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	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	52G1	5 cy Sym CB	33.579	18.9	1.560	52.380	87.689		77.000	130.000
	13.800	52 NC	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB2	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB40-1	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB74-1	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB20-1	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB10-1	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
Bus-2	13.800	Bus-2	Switchgear	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	52G2	5 cy Sym CB	33.579	18.9	1.560	52.380	87.689		77.000	130.000
	13.800	52 NC	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB13	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB54-1	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB73-1	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB53-1	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB55-1	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
	13.800	CB46-1	5 cy Sym CB	41.920	18.9	1.560	65.391	109.470		77.000	130.000
Bus-3	13.800	Bus-3	Switchgear	35.296	14.4	1.514	53.451	90.055		77.000	130.000
	13.800	52G3	5 cy Sym CB	26.962	14.4	1.514	40.830	68.791		77.000	130.000
	13.800	CB24	5 cy Sym CB	35.296	14.4	1.514	53.451	90.055		77.000	130.000
	13.800	CB7-1	5 cy Sym CB	35.296	14.4	1.514	53.451	90.055		67.000	113.100
MCC-480-01.	0.480	MCC-480-01.	Bus	42.627	11.1	1.462	62.309	105.730			
MCC-480-02.	0.480	MCC-480-02.	Bus	42.214	11.4	1.467	61.940	105.026			
MCC-480-03.	0.480	MCC-480-03.	Bus	42.627	11.1	1.462	62.309	105.730			
MCC-480-04.	0.480	MCC-480-04.	Bus	42.214	11.4	1.467	61.940	105.026			
MCC-480-05.	0.480	MCC-480-05.	Bus	44.977	11.1	1.461	65.710	111.513			
MCC-480-06.	0.480	MCC-480-06.	Bus	42.641	11.3	1.466	62.498	105.996			
MCC-480-07.	0.480	MCC-480-07.	Bus	44.977	11.1	1.461	65.710	111.513			
MCC-480-08.	0.480	MCC-480-08.	Bus	42.641	11.3	1.466	62.498	105.996			
MCC-480-09 A	0.480	MCC-480-09 A	Bus	50.241	10.1	1.440	72.355	123.120			
MCC-480-09 B	0.480	MCC-480-09 B	Bus	50.241	10.1	1.440	72.355	123.120			
MCC-480-10.	0.480	MCC-480-10.	Bus	50.241	10.1	1.440	72.355	123.120			
MCC-480-11 A	0.480	MCC-480-11 A	Bus	50.241	10.1	1.440	72.355	123.120			
MCC-480-11 B	0.480	MCC-480-11 B	Bus	50.241	10.1	1.440	72.355	123.120			

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-480-12.	0.480	MCC-480-12.	Bus	50.241	10.1	1.440	72.355	123.120			
MCC-480-13 A	0.480	MCC-480-13 A	Bus	43.198	10.7	1.454	62.817	106.697			
MCC-480-13 B	0.480	MCC-480-13 B	Bus	44.747	10.6	1.451	64.939	110.344			
MCC-480-14.	0.480	MCC-480-14.	Bus	43.198	10.7	1.454	62.817	106.697			
MCC-480-15 A	0.480	MCC-480-15 A	Bus	43.198	10.7	1.454	62.817	106.697			
MCC-480-15 B	0.480	MCC-480-15 B	Bus	44.747	10.6	1.451	64.939	110.344			
MCC-480-16.	0.480	MCC-480-16.	Bus	44.747	10.6	1.451	64.939	110.344			
MCC-480-17 A	0.480	MCC-480-17 A	Bus	46.321	10.5	1.449	67.126	114.090			
MCC-480-17 B	0.480	MCC-480-17 B	Bus	46.814	10.5	1.449	67.818	115.274			
MCC-480-18 A	0.480	MCC-480-18 A	Bus	46.321	10.5	1.449	67.126	114.090			
