Option 2

Momentary Duty Summary Report

3-Phase Fault Currents: (Prefault Voltage = 100 % of the Bus Nominal Voltage)

Bus		Device		Momentary Duty					Device Capability		
ID	kV	ID	Type	Symm. kA rms	X/R Ratio	M.F.	Asymm. kA rms	Asymm. kA Crest	Symm. kA rms	Asymm. kA rms	Asymm. kA Crest
Bus-1	13.800	Bus-1	Switchgear	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	52 NC	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	CB40-1	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	CB74-1	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	CB20-1	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	CB10-1	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
Bus-2	13.800	Bus-2	Switchgear	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	52G2	5 cy Sym CB	8.341	15.2	1.524	12.711	21.388		77.000	130.000
	13.800	52 NC	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	CB54-1	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	CB73-1	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	CB53-1	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	CB55-1	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
	13.800	CB46-1	5 cy Sym CB	10.384	15.2	1.524	15.825	26.627		77.000	130.000
Bus-3	13.800	Bus-3	Switchgear	9.117	15.9	1.532	13.968	23.477		77.000	130.000
	13.800	52G3	5 cy Sym CB	8.341	15.9	1.532	12.779	21.478		77.000	130.000
	13.800	CB7-1	5 cy Sym CB	9.117	15.9	1.532	13.968	23.477		67.000	113.100
MCC-480-01.	0.480	MCC-480-01.	Bus	39.314	11.3	1.465	57.595	97.689			
MCC-480-02.	0.480	MCC-480-02.	Bus	39.440	11.6	1.470	57.996	98.297			
MCC-480-03.	0.480	MCC-480-03.	Bus	39.314	11.3	1.465	57.595	97.689			
MCC-480-04.	0.480	MCC-480-04.	Bus	39.440	11.6	1.470	57.996	98.297			
MCC-480-05.	0.480	MCC-480-05.	Bus	41.585	11.2	1.464	60.887	103.283			
MCC-480-06.	0.480	MCC-480-06.	Bus	39.855	11.5	1.469	58.540	99.242			
MCC-480-07.	0.480	MCC-480-07.	Bus	41.585	11.2	1.464	60.887	103.283			
MCC-480-08.	0.480	MCC-480-08.	Bus	39.855	11.5	1.469	58.540	99.242			
MCC-480-09 A	0.480	MCC-480-09 A	Bus	40.229	10.8	1.456	58.559	99.446			
MCC-480-09 B	0.480	MCC-480-09 B	Bus	41.540	10.7	1.454	60.387	102.575			
MCC-480-10.	0.480	MCC-480-10.	Bus	40.229	10.8	1.456	58.559	99.446			
MCC-480-11 A	0.480	MCC-480-11 A	Bus	40.229	10.8	1.456	58.559	99.446			
MCC-480-11 B	0.480	MCC-480-11 B	Bus	41.540	10.7	1.454	60.387	102.575			
MCC-480-12.	0.480	MCC-480-12.	Bus	41.540	10.7	1.454	60.387	102.575			
MCC-480-13 A	0.480	MCC-480-13 A	Bus	40.229	10.8	1.456	58.559	99.446			
MCC-480-13 B	0.480	MCC-480-13 B	Bus	41.540	10.7	1.454	60.387	102.575			
MCC-480-14.	0.480	MCC-480-14.	Bus	40.229	10.8	1.456	58.559	99.446			

Option 2

3-Phase Fault Currents: (Prefault Voltage = 100 % of the Bus Nominal Voltage)

