

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
12BQ017	56	FPCPS	water	6.0	no	no	FAL15AA003	inside	C	swing check	self	self	o/c	o/c	close	n/a	n/a	n/a	n/a	n/a
12BQ016	56	FPCPS	water	6.0	no	no	FAL12AA001	inside	C	gate/MOV	PS <sup>1</sup>	RM	o/c	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	34BRD
12BQ017	56	FPCPS	water	6.0	no	no	FAL15AA002	outside	C	gate/MOV	PS	RM	o/c	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	31BNB03
12BQ016	56	FPCPS	water	6.0	no	no	FAL12AA002	outside	C	gate/MOV	PS	RM	o/c	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	31BNB03
60BQ042	56	FHS (Transfer Tube)	air/water	20.0	no	no	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
74BQ034	57	DWDS	water	2.0	no	no	GHC74AA002	inside	C	globe/MOV	PS <sup>3</sup>	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BRD
74BQ034	57	DWDS	water	2.0	no	no	GHC74AA001	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
10BQ021	55	EBS loop 1&2	water	2.0	yes	no	JDH10AA007	inside	C	lift check	self	self	close	close	open	n/a	n/a	n/a	n/a	n/a
40BQ022	55	EBS loop 3&4	water	2.0	yes	no	JDH40AA007	inside	C	lift check	self	self	close	close	open	n/a	n/a	n/a	n/a	n/a
10BQ021	55	EBS loop 1&2	water	2.0	yes	no	JDH10AA006	outside	C	globe/MOV	PS	RM	open	open	open	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
40BQ022	55	EBS loop 3&4	water	2.0	yes	no	JDH40AA006	outside	C	globe/MOV	PS	RM	open	open	open	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
10BQ001	55	CVCS Seal Return	water	2.0	yes	no	JEW50AA001	inside	C	globe/MOV	PS	RM	open	close	o/c	as-is	Stage 2	≤ 0.5 sec	≤ 14.5 sec	34BRD
10BQ004	55	CVCS Seal Injection	water	2.0	yes	no	JEW01AA006	inside	C	lift check	self	self	open	close	o/c	n/a	n/a	n/a	n/a	n/a
10BQ001	55	CVCS Seal Return	water	2.0	yes	no	JEW50AA002	outside	C	globe/MOV	PS	RM	open	close	o/c	as-is	Stage 2	≤ 0.5 sec	≤ 14.5 sec	31BNB03

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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
10BQ004	55	CVCS Seal Injection	water	2.0	yes	no	JEW01AA005	outside	C	globe/MOV	PS	RM	open	close	o/c	as-is	Stage 2	≤ 0.5 sec	≤ 14.5 sec	31BNB03
60BQ054	56	Equip. Hatch	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BQ211	56	Personnel airlock	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BQ053	56	Emer. airlock	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BQ052	56	Const. Opening	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30BQ312	56	Leak Off System	air	0.5	no	no	JMM30AA001	inside	C	globe/manual	n/a	n/a	close	o/c	close	n/a	n/a	n/a	n/a	n/a
30BQ312	56	Leak Off system	air	0.5	no	no	JMM30AA003	outside	C	globe/manual	n/a	n/a	close	o/c	close	n/a	n/a	n/a	n/a	n/a
41BQ104	56	SAHRS Spray Line	water	8.0	no	no	JMQ41AA002	inside	C	swing check	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
41BQ104	56	SAHRS Spray Line	water	8.0	no	no	JMQ41AA001	outside	C	globe/MOV	PS	RM	close	close	o/c	as-is	Stage 1	≤ 0.5 sec	≤ 39.5 sec	34BNB03
42BQ105	56	SAHRS Basemat Cooling Line	water	8.0	no	no	JMQ42AA002	inside	C	swing check	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
42BQ105	56	SAHRS Basemat Cooling Line	water	8.0	no	no	JMQ42AA001	outside	C	globe/MOV	PS	RM	close	close	o/c	as-is	Stage 1	≤ 0.5 sec	≤ 39.5 sec	34BNB03
43BQ116	56	SAHRS Screen Flushing Line	water	4.0	no	no	JMQ43AA002	inside	C	swing check	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
43BQ116	56	SAHRS Screen Flushing Line	water	4.0	no	no	JMQ43AA001	outside	C	globe/MOV	PS	RM	open	close	o/c	as-is	Stage 1	≤ 0.5 sec	≤ 19.5 sec	34BNB03
50BQ150	56	HMS Anal 1	gas	0.125	no	no	JMU50AA075	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	33BNB03
50BQ150	56	HMS Anal 1	gas	0.125	no	no	JMU50AA077	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	33BNB03
50BQ150	56	HMS Anal 1	gas	0.125	no	no	JMU50AA079	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	33BNB03
50BQ150	56	HMS Anal 1	gas	0.125	no	no	JMU50AA081	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	33BNB03
50BQ150	56	HMS Anal 1	gas	0.125	no	no	JMU50AA076	outside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
50BQ150	56	HMS Anal 1	gas	0.125	no	no	JMU50AA078	outside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
50BQ150	56	HMS Anal 1	gas	0.125	no	no	JMU50AA080	outside	C	globe/SOV	PS	o/c	o/c	o/c	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
50BQ150	56	HMS Anal 1	gas	0.125	no	no	JMU50AA082	outside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
50BQ150	56	HMS Anal 1 Return	gas	0.125	no	no	JMU50AA083	outside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
50BQ150	56	HMS Anal 1 Return	gas	0.125	no	no	JMU50AA084	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	33BNB03
50BQ451	56	HMS Anal 2	gas	0.125	no	no	JMU51AA085	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	32BNB03
50BQ451	56	HMS Anal 2	gas	0.125	no	no	JMU51AA087	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	32BNB03
50BQ451	56	HMS Anal 2	gas	0.125	no	no	JMU51AA089	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	32BNB03