MCC-480-18 B	0.480	MCC-480-18 B	Bus	46.814	10.5	1.449	67.818	115.274			
MCC-480-19 A	0.480	MCC-480-19 A	Bus	46.321	10.5	1.449	67.126	114.090			
MCC-480-19 B	0.480	MCC-480-19 B	Bus	46.814	10.5	1.449	67.818	115.274			
MCC-480-20 A	0.480	MCC-480-20 A	Bus	46.321	10.5	1.449	67.126	114.090			
MCC-480-20 B	0.480	MCC-480-20 B	Bus	46.814	10.5	1.449	67.818	115.274			
MCC-480-21.	0.480	MCC-480-21.	Bus	46.321	10.5	1.449	67.126	114.090			
MCC-480-22.	0.480	MCC-480-22.	Bus	46.814	10.5	1.449	67.818	115.274			
OFFSITES A	0.480	OFFSITES A	Switchgear	41.500	5.5	1.278	53.040	91.720	65.000	86.500	
OFFSITES B	0.480	OFFSITES B	Switchgear	41.500	5.5	1.278	53.040	91.720	65.000	86.500	
PDC-480-01-A	0.480	PDC-480-01-A	Bus	42.627	11.1	1.462	62.309	105.730			
PDC-480-01-B	0.480	PDC-480-01-B	Bus	42.214	11.4	1.467	61.940	105.026			
PDC-480-02-A	0.480	PDC-480-02-A	Bus	44.977	11.1	1.461	65.710	111.513			
PDC-480-02-B	0.480	PDC-480-02-B	Bus	42.641	11.3	1.466	62.498	105.996			
PDC-480-03-A	0.480	PDC-480-03-A	Bus	50.241	10.1	1.440	72.355	123.120			
PDC-480-03-B	0.480	PDC-480-03-B	Bus	50.241	10.1	1.440	72.355	123.120			
PDC-480-04-A	0.480	PDC-480-04-A	Bus	43.198	10.7	1.454	62.817	106.697			
PDC-480-04-B	0.480	PDC-480-04-B	Bus	44.747	10.6	1.451	64.939	110.344			
PDC-480-05A	0.480	PDC-480-05A	Bus	46.321	10.5	1.449	67.126	114.090			
PDC-480-05B	0.480	PDC-480-05B	Bus	46.814	10.5	1.449	67.818	115.274			
PDC-4160-01-A	4.160	PDC-4160-01-A	Switchgear	16.484	13.9	1.507	24.841	41.895		58.000	97.880
PDC-4160-01-B	4.160	PDC-4160-01-B	Switchgear	16.790	14.7	1.518	25.483	42.914		58.000	97.880
PDC-4160-02-A	4.160	PDC-4160-02-A	Switchgear	15.748	14.0	1.508	23.752	40.052		58.000	97.880
PDC-4160-02-B	4.160	PDC-4160-02-B	Switchgear	16.964	13.4	1.501	25.464	42.981		58.000	97.880
	4.160	CB61-1	5 cy Sym CB	16.964	13.4	1.501	25.464	42.981		32.000	54.000
PDC-4160-03-A	4.160	PDC-4160-03-A	Switchgear	17.659	14.9	1.520	26.842	45.189		58.000	97.880
PDC-4160-03-B	4.160	PDC-4160-03-B	Switchgear	17.702	14.8	1.520	26.904	45.294		58.000	97.880

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
PDC-4160-03-B	4.160	CB81	5 cy Sym CB	17.702	14.8	1.520	26.904	45.294		32.000	54.000
SW-13800-01-A	13.800	SW-13800-01-A	Switchgear	38.438	12.0	1.478	56.810	96.192		67.000	113.100
	13.800	CB82	5 cy Sym CB	38.438	12.0	1.478	56.810	96.192		67.000	113.100
	13.800	CB84	5 cy Sym CB	38.438	12.0	1.478	56.810	96.192		67.000	113.100
	13.800	CB93	5 cy Sym CB	38.438	12.0	1.478	56.810	96.192		67.000	113.100
	13.800	CB94	5 cy Sym CB	38.438	12.0	1.478	56.810	96.192		67.000	113.100
SW-13800-01-B	13.800	SW-13800-01-B	Switchgear	38.438	12.0	1.478	56.810	96.192		67.000	113.100
	13.800	CB82	5 cy Sym CB	38.438	12.0	1.478	56.810	96.192		67.000	113.100
	13.800	CB83-2	5 cy Sym CB	38.438	12.0	1.478	56.810	96.192		67.000	113.100
	13.800	CB91	5 cy Sym CB	38.438	12.0	1.478	56.810	96.192		67.000	113.100
	13.800	CB1-1	5 cy Sym CB	38.438	12.0	1.478	56.810	96.192		67.000	113.100
Tren A - BUS A	4.160	Tren A - BUS A	Switchgear	18.633	6.9	1.343	25.030	43.063		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.633	6.9	1.343	25.030	43.063		58.000	97.000