Bus		Device		Momentary Duty					Device Capability		
ID	kV	ID	Type	Symm. kA rms	X/R Ratio	M.F.	Asymm. kA rms	Asymm. kA Crest	Symm. kA rms	Asymm. kA rms	Asymm. kA Crest
MCC-480-15 A	0.480	MCC-480-15 A	Bus	40.229	10.8	1.456	58.559	99.446			
MCC-480-15 B	0.480	MCC-480-15 B	Bus	41.540	10.7	1.454	60.387	102.575			
MCC-480-16.	0.480	MCC-480-16.	Bus	41.540	10.7	1.454	60.387	102.575			
MCC-480-17 A	0.480	MCC-480-17 A	Bus	43.196	10.7	1.453	62.765	106.625			
MCC-480-17 B	0.480	MCC-480-17 B	Bus	44.123	10.6	1.451	64.039	108.812			
MCC-480-18 A	0.480	MCC-480-18 A	Bus	43.196	10.7	1.453	62.765	106.625			
MCC-480-18 B	0.480	MCC-480-18 B	Bus	44.123	10.6	1.451	64.039	108.812			
MCC-480-19 A	0.480	MCC-480-19 A	Bus	43.196	10.7	1.453	62.765	106.625			
MCC-480-19 B	0.480	MCC-480-19 B	Bus	44.123	10.6	1.451	64.039	108.812			
MCC-480-20 A	0.480	MCC-480-20 A	Bus	43.196	10.7	1.453	62.765	106.625			
MCC-480-20 B	0.480	MCC-480-20 B	Bus	44.123	10.6	1.451	64.039	108.812			
MCC-480-21.	0.480	MCC-480-21.	Bus	43.196	10.7	1.453	62.765	106.625			
MCC-480-22.	0.480	MCC-480-22.	Bus	44.123	10.6	1.451	64.039	108.812			
OFFSITES A	0.480	OFFSITES A	Switchgear	37.796	5.8	1.294	48.907	84.490	65.000	86.500	
OFFSITES B	0.480	OFFSITES B	Switchgear	37.796	5.8	1.294	48.907	84.490	65.000	86.500	
PDC-480-01-A	0.480	PDC-480-01-A	Bus	39.314	11.3	1.465	57.595	97.689			
PDC-480-01-B	0.480	PDC-480-01-B	Bus	39.440	11.6	1.470	57.996	98.297			
PDC-480-02-A	0.480	PDC-480-02-A	Bus	41.585	11.2	1.464	60.887	103.283			
PDC-480-02-B	0.480	PDC-480-02-B	Bus	39.855	11.5	1.469	58.540	99.242			
PDC-480-03-A	0.480	PDC-480-03-A	Bus	40.229	10.8	1.456	58.559	99.446			
PDC-480-03-B	0.480	PDC-480-03-B	Bus	41.540	10.7	1.454	60.387	102.575			
PDC-480-04-A	0.480	PDC-480-04-A	Bus	40.229	10.8	1.456	58.559	99.446			
PDC-480-04-B	0.480	PDC-480-04-B	Bus	41.540	10.7	1.454	60.387	102.575			
PDC-480-05A	0.480	PDC-480-05A	Bus	43.196	10.7	1.453	62.765	106.625			
PDC-480-05B	0.480	PDC-480-05B	Bus	44.123	10.6	1.451	64.039	108.812			
PDC-4160-01-A	4.160	PDC-4160-01-A	Switchgear	12.348	13.9	1.508	18.621	31.401		58.000	97.880
PDC-4160-01-B	4.160	PDC-4160-01-B	Switchgear	13.107	14.7	1.518	19.898	33.507		58.000	97.880
PDC-4160-02-A	4.160	PDC-4160-02-A	Switchgear	12.229	13.7	1.505	18.408	31.053		58.000	97.880
PDC-4160-02-B	4.160	PDC-4160-02-B	Switchgear	12.835	13.5	1.502	19.280	32.539		58.000	97.880
	4.160	CB61-1	5 cy Sym CB	12.835	13.5	1.502	19.280	32.539		32.000	54.000
PDC-4160-03-A	4.160	PDC-4160-03-A	Switchgear	13.423	15.2	1.524	20.450	34.411		58.000	97.880
PDC-4160-03-B	4.160	PDC-4160-03-B	Switchgear	13.957	14.9	1.521	21.227	35.731		58.000	97.880
	4.160	CB81	5 cy Sym CB	13.957	14.9	1.521	21.227	35.731		32.000	54.000
SW-13800-01-A	13.800	SW-13800-01-A	Switchgear	8.748	13.6	1.504	13.153	22.194		67.000	113.100
	13.800	CB84	5 cy Sym CB	8.748	13.6	1.504	13.153	22.194		67.000	113.100
	13.800	CB93	5 cy Sym CB	8.748	13.6	1.504	13.153	22.194		67.000	113.100

Option 2

3-Phase Fault Currents: (Prefault Voltage = 100 % of the Bus Nominal Voltage)