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
50BQ451	56	HMS Anal 2	gas	0.125	no	no	JMU51AA091	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	32BNB03
50BQ451	56	HMS Anal 2	gas	0.125	no	no	JMU51AA086	outside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
50BQ451	56	HMS Anal 2	gas	0.125	no	no	JMU51AA088	outside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
50BQ451	56	HMS Anal 2	gas	0.125	no	no	JMU51AA090	outside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
50BQ451	56	HMS Anal 2	gas	0.125	no	no	JMU51AA092	outside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
50BQ451	56	HMS Anal 2 Return	gas	0.125	no	no	JMU51AA093	outside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
50BQ451	56	HMS Anal 2 Return	gas	0.125	no	no	JMU51AA094	inside	C	globe/SOV	PS	RM	close	close	o/c	close	Stage 1	≤ 0.5 sec	≤ 14.5 sec	32BNB03
10BQ103	55	LHSI/RHR Train 1	water	10.0	yes	no	JNA10AA002	inside	C	globe/MOV	PS	RM	close	open	o/c	as-is	no	≤ 0.5 sec	≤ 49.5 sec	32BRD
20BQ203	55	LHSI/RHR Train 2	water	10.0	yes	no	JNA20AA002	inside	C	globe/MOV	PS	RM	close	open	o/c	as-is	no	≤ 0.5 sec	≤ 49.5 sec	31BRD
30BQ308	55	LHSI/RHR Train 3	water	10.0	yes	no	JNA30AA002	inside	C	globe/MOV	PS	RM	close	open	o/c	as-is	no	≤ 0.5 sec	≤ 49.5 sec	34BRD
40BQ403	55	LHSI/RHR Train 4	water	10.0	yes	no	JNA40AA002	inside	C	globe/MOV	PS	RM	close	open	o/c	as-is	no	≤ 0.5 sec	≤ 49.5 sec	33BRD
10BQ103	55	LHSI/RHR Train 1	water	1.0	yes	no	JNG15 AA004	inside	C	globe/MOV	PS	RM	close	close	close	as-is	no	≤ 0.5 sec	≤ 14.5 sec	32BRD
10BQ103	55	LHSI/RHR Train 1	water	10.0	yes	no	JNA10AA003	outside	C	globe/MOV	PS	RM	close	open	o/c	as-is	no	≤ 0.5 sec	≤ 49.5 sec	31BNB03

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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
10BQ103	55	LHSI/RHR Train 1	water	8.0	yes	no	JNG12AA001	outside	C	globe/MOV	PS	RM	close	close	o/c	as-is	no	≤ 0.5 sec	≤ 39.5 sec	31BNB03
20BQ203	55	LHSI/RHR Train 2	water	10.0	yes	no	JNA20AA003	outside	C	globe/MOV	PS	RM	close	open	o/c	as-is	no	≤ 0.5 sec	≤ 49.5 sec	32BNB03
20BQ203	55	LHSI/RHR Train 2	water	1.0	yes	no	JNG25AA004	inside	C	globe/MOV	PS	RM	close	close	close	as-is	no	≤ 0.5 sec	≤ 14.5 sec	31BRD
20BQ203	55	LHSI/RHR Train 2	water	8.0	yes	no	JNG22AA001	outside	C	globe/MOV	PS	RM	close	close	o/c	as-is	no	≤ 0.5 sec	≤ 39.5 sec	32BNB03
30BQ308	55	LHSI/RHR Train 3	water	10.0	yes	no	JNA30AA003	outside	C	globe/MOV	PS	RM	close	open	o/c	as-is	no	≤ 0.5 sec	≤ 49.5 sec	33BNB03
30BQ308	55	LHSI/RHR Train 3	water	1.0	yes	no	JNG35AA004	inside	C	globe/MOV	PS	RM	close	close	close	as-is	no	≤ 0.5 sec	≤ 14.5 sec	34BRD
30BQ308	55	LHSI/RHR Train 3	water	8.0	yes	no	JNG32AA001	outside	C	globe/MOV	PS	RM	close	close	o/c	as-is	no	≤ 0.5 sec	≤ 39.5 sec	33BNB03
40BQ403	55	LHSI/RHR Train 4	water	10.0	yes	no	JNA40AA003	outside	C	globe/MOV	PS	RM	close	open	o/c	as-is	no	≤ 0.5 sec	≤ 49.5 sec	34BNB03
40BQ403	55	LHSI/RHR Train 4	water	1.0	yes	no	JNG45AA004	inside	C	globe/MOV	PS	RM	close	close	close	as-is	no	≤ 0.5 sec	≤ 14.5 sec	33BRD
40BQ403	55	LHSI/RHR Train 4	water	8.0	yes	no	JNG42AA001	outside	C	globe/MOV	PS	RM	close	close	o/c	as-is	no	≤ 0.5 sec	≤ 39.5 sec	34BNB03
10BQ102	55	MHSI Train 1	water	6.0	yes	no	JND10AA007	inside	C	swing check	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
10BQ102	55	MHSI Train 1	water	6.0	yes	no	JND10AA002	outside	C	globe/MOV	PS	RM	open	open	o/c	as-is	no	≤ 0.5 sec	≤ 29.5 sec	31BNB03
10BQ102	55	MHSI Train	water	4.0	no	no	JND11AA012	outside	C	globe/MOV	PS	RM	closed	closed	o/c	as-is	yes	≤ 0.5 sec	≤ 19.5 sec	31BRA

**Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data**  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
20BQ202	55	MHSI Train 2	water	6.0	yes	no	JND20AA007	inside	C	swing check	self	self	close	close	o/c	n/a	no	n/a	n/a	n/a
20BQ202	55	MHSI Train 2	water	6.0	yes	no	JND20AA002	outside	C	globe/MOV	PS	RM	open	open	o/c	as-is	no	≤ 0.5 sec	≤ 29.5 sec	32BNB03
30BQ302	55	MHSI Train 3	water	6.0	yes	no	JND30AA007	inside	C	swing check	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
30BQ302	55	MHSI Train 3	water	6.0	yes	no	JND30AA002	outside	C	globe/MOV	PS	RM	open	open	o/c	as-is	no	≤ 0.5 sec	≤ 29.5 sec	33BNB03
40BQ402	55	MHSI Train 4	water	6.0	yes	no	JND40AA007	inside	C	swing check	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
40BQ402	55	MHSI Train 4	water	6.0	yes	no	JND40AA002	outside	C	globe/MOV	PS	RM	open	open	o/c	as-is	no	≤ 0.5 sec	≤ 29.5 sec	34BNB03
10BQ101	55	LHSI/RHR Train 1	water	8.0	yes	no	JNG10AA009	inside	C	swing check	self	self	close	o/c	o/c	n/a	n/a	n/a	n/a	n/a
20BQ201	55	LHSI/RHR Train 2	water	8.0	yes	no	JNG20AA009	inside	C	swing check	self	self	close	o/c	o/c	n/a	n/a	n/a	n/a	n/a
30BQ301	55	LHSI/RHR Train 3	water	8.0	yes	no	JNG30AA009	inside	C	swing check	self	self	close	o/c	o/c	n/a	n/a	n/a	n/a	n/a
40BQ401	55	LHSI/RHR Train 4	water	8.0	yes	no	JNG40AA009	inside	C	swing check	self	self	close	o/c	o/c	n/a	n/a	n/a	n/a	n/a
10BQ101	55	LHSI/RHR Train 1	water	8.0	yes	no	JNG10AA060	outside	C	globe/MOV	SIS	RM	open	open	o/c	as-is	n/a	≤ 0.5 sec	≤ 39.5 sec	31BNB03
20BQ201	55	LHSI/RHR Train 2	water	8.0	yes	no	JNG20AA060	outside	C	globe/MOV	SIS	RM	open	open	o/c	as-is	n/a	≤ 0.5 sec	≤ 39.5 sec	32BNB03
30BQ301	55	LHSI/RHR Train 3	water	8.0	yes	no	JNG30AA060	outside	C	globe/MOV	SIS	RM	open	open	o/c	as-is	n/a	≤ 0.5 sec	≤ 39.5 sec	33BNB03

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																		T3	T4	
40BQ401	55	LHSI/RHR Train 4	water	8.0	yes	no	JNG40AA060	outside	C	globe/MOV	SIS	RM	open	open	o/c	as-is	n/a	≤ 0.5 sec	≤ 39.5 sec	34BNB03
10BQ101	55	LHSI/RHR Bypass Train 1	water	4.0	yes	no	JNG10AA061	outside	C	globe/MOV	SIS	RM	open	open	o/c	as-is	n/a	≤ 0.5 sec	≤ 19.5 sec	31BNB03
20BQ201	55	LHSI/RHR Bypass Train 2	water	4.0	yes	no	JNG20AA061	outside	C	globe/MOV	SIS	RM	open	open	o/c	as-is	n/a	≤ 0.5 sec	≤ 19.5 sec	32BNB03
30BQ301	55	LHSI/RHR Bypass Train 3	water	4.0	yes	no	JNG30AA061	outside	C	globe/MOV	SIS	RM	open	open	o/c	as-is	n/a	≤ 0.5 sec	≤ 19.5 sec	33BNB03
40BQ401	55	LHSI/RHR Bypass Train 4	water	4.0	yes	no	JNG40AA061	outside	C	globe/MOV	SIS	RM	open	open	o/c	as-is	n/a	≤ 0.5 sec	≤ 19.5 sec	34BNB03
60BQ100	56	IRWST Sump Train1	water	16.0	yes	no	guard pipe buried	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
60BQ100	56	IRWST Sump Train1	water	16.0	yes	no	JNK10AA001	outside	C	globe/MOV	RM	RM	open	open	open	as-is	n/a	≤ 0.5 sec	≤ 59.5 sec	31BNB03
60BQ105	56	IRWST Sump to CVCS/FPCPS	water	6.0	yes	no	guard pipe buried	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
60BQ105	56	IRWST Sump to CVCS/FPCPS	water	6.0	yes	no	JNK10AA009	outside	C	globe/MOV	PS	RM	close	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	31BNB03
60BQ105	56	IRWST Sump to CVCS/FPCPS	water	6.0	yes	no	JNK10AA013	outside	C	globe/MOV	PS	RM	close	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	34BNB03

