.682E+06	2.467E+05	1.93E+06
8 hours	2.834E+05	5.775E+04	3.41E+05	4.061E+06	6.719E+05	4.73E+06
1 day	1.315E+05	3.291E+04	1.64E+05	7.072E+06	1.364E+06	8.44E+06
7 days	3.467E+04	8.429E+03	4.31E+04	1.511E+07	3.346E+06	1.85E+07
30 days	9.922E+03	3.262E+03	1.32E+04	2.527E+07	6.123E+06	3.14E+07
90 days	3.470E+03	1.753E+03	5.22E+03	3.307E+07	9.351E+06	4.24E+07
180 days	1.733E+03	1.221E+03	2.95E+03	3.838E+07	1.249E+07	5.09E+07
365 days	7.349E+02	7.538E+02	1.49E+03	4.328E+07	1.673E+07	6.00E+07

¹ Per Calculation RS-C-0046

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BETA DOSE FACTORS¹

DOSE FROM AIRBORNE SOURCE AFTER ATTENUATION (PERCENTAGE OF DOSE PASSING THROUGH SHIELD)

Thickness of Unit Density Material (mils)

Time	10	20	30	40	50	60	70
1 second	78.68%	68.30%	60.73%	54.66%	49.58%	45.22%	41.38%
30 minutes	75.18%	64.48%	56.96%	51.04%	46.14%	41.94%	38.30%
1 hour	75.37%	65.13%	57.92%	52.22%	47.48%	43.41%	39.83%
2 hours	75.21%	65.41%	58.57%	53.16%	48.62%	44.71%	41.28%
8 hours	70.04%	60.58%	54.41%	49.62%	45.62%	42.23%	39.24%
1 day	58.35%	48.97%	43.53%	39.50%	36.24%	33.49%	31.11%
7 days	31.56%	23.58%	20.49%	18.47%	16.88%	15.57%	14.44%
30 days	24.49%	16.73%	14.23%	12.73%	11.60%	10.68%	9.90%
90 days	24.78%	16.40%	13.60%	12.01%	10.87%	9.98%	9.24%
180 days	25.51%	16.28%	13.08%	11.34%	10.18%	9.30%	8.59%
365 days	26.67%	16.08%	12.22%	10.24%	9.03%	8.18%	7.52%

¹ Per Calculation RS-C-0046

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BETA DOSE FACTORS¹

DOSE FROM AIRBORNE SOURCE AFTER ATTENUATION (PERCENTAGE OF DOSE PASSING THROUGH SHIELD)

Thickness of Aluminum (mils)

Time	10	20	30	40	50	60	70
1 second	62.82%	47.77%	37.66%	30.25%	24.53%	20.03%	16.43%
30 minutes	59.01%	44.39%	34.79%	27.80%	22.49%	18.33%	15.05%
1 hour	59.89%	45.77%	36.38%	29.42%	24.07%	19.84%	16.46%
2 hours	60.44%	46.99%	37.93%	31.11%	25.77%	21.51%	18.05%
8 hours	56.09%	44.21%	36.31%	30.30%	25.53%	21.64%	18.42%
1 day	44.98%	35.09%	28.78%	24.07%	20.33%	17.27%	14.74%
7 days	21.26%	16.33%	13.36%	11.16%	9.42%	8.00%	6.83%
30 days	14.81%	11.21%	9.15%	7.65%	6.45%	5.48%	4.68%
90 days	14.25%	10.50%	8.53%	7.12%	6.01%	5.11%	4.36%
180 days	13.81%	9.80%	7.93%	6.61%	5.58%	4.74%	4.04%
365 days	13.09%	8.65%	6.92%	5.77%	4.87%	4.14%	3.53%

¹ Per Calculation RS-C-0046

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BETA DOSE FACTORS¹

DOSE FROM AIRBORNE SOURCE AFTER ATTENUATION (PERCENTAGE OF DOSE PASSING THROUGH SHIELD)

Thickness of Steel (mils)

Time	10	20	30	40	50	60	70
1 second	38.44%	20.75%	11.76%	6.82%	4.01%	2.39%	1.43%
30 minutes	35.52%	19.00%	10.83%	6.41%	3.89%	2.41%	1.52%
1 hour	37.10%	20.53%	12.05%	7.34%	4.59%	2.92%	1.88%
2 hours	38.62%	22.20%	13.46%	8.42%	5.39%	3.50%	2.30%
8 hours	36.91%	22.27%	14.05%	9.08%	5.96%	3.95%	2.64%
1 day	29.27%	17.77%	11.29%	7.33%	4.83%	3.22%	2.16%
7 days	13.58%	8.23%	5.23%	3.40%	2.24%	1.49%	1.00%
30 days	9.31%	5.64%	3.58%	2.33%	1.53%	1.02%	0.68%
90 days	8.68%	5.26%	3.34%	2.17%	1.43%	0.95%	0.64%
180 days	8.06%	4.88%	3.10%	2.01%	1.33%	0.88%	0.59%
365 days	7.05%	4.26%	2.70%	1.76%	1.16%	0.77%	0.52%

¹ Per Calculation RS-C-0046

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PIPES CONSIDERED IN CALCULATING OUTSIDE CONTAINMENT DOSES¹

System	Designation ²	Outside Diameter OD (inches)	Wall Thickness, T (inches)	OD/T
CC	M-14	4.5	0.438	10.3
CC	M-14	3.5	0.438	7.99
CC	M-14	2.0	0.344	5.81
CC	B-14	6.625	0.134	49.44
CC	B-14	8.625	0.148	58.28
SI	K-14	4.5	0.337	13.35
SI	B-14	4.5	0.12	37.5
SI	B-14	6.625	0.134	49.44
SI	K-14	2.375	0.276	8.61
SI	K-14	1.9	0.2	9.5
SI	K-14	1.05	0.154	6.82
RHR	G-14	14.0	0.438	31.96
RHR	G-14	3.5	0.216	16.20
RHR	G-14	8.625	0.322	26.79
CS	E-14	10.75	0.365	29.45
CS	E-14	8.625	0.322	26.79
CS	E-14	6.625	0.28	23.66
CS	E-14	3.5	0.216	16.20
CS	E-14	1.315	0.133	9.89
CS	B-14	8.625	0.148	58.28
CS	G-14	12.75	0.406	31.40
CS	G-14	2.375	0.154	15.42

Key:

CC - Centrifugal Charging

SI - Safety Injection

RHR - Residual Heat Removal

CS - Containment Spray

¹ AEP: NRC: 05781, Attachment 4

² Note: Pipe designation indicates materials of construction, seismic classification, and quality level. For further information, AEPSC specifications should be consulted.

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PEAK ENVIRONMENTAL QUALIFICATION CONDITIONS FOR HELB OUTSIDE CONTAINMENT

COMPARTMENT	TEMPERATURE (°F)	PRESSURE (psia)
East Main Steam Enclosure	440	18.7
West Main Steam Enclosure	485	20.6
Main Steam Accessway	347.8	18.2
Diesel Generator Pipe Tunnel	300	15.3
Turbine Driven Pump Room	298	16.7
ESW Tunnel	300	15.1
Turbine Room (Turbine Bldg. 609' Elev.)	473.8	15.45
Startup Blowdown Flashtank Room	216.5	15.2

NOTE:

Only major areas are identified in the table above.