Bus		Device		Momentary Duty					Device Capability		
ID	kV	ID	Type	Symm. kA rms	X/R Ratio	M.F.	Asymm. kA rms	Asymm. kA Crest	Symm. kA rms	Asymm. kA rms	Asymm. kA Crest
SW-13800-01-A	13.800	CB94	5 cy Sym CB	8.748	13.6	1.504	13.153	22.194		67.000	113.100
SW-13800-01-B	13.800	SW-13800-01-B	Switchgear	9.878	13.0	1.495	14.763	24.941		67.000	113.100
	13.800	CB83-2	5 cy Sym CB	9.878	13.0	1.495	14.763	24.941		67.000	113.100
	13.800	CB91	5 cy Sym CB	9.878	13.0	1.495	14.763	24.941		67.000	113.100
	13.800	CB1-1	5 cy Sym CB	9.878	13.0	1.495	14.763	24.941		67.000	113.100
Tren A - BUS A	4.160	Tren A - BUS A	Switchgear	14.140	8.1	1.385	19.588	33.552		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	14.140	8.1	1.385	19.588	33.552		58.000	97.000
Tren A - BUS B	4.160	Tren A - BUS B	Switchgear	14.140	8.1	1.385	19.588	33.552		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	14.140	8.1	1.385	19.588	33.552		58.000	97.000
Tren B - BUS A	4.160	Tren B - BUS A	Switchgear	13.088	10.4	1.446	18.929	32.184		39.000	65.810
	4.160	CB76-1	5 cy Sym CB	13.088	10.4	1.446	18.929	32.184		77.000	130.000
	4.160	CB80-1	5 cy Sym CB	13.088	10.4	1.446	18.929	32.184		58.000	97.000
Tren B - BUS B	4.160	Tren B - BUS B	Switchgear	13.088	10.4	1.446	18.929	32.184		39.000	65.810
	4.160	CB80-1	5 cy Sym CB	13.088	10.4	1.446	18.929	32.184		58.000	97.000

Method: IEEE - X/R is calculated from separate R & X networks.

Protective device duty is calculated based on total fault current

* Indicates a device with momentary duty exceeding the device capability

Option 2

Interrupting Duty Summary Report

3-Phase Fault Currents: (Prefault Voltage = 100 % of the Bus Nominal Voltage)

Bus		Device			Interrupting Duty				Device Capability			
ID	kV	ID	Type	CPT (Cy)	Symm. kA rms	X/R Ratio	M.F.	Adj. Sym. kA rms	kV	Test PF	Rated Int.	Adjusted Int.
Bus-1	13.800	52 NC	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
		CB40-1	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
		CB74-1	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
		CB20-1	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
		CB10-1	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
Bus-2	13.800	52G2	5 cy Sym CB	3.0	8.341	16.1	1.000	8.341	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
		CB54-1	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
		CB73-1	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
		CB53-1	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
		CB55-1	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
		CB46-1	5 cy Sym CB	3.0	8.629	16.1	1.000	8.629	15.000		37.000	40.217
Bus-3	13.800	52G3	5 cy Sym CB	3.0	8.341	16.5	1.000	8.341	15.000		37.000	40.217
		CB7-1	5 cy Sym CB	3.0	7.974	16.5	1.000	7.974	15.000		42.000	45.652
MCC-480-01.	0.480				39.314	11.3						
MCC-480-02.	0.480				39.440	11.6						
MCC-480-03.	0.480				39.314	11.3						
MCC-480-04.	0.480				39.440	11.6						
MCC-480-05.	0.480				41.585	11.2						
MCC-480-06.	0.480				39.855	11.5						
MCC-480-07.	0.480				41.585	11.2						
MCC-480-08.	0.480				39.855	11.5						
MCC-480-09 A	0.480				40.229	10.8						
MCC-480-09 B	0.480				41.540	10.7						
MCC-480-10.	0.480				40.229	10.8						
MCC-480-11 A	0.480				40.229	10.8						
MCC-480-11 B	0.480				41.540	10.7						
MCC-480-12.	0.480				41.540	10.7						
MCC-480-13 A	0.480				40.229	10.8						
MCC-480-13 B	0.480				41.540	10.7						
MCC-480-14.	0.480				40.229	10.8						

Option 2

3-Phase Fault Currents: (Prefault Voltage = 100 % of the Bus Nominal Voltage)