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																		T3	T4	
60BQ200	56	IRWST Sump SIS Train 2	water	16.0	yes	no	guard pipe buried	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
60BQ200	56	IRWST Sump SIS Train 2	water	16.0	yes	no	JNK20AA001	outside	C	globe/MOV	RM	RM	open	open	open	as-is	n/a	≤ 0.5 sec	≤ 59.5 sec	32BNB03
60BQ300	56	IRWST Sump SIS Train 3	water	16.0	yes	no	guard pipe buried	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
60BQ300	56	IRWST Sump SIS Train 3	water	16.0	yes	no	JNK30AA001	outside	C	globe/MOV	RM	RM	open	open	open	as-is	n/a	≤ 0.5 sec	≤ 59.5 sec	33BNB03
60BQ400	56	IRWST Sump SIS Train 4	water	16.0	yes	no	guard pipe buried	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
60BQ400	56	IRWST Sump SIS Train 4	water	16.0	yes	no	JNK40AA001	outside	C	globe/MOV	RM	RM	open	open	open	as-is	n/a	≤ 0.5 sec	≤ 59.5 sec	34BNB03
60BQ405	56	IRWST Sump SAHRS	water	14.0	yes	no	guard pipe buried	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
60BQ405	56	IRWST Sump SAHRS	water	14.0	yes	no	JNK11AA009	outside	C	globe/MOV	PS	RM	o/c	close	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	34BNB03
60BQ405	56	IRWST Sump SAHRS	water	14.0	no	no	JMQ40AA001	outside	C	globe/MOV	PS	RM	close	o/c	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	31BNB03
60BQ107	57	CCWS & CVCS to RCP	water	12.0	no	no	KAB60AA014	inside	C	swing check	self	self	open	o/c	close	n/a	n/a	n/a	n/a	n/a
60BQ107	57	CCWS & CVCS to RCP	water	12.0	no	no	KAB60AA013	outside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	31BNB03
60BQ108	57	CCWS & CVCS to RCP	water	12.0	no	no	KAB60AA018	inside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	34BRD

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
60BQ108	57	CCWS & CVCS to RCP	water	12.0	no	no	KAB60AA019	outside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	31BNB03
60BQ113	57	CCWS to HVAC & PEH	water	10.0	no	no	KAB40AA002	inside	C	swing check	self	self	open	o/c	close	n/a	n/a	n/a	n/a	n/a
60BQ113	57	CCWS to HVAC & PEH	water	10.0	no	no	KAB40AA001	outside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 49.5 sec	31BNB03
60BQ114	57	CCWS Return HVAC & PEH	water	10.0	no	no	KAB40AA012	inside	C	gate/MOV	PS <sup>1</sup>	RM	open	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 49.5 sec	34BRD
60BQ114	57	CCWS Return HVAC & PEH	water	10.0	no	no	KAB40AA006	outside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 49.5 sec	31BNB03
60BQ117	57	CCWS Supply to RCP	water	4.0	yes	no	KAB30AA050	inside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	34BRD
60BQ117	57	CCWS Supply to RCP	water	4.0	yes	no	KAB30AA049	outside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	31BNB03
60BQ118	57	CCWS Return RCP	water	4.0	yes	no	KAB30AA052	outside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	31BNB03
60BQ118	57	CCWS Return RCP	water	4.0	yes	no	KAB30AA051	inside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	34BRD
60BQ407	57	CCWS & CVCS to RCP	water	12.0	no	no	KAB70AA014	inside	C	swing check	self	self	open	o/c	close	n/a	n/a	n/a	n/a	n/a
60BQ407	57	CCWS & CVCS to RCP	water	12.0	no	no	KAB70AA013	outside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	34BNB03

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
60BQ408	57	CCWS & CVCS Return RCP	water	12.0	no	no	KAB70AA018	inside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	31BRD
60BQ408	57	CCWS & CVCS Return RCP	water	12.0	no	no	KAB70AA019	outside	C	gate/MOV	PS	RM	open	o/c	close	as-is	Stage 2	≤ 0.5 sec	≤ 59.5 sec	34BNB03
60BQ420	57	CCWS Supply to RCP	water	4.0	yes	no	KAB30AA054	inside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	33BRD
60BQ420	57	CCWS Supply to RCP	water	4.0	yes	no	KAB30AA053	outside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	32BNB03
60BQ421	57	CCWS Return RCP	water	4.0	yes	no	KAB30AA055	inside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	33BRD
60BQ421	57	CCWS Return RCP	water	4.0	yes	no	KAB30AA056	outside	C	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 14.5 sec	32BNB03
10BQ002	55	CVCS Charging	water	4.0	no	no	KBA34AA003	inside	C	swing check	self	self	open	close	close	n/a	n/a	n/a	n/a	n/a
10BQ002	55	CVCS Charging	water	4.0	no	no	KBA34AA002	outside	C	globe/MOV	PS	RM	open	close	close	as-is	Stage 2	≤ 0.5 sec	≤ 19.5 sec	31BNB03
10BQ003	55	CVCS Letdown	water	6.0	no	no	KBA14AA002	inside	C	globe/MOV	PS <sup>2</sup>	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	31BRD
10BQ003	55	CVCS Letdown	water	6.0	no	no	KBA14AA003	outside	C	globe/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	34BNB03
30BQ044	56	CVS Supply	air	39.0	no	no	KLA30AA003	inside	C	special/air	PS	RM	close	o/c	close	close	Stage 1	n/a	n/a	n/a
30BQ044	56	CVS Supply	air	39.0	no	no	KLA30AA002	outside	C	special/air	PS	RM	close	o/c	close	close	Stage 1	n/a	n/a	n/a
40BQ045	56	CVS Exhaust	air	39.0	no	no	KLA40AA001	inside	C	special/air	PS	RM	close	o/c	close	close	Stage 1	n/a	n/a	n/a

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
40BQ045	56	CVS Exhaust	air	39.0	no	no	KLA40AA002	outside	C	special/air	PS	RM	close	o/c	close	close	Stage 1	n/a	n/a	n/a
20BQ046	56	CVS Exhaust	air	20.0	no	no	KLA20AA001	inside	C	special/air	PS	RM	o/c	o/c	close	close	Stage 1	≤ 0.1 sec	≤ 4.9 sec	n/a
20BQ046	56	CVS Exhaust	air	20.0	no	no	KLA20AA003	outside	C	special/air	PS	RM	o/c	o/c	close	close	Stage 1	≤ 0.1 sec	≤ 4.9 sec	n/a
10BQ047	56	CVS Supply	air	20.0	no	no	KLA10AA003	inside	C	special/air	PS	RM	o/c	o/c	close	close	Stage 1	≤ 0.1 sec	≤ 4.9 sec	n/a
10BQ047	56	CVS Supply	air	20.0	no	no	KLA10AA001	outside	C	special/air	PS	RM	o/c	o/c	close	close	Stage 1	≤ 0.1 sec	≤ 4.9 sec	n/a
60BQ250	56	CEC pressure	air	0.5	yes	no	KLA60AA703	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ250	56	CSC pressure	air	0.5	yes	no	KLA70AA706	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ250	56	CSC pressure	air	0.5	yes	no	KLA70AA707	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ350	56	CEC pressure	air	0.5	yes	no	KLA60AA701	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ350	56	CSC pressure	air	0.5	yes	no	KLA70AA701	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ350	56	CSC pressure	air	0.5	yes	no	KLA70AA702	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ151	56	CEC pressure	air	0.5	yes	no	KLA60AA704	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ151	56	CSC pressure	air	0.5	yes	no	KLA70AA708	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ151	56	CSC pressure	air	0.5	yes	no	KLA70AA709	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ452	56	CEC pressure	air	0.5	yes	no	KLA60AA702	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ452	56	CSC pressure	air	0.5	yes	no	KLA70AA703	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
60BQ452	56	CSC pressure	air	0.5	yes	no	KLA70AA704	outside	C	gate/manual	manual	manual	open	open	open	n/a	n/a	n/a	n/a	n/a
60BQ005	55	GWPS	gas	2.0	no	no	KPL84AA003	inside	C	globe/MOV	PS <sup>2</sup>	RM	open	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRD
60BQ005	55	GWPS	gas	2.0	no	no	KPL84AA002	outside	C	globe/MOV	PS	RM	open	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
60BQ006	55	GWPS	gas	2.0	no	no	KPL85AA003	inside	C	globe/MOV	PS <sup>2</sup>	RM	open	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRD
60BQ006	55	GWPS	gas	2.0	no	no	KPL85AA004	outside	C	globe/MOV	PS	RM	open	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
10BQ007	57	NIDVS	water	3.0	no	no	KTA10AA017	inside	C	globe/MOV	PS <sup>3</sup>	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BRD
10BQ007	57	NIDVS	water	3.0	no	no	KTA10AA018	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
10BQ008	56	NIDVS	water	2.0	no	no	KTC10AA005	inside	C	globe/MOV	PS <sup>3</sup>	RM	close	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRD
10BQ008	56	NIDVS	water	2.0	no	no	KTC10AA006	outside	C	globe/MOV	PS	RM	close	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
10BQ012	56	NIDVS Return	water	2.0	no	no	KTC10AA029	inside	C	lift check	self	self	open	o/c	close	n/a	n/a	n/a	n/a	n/a
10BQ012	56	NIDV Return	water	2.0	no	no	KTC10AA010	outside	C	globe/MOV	PS	RM	close	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
10BQ014	56	NIDVS	water	2.0	no	no	KTD10AA024	inside	C	globe/MOV	PS <sup>3</sup>	RM	close	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRD
10BQ014	56	NIDVS	water	2.0	no	no	KTD10AA015	outside	C	globe/MOV	PS	RM	close	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
10BQ070	56	NIDVS to Annulus	water	1.0	no	no	KTD10AA008	inside annulus	C	lift check	self	self	o/c	o/c	close	n/a	n/a	n/a	n/a	n/a
10BQ070	56	NIDVS to Annulus	water	1.0	no	no	KTD10AA025	outside	C	globe/MOV	PS	RM	close	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
10BQ009	55	NSS LS	water	0.25	no	no	KUA10AA003	inside	C	globe/MOV	PS <sup>3</sup>	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRD

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
10BQ009	55	NSS LS	water	0.25	no	no	KUA10AA004	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
20BQ011	55	NSS LS	water	0.25	no	no	KUA20AA002	inside	C	globe/MOV	PS <sup>3</sup>	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRD
20BQ011	55	NSS LS	water	0.25	no	no	KUA20AA003	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
30BQ010	55	NSS LS	water	0.25	no	no	KUA30AA003	inside	C	globe/MOV	PS <sup>3</sup>	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BRD
30BQ010	55	NSS LS	water	0.25	no	no	KUA30AA004	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
10BQ027	55	NSS LLLS	water	0.25	no	no	KUB10AA001	inside	C	globe/MOV	PS <sup>1</sup>	RM	close	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRD
10BQ027	55	NSS LLLS	water	0.25	no	no	KUB10AA002	outside	C	globe/MOV	PS	RM	close	o/c	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
51BQ449	56	SASS	air	0.375	no	no	KUL51AA002	outside	C	ball/MOV	PS	RM	close	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
51BQ449	56	SASS	air	0.375	no	no	KUL51AA003	outside	C	ball/MOV	PS	RM	close	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
52BQ450	56	SASS	air	0.375	no	no	KUL52AA002	outside	C	ball/MOV	PS	RM	close	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
52BQ450	56	SASS	air	0.375	no	no	KUL52AA003	outside	C	ball/MOV	PS	RM	close	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
60BQ109	57	FW to SG1	water	20.0	no	no	LAB60AA002	outside	no	gate/MOV	RM	RM	open	o/c	close	as-is	no	≤ 0.5 sec	≤ 59.5 sec	31BNB02
60BQ109	57	FW to SG1	water	20.0	no	no	LAB60AA003	inside	no	lift check	self	self	open	o/c	close	n/a	n/a	n/a	n/a	n/a
70BQ207	57	FW to SG2	water	20.0	no	no	LAB70AA002	outside	no	gate/MOV	RM	RM	open	o/c	close	as-is	no	≤ 0.5 sec	≤ 59.5 sec	32BNB02
70BQ207	57	FW to SG2	water	20.0	no	no	LAB70AA003	inside	no	lift check	self	self	open	o/c	close	n/a	n/a	n/a	n/a	n/a
80BQ306	57	FW to SG3	water	20.0	no	no	LAB80AA002	outside	no	gate/MOV	RM	RM	open	o/c	close	as-is	no	≤ 0.5 sec	≤ 59.5 sec	33BNB02

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
80BQ306	57	FW to SG3	water	20.0	no	no	LAB80AA003	inside	no	lift check	self	self	open	o/c	close	n/a	n/a	n/a	n/a	n/a
90BQ409	57	FW to SG4	water	20.0	no	no	LAB90AA002	outside	no	gate/MOV	RM	RM	open	o/c	close	as-is	no	≤ 0.5 sec	≤ 59.5 sec	34BNB02
90BQ409	57	FW to SG4	water	20.0	no	no	LAB90AA003	inside	no	lift check	self	self	open	o/c	close	n/a	n/a	n/a	n/a	n/a
11BQ106	57	EFWS to SG 1	water	4.0	yes	no	LAR11AA006	outside	no	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 19.5 sec	31BRD
11BQ106	57	EFWS to SG 1	water	4.0	yes	no	LAR11AA007	inside	no	swing check	self	self	open	close	open	n/a	n/a	n/a	n/a	n/a
21BQ204	57	EFWS to SG 2	water	4.0	yes	no	LAR21AA006	outside	no	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 19.5 sec	32BRD
21BQ204	57	EFWS to SG 2	water	4.0	yes	no	LAR21AA007	inside	no	swing check	self	self	close	close	open	n/a	n/a	n/a	n/a	n/a
31BQ303	57	EFWS to SG 3	water	4.0	yes	no	LAR31AA006	outside	no	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 19.5 sec	33BRD
31BQ303	57	EFWS to SG 3	water	4.0	yes	no	LAR31AA007	inside	no	swing check	self	self	close	close	open	n/a	n/a	n/a	n/a	n/a
41BQ406	57	EFWS to SG 4	water	4.0	yes	no	LAR41AA006	outside	no	gate/MOV	RM	RM	open	open	open	as-is	no	≤ 0.5 sec	≤ 19.5 sec	34BRD
41BQ406	57	EFWS to SG 4	water	4.0	yes	no	LAR41AA007	inside	no	swing check	self	self	close	close	open	n/a	n/a	n/a	n/a	n/a
10BQ110	57	MS from SG1	steam	27.5	no	no	LBA10AA002	outside	no	gate/HOV	RM	RM	open	close	o/c	close	no	n/a	n/a	n/a
10BQ110	57	MS to MSRIV	steam	14.0	no	no	LBA13AA001	outside	no	globe/PORV	self	self	close	close	o/c	close	no	n/a	n/a	n/a
10BQ110	57	MS to MSRCV	steam	14.0	no	no	LBA13AA101	outside	no	globe-cont/ MOV	RM	RM	close	close	o/c	as-is	no	n/a	n/a	31BRA
10BQ110	57	MS to MSSV	steam	8.0	no	no	LBA11AA191	outside	no	safety	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
10BQ110	57	MS to MSSV	steam	8.0	no	no	LBA12AA191	outside	no	safety	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
10BQ110	57	MS Warm Up Line	steam	6.0	no	no	LBA14AA001	outside	no	globe/MOV	RM	RM	close	close	close	as-is	n/a	≤ 0.5 sec	≤ 29.5 sec	31BNB02
10BQ110	57	MS Drain Line	steam	2.0	no	no	LBA10AA441	outside	no	globe/MOV	RM	RM	close	close	close	as-is	n/a	≤ 0.5 sec	≤ 14.5 sec	31BNB02
20BQ208	57	MS from SG 2	steam	27.5	no	no	LBA20AA002	outside	no	gate/HOV	RM	RM	open	close	o/c	close	no	n/a	n/a	n/a
20BQ208	57	MS to MSRIV	steam	14.0	no	no	LBA23AA001	outside	no	globe/PORV	self	self	close	close	o/c	close	no	n/a	n/a	n/a
20BQ208	57	MS to MSRCV	steam	14.0	no	no	LBA23AA101	outside	no	globe-cont/MOV	RM	RM	close	close	o/c	as-is	no	n/a	n/a	32BRA
20BQ208	57	MS to MSSV	steam	8.0	no	no	LBA21AA191	outside	no	safety	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
20BQ208	57	MS to MSSV	steam	8.0	no	no	LBA22AA191	outside	no	safety	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
20BQ208	57	MS Warm Up Line	steam	6.0	no	no	LBA24AA001	outside	no	globe/MOV	RM	RM	close	close	close	as-is	n/a	≤ 0.5 sec	≤ 29.5 sec	32BNB02
20BQ208	57	MS Drain Line	steam	2.0	no	no	LBA20AA441	outside	no	globe/MOV	RM	RM	close	close	close	as-is	n/a	≤ 0.5 sec	≤ 14.5 sec	32BNB02
30BQ307	57	MS from SG 3	steam	27.5	no	no	LBA30AA002	outside	no	gate/HOV	RM	RM	open	close	o/c	close	no	n/a	n/a	n/a
30BQ307	57	MS to MSRIV	steam	14.0	no	no	LBA33AA001	outside	no	globe/PORV	self	self	close	close	o/c	close	no	n/a	n/a	n/a
30BQ307	57	MS to MSRCV	steam	14.0	no	no	LBA33AA101	outside	no	globe-cont/MOV	RM	RM	close	close	o/c	as-is	no	n/a	n/a	33BRA
30BQ307	57	MS to MSSV	steam	8.0	no	no	LBA31AA191	outside	no	safety	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
30BQ307	57	MS to MSSV	steam	8.0	no	no	LBA32AA191	outside	no	safety	self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
30BQ307	57	MS Warm Up Line	steam	6.0	no	no	LBA34AA001	outside	no	globe/MOV	RM	RM	close	close	close	as-is	n/a	≤ 0.5 sec	≤ 29.5 sec	33BNB02
30BQ307	57	MS Drain Line	steam	2.0	no	no	LBA30AA441	outside	no	globe/MOV	RM	RM	close	close	close	as-is	n/a	≤ 0.5 sec	≤ 14.5 sec	33BNB02