Bus		Device			Interrupting Duty				Device Capability			
ID	kV	ID	Type	CPT (Cy)	Symm. kA rms	X/R Ratio	M.F.	Adj. Sym. kA rms	kV	Test PF	Rated Int.	Adjusted Int.
MCC-480-15 A	0.480				40.229	10.8						
MCC-480-15 B	0.480				41.540	10.7						
MCC-480-16.	0.480				41.540	10.7						
MCC-480-17 A	0.480				43.196	10.7						
MCC-480-17 B	0.480				44.123	10.6						
MCC-480-18 A	0.480				43.196	10.7						
MCC-480-18 B	0.480				44.123	10.6						
MCC-480-19 A	0.480				43.196	10.7						
MCC-480-19 B	0.480				44.123	10.6						
MCC-480-20 A	0.480				43.196	10.7						
MCC-480-20 B	0.480				44.123	10.6						
MCC-480-21.	0.480				43.196	10.7						
MCC-480-22.	0.480				44.123	10.6						
OFFSITES A	0.480	CB58-1	Molded Case		37.796	5.8	1.038	39.224	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		37.796	5.8	1.038	39.224	0.480	20.00	65.000	65.000
OFFSITES B	0.480	CB57-1	Molded Case		37.796	5.8	1.038	39.224	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		37.796	5.8	1.038	39.224	0.480	20.00	65.000	65.000
PDC-480-01-A	0.480				39.314	11.3						
PDC-480-01-B	0.480				39.440	11.6						
PDC-480-02-A	0.480				41.585	11.2						
PDC-480-02-B	0.480				39.855	11.5						
PDC-480-03-A	0.480				40.229	10.8						
PDC-480-03-B	0.480				41.540	10.7						
PDC-480-04-A	0.480				40.229	10.8						
PDC-480-04-B	0.480				41.540	10.7						
PDC-480-05A	0.480				43.196	10.7						
PDC-480-05B	0.480				44.123	10.6						
PDC-4160-01-A	4.160				10.508	14.0						
PDC-4160-01-B	4.160				11.223	14.7						
PDC-4160-02-A	4.160				10.292	14.0						
PDC-4160-02-B	4.160	CB61-1	5 cy Sym CB	3.0	10.673	13.9	1.000	10.673	4.760		20.000	22.885
PDC-4160-03-A	4.160				11.183	14.9						
PDC-4160-03-B	4.160	CB81	5 cy Sym CB	3.0	11.512	14.8	1.000	11.512	4.760		20.000	22.885
SW-13800-01-A	13.800	CB84	5 cy Sym CB	3.0	7.574	13.6	1.000	7.574	15.000		42.000	45.652

Option 2

3-Phase Fault Currents: (Prefault Voltage = 100 % of the Bus Nominal Voltage)

Bus		Device			Interrupting Duty				Device Capability			
ID	kV	ID	Type	CPT (Cy)	Symm. kA rms	X/R Ratio	M.F.	Adj. Sym. kA rms	kV	Test PF	Rated Int.	Adjusted Int.
SW-13800-01-A		CB93	5 cy Sym CB	3.0	7.574	13.6	1.000	7.574	15.000		42.000	45.652
		CB94	5 cy Sym CB	3.0	7.574	13.6	1.000	7.574	15.000		42.000	45.652
SW-13800-01-B	13.800	CB83-2	5 cy Sym CB	3.0	8.174	13.5	1.000	8.174	15.000		42.000	45.652
		CB91	5 cy Sym CB	3.0	8.174	13.5	1.000	8.174	15.000		42.000	45.652
		CB1-1	5 cy Sym CB	3.0	8.174	13.5	1.000	8.174	15.000		42.000	45.652
Tren A - BUS A	4.160	CB4-1	5 cy Sym CB	3.0	12.068	8.2	1.000	12.068	4.760		29.000	33.183
Tren A - BUS B	4.160	CB4-1	5 cy Sym CB	3.0	12.068	8.2	1.000	12.068	4.760		29.000	33.183
Tren B - BUS A	4.160	CB76-1	5 cy Sym CB	3.0	11.670	10.9	1.000	11.670	15.000		37.000	48.000
		CB80-1	5 cy Sym CB	3.0	11.670	10.9	1.000	11.670	4.760		29.000	33.183
Tren B - BUS B	4.160	CB80-1	5 cy Sym CB	3.0	11.670	10.9	1.000	11.670	4.760		29.000	33.183

Method: IEEE - X/R is calculated from separate R & X networks.

HV CB interrupting capability is adjusted based on bus nominal voltage

Short-Circuit multiplying factor for LV Molded Case and Insulated Case Circuit Breakers is calculated based on asymmetrical current.

Generator protective device duty is calculated based on maximum through fault current. Other protective device duty is calculated based on total fault current.

* Indicates a device with interrupting duty exceeding the device capability

Interrupting Duty Summary Report
Generator Circuit-Breaker

3-Phase Fault Currents: (Prefault Voltage = 100 % of the Bus Nominal Voltage)

Bus		Device		Peak Symmetrical	@ CB Parting Time	
ID	kV	ID	Type	kA	Degree of Asymm.(%)	DC Fault Current (kA)
Bus-2	13.800	52G2	5 cy Sym CB	11.796	15.30	1.804
Bus-3	13.800	52G3	5 cy Sym CB	11.796	13.43	1.585

Generator protective device duty is calculated based on maximum through fault current.