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
40BQ410	57	MS from SG 4	steam	27.5	no	no	LBA40AA002	outside	no	gate/HOV	RM	RM	open	close	o/c	close	no	n/a	n/a	n/a
40BQ410	57	MS to MSRIV	steam	14.0	no	no	LBA43AA001	outside	no	globe/PORV	self	self	close	close	o/c	close	no	n/a	n/a	n/a
40BQ410	57	MS to MSRCV	steam	14.0	no	no	LBA43AA101	outside	no	globe-cont/ MOV	RM	RM	close	close	o/c	as-is	no	n/a	n/a	34BRA
40BQ410	57	MS to MSSV	steam	8.0	no	no	LBA41AA191	outside	no	safety	Self	self	close	close	o/c	n/a	n/a	n/a	n/a	n/a
40BQ410	57	MS to MSSV	steam	8.0	no	no	LBA42AA191	outside	no	safety	Self	self	close	close	o/c	n/a	n/a	n/a	n/a	32BNB02
40BQ410	57	MS Warm Up Line	steam	6.0	no	no	LBA44AA001	outside	no	globe/MOV	RM	RM	close	close	close	as-is	n/a	≤ 0.5 sec	≤ 29.5 sec	34BNB02
40BQ410	57	MS Drain Line	steam	2.0	no	no	LBA40AA441	outside	no	globe/MOV	RM	RM	close	close	close	as-is	n/a	≤ 0.5 sec	≤ 14.5 sec	34BNB02
10BQ304	57	MC to BD Clrs	water	6.0	no	no	LCA90AA004	inside	C	swing check	self	self	open	close	close	n/a	n/a	n/a	n/a	n/a
10BQ304	57	MC to BD Clrs 1st CIV	water	6.0	no	no	LCA90AA003	outside	C	gate/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	32BNB03
10BQ304	57	MC to BD Clrs 2nd CIV	water	6.0	no	no	LCA90AA020	outside	C	gate/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	33BNB03
10BQ305	57	MC from BD Clrs	water	6.0	no	no	LCA90AA005	inside	C	gate/MOV	PS <sup>1</sup>	RM	open	close	open	as-is	n/a	n/a	n/a	33BRD
10BQ305	57	MC from BD Clrs 1st CIV	water	6.0	no	no	LCA90AA006	outside	C	gate/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	32BNB03
10BQ305	57	MC from BD Clrs 2nd CIV	water	6.0	no	no	LCA90AA021	outside	C	gate/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	33BNB03
60BQ019	57	SG BD Clrs	water	6.0	no	no	LCQ51AA002	inside	C	gate/MOV	PS <sup>2</sup>	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	31BRD
60BQ019	57	SG BD Clrs	water	6.0	no	no	LCQ51AA003	outside	C	gate/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 29.5 sec	34BNB03

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
60BQ205	57	SG BD Clrs	water	12.0	no	no	LCQ52AA001	inside	C	gate/MOV	PS	RM	open	close	open	as-is	n/a	n/a	n/a	33BRD
60BQ205	57	BD Flashed Steam 1st Outer CIV	water	12.0	no	no	LCQ52AA002	outside	C	gate/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 59.5 sec	32BNB03
60BQ205	57	BD Flashed Steam 2nd Outer CIV	water	12.0	no	no	LCQ52AA005	outside	C	gate/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 59.5 sec	33BNB03
60BQ041	57	NGDS to SGBS	gas	1.0	no	no	QJB40AA002	inside	C	globe/MOV	PS <sup>2</sup>	RM	open	open	open	as-is	n/a	n/a	n/a	34BRD
60BQ041	57	NGDS to SGBS	gas	1.0	no	no	QJB40AA001	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
60BQ066	57	NGDS	gas	1.0	no	no	QJB40AA003	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
60BQ066	57	NGDS	gas	1.0	no	no	QJB40AA004	inside	C	globe/MOV	PS <sup>2</sup>	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BRD
41BQ035	57	OCWS Supply to CBVS	water	8.0	no	no	QNJ41AA003	inside	C	lift check	self	self	open	open	close	n/a	n/a	n/a	n/a	n/a
41BQ035	57	OCWS Supply to CBVS	water	8.0	no	no	QNJ41AA002	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 39.5 sec	34BNB03
41BQ036	57	OCWS Return CBVS	water	8.0	no	no	QNJ41AA027	inside	C	globe/MOV	PS <sup>1</sup>	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 39.5 sec	31BRD
41BQ036	57	OCWS Return CBVS	water	8.0	no	no	QNJ41AA028	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 39.5 sec	34BNB03
11BQ023	57	NSS for SG BD	water	0.375	no	no	QUC11AA011	inside	C	globe/MOV	PS <sup>2</sup>	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BRD
11BQ023	57	NSS for SG BD	water	0.375	no	no	QUC11AA001	outside	C	globe/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03

**Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data**  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
12BQ024	57	NSS for SG BD	water	0.375	no	no	QUC12AA011	inside	C	globe/MOV	PS <sup>2</sup>	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BRD
12BQ024	57	NSS for SG BD	water	0.375	no	no	QUC12AA001	outside	C	globe/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BNB03
13BQ025	57	NSS for SG BD	water	0.375	no	no	QUC13AA011	inside	C	globe/MOV	PS <sup>3</sup>	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRD
13BQ025	57	NSS for SG BD	water	0.375	no	no	QUC13AA001	outside	C	globe/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
14BQ026	57	NSS for SG BD	water	0.375	no	no	QUC14AA011	inside	C	globe/MOV	PS <sup>3</sup>	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRD
14BQ026	57	NSS for SG BD	water	0.375	no	no	QUC14AA001	outside	C	globe/MOV	PS	RM	open	close	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
10BQ030	56/57	CADS to IA	air	2.0	no	no	SCB01AA002	inside	C	globe/MOV	PS <sup>2</sup>	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	31BRA
10BQ030	56/57	CADS to IA	air	2.0	no	no	SCB01AA001	outside	C	globe/MOV	PS	RM	open	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 14.5 sec	34BNB03
01BQ031	56/57	CADS to SA	air	2.0	no	no	SCB02AA002	inside	C	globe/manual	n/a	n/a	close	open	close	n/a	admin close	n/a	n/a	n/a
01BQ031	56/57	CADS to SA	air	2.0	no	no	SCB02AA001	outside	C	globe/manual	n/a	n/a	close	open	close	n/a	admin close	n/a	n/a	n/a
30BQ033	56/57	FWDS	water	8.0	no	no	SGB30AA032	inside	C	gate/MOV	PS <sup>1</sup>	RM	close	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 39.5 sec	31BRD
30BQ033	56/57	FWDS	water	8.0	no	no	SGB30AA031	outside	C	gate/MOV	PS	RM	close	open	close	as-is	Stage 1	≤ 0.5 sec	≤ 39.5 sec	34BNB03
60BQ064	n/a	Mech. Spare (Dedicated Penetration)	air	36.0	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
10BQ048	n/a	Leak-off System Containment Inflating/Deflating	air	10.0	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30BQ065	n/a	Mech. Spare (Dedicated Penetration)	air	2.0	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
32	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
67	n/a	Electr. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
68	n/a	Electr. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
69	n/a	Electr. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
75	n/a	Electr. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
76	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
77	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
78	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
79	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GD130	53	Medium voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GD131	53	Medium voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GF132	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
10GF133	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GF134	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GF135	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GP136	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GF137	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GF138	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GF139	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GE140	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GP141	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GE142	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GE143	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GE144	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GE145	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GE146	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GE147	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GE148	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10GE149	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
152	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
153	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
212	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data**  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
213	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GD230	53	Medium voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GD231	53	Medium voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE232	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GP233	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE234	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE235	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE236	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GF237	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE238	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE239	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GF240	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GF241	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE242	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE243	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE244	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GE245	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GF246	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GF247	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GF248	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20GF249	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
Sheet 22 of 24

Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
313	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
314	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GD330	53	Medium voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GD331	53	Medium voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GP332	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE333	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE334	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE335	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE336	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GF337	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE338	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE339	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GF340	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GF341	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE342	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE343	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE344	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GE345	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GF346	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GF347	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data**  
**Sheet 23 of 24**

Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source
																		T3	T4	
30GF348	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30GF349	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GD430	53	Medium voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GD431	53	Medium voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GF432	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GF433	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GF434	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GF435	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GF436	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GE437	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GF438	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GF439	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GF440	53	I&C	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GE441	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GE442	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GE443	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GE444	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GE445	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GE446	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GE447	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40GP448	53	Low voltage	air	n/a	n/a	n/a	n/a	n/a	B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
454	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 6.2.4-1—Containment Penetration, Isolation Valve, and Actuator Data  
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Penetration No.	GDC Req.	System Name	Fluid	Line Size (in)	Essent System	Potent Bypass Path	Valve Number	Valve Location	LLRT	Valve Type and Operator	Primary Actuation	Secondary Actuation	Normal Position	Shut-down Position	Post Accident Position	Power Failure Position	Cont. Isolation Signal	Valve Closure Time		Power Source	
																		T3	T4		
455	n/a	Mech. Spare	air	n/a	n/a	n/a	n/a	n/a	no	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

**Notes:**

1. Group 1 CIV (see Section 7.3.1.2.9).
2. Group 2 CIV (see Section 7.3.1.2.9).
3. Group 3 CIV (see Section 7.3.1.2.9).