Tren A - BUS B	4.160	Tren A - BUS B	Switchgear	18.633	6.9	1.343	25.030	43.063		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.633	6.9	1.343	25.030	43.063		58.000	97.000
Tren B - BUS A	4.160	Tren B - BUS A	Switchgear	17.543	9.6	1.427	25.038	42.674		39.000	65.810
	4.160	CB76-1	5 cy Sym CB	17.543	9.6	1.427	25.038	42.674		77.000	130.000
	4.160	CB80-1	5 cy Sym CB	17.543	9.6	1.427	25.038	42.674		58.000	97.000
Tren B - BUS B	4.160	Tren B - BUS B	Switchgear	17.543	9.6	1.427	25.038	42.674		39.000	65.810
	4.160	CB80-1	5 cy Sym CB	17.543	9.6	1.427	25.038	42.674		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	52G1	5 cy Sym CB	3.0	31.122	19.6	1.000	31.122	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB2	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB40-1	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB74-1	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB20-1	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB10-1	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
Bus-2	13.800	52G2	5 cy Sym CB	3.0	31.122	19.6	1.000	31.122	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB13	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB54-1	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB73-1	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB53-1	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB55-1	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
		CB46-1	5 cy Sym CB	3.0	39.464	19.6	1.015	40.054	15.000		37.000	40.217
Bus-3	13.800	52G3	5 cy Sym CB	3.0	25.102	14.9	1.000	25.102	15.000		37.000	40.217
		CB24	5 cy Sym CB	3.0	33.438	14.9	1.000	33.438	15.000		37.000	40.217
		CB7-1	5 cy Sym CB	3.0	33.438	14.9	1.000	33.438	15.000		42.000	45.652
MCC-480-01.	0.480				42.627	11.1						
MCC-480-02.	0.480				42.214	11.4						
MCC-480-03.	0.480				42.627	11.1						
MCC-480-04.	0.480				42.214	11.4						
MCC-480-05.	0.480				44.977	11.1						
MCC-480-06.	0.480				42.641	11.3						
MCC-480-07.	0.480				44.977	11.1						
MCC-480-08.	0.480				42.641	11.3						
MCC-480-09 A	0.480				50.241	10.1						
MCC-480-09 B	0.480				50.241	10.1						
MCC-480-10.	0.480				50.241	10.1						
MCC-480-11 A	0.480				50.241	10.1						
MCC-480-11 B	0.480				50.241	10.1						

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-480-12.	0.480				50.241	10.1						
MCC-480-13 A	0.480				43.198	10.7						
MCC-480-13 B	0.480				44.747	10.6						
MCC-480-14.	0.480				43.198	10.7						
MCC-480-15 A	0.480				43.198	10.7						
MCC-480-15 B	0.480				44.747	10.6						
MCC-480-16.	0.480				44.747	10.6						
MCC-480-17 A	0.480				46.321	10.5						
MCC-480-17 B	0.480				46.814	10.5						
MCC-480-18 A	0.480				46.321	10.5						
MCC-480-18 B	0.480				46.814	10.5						
MCC-480-19 A	0.480				46.321	10.5						
MCC-480-19 B	0.480				46.814	10.5						
MCC-480-20 A	0.480				46.321	10.5						
MCC-480-20 B	0.480				46.814	10.5						
MCC-480-21.	0.480				46.321	10.5						
MCC-480-22.	0.480				46.814	10.5						
OFFSITES A	0.480	CB58-1	Molded Case		41.500	5.5	1.025	42.539	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.500	5.5	1.025	42.539	0.480	20.00	65.000	65.000
OFFSITES B	0.480	CB57-1	Molded Case		41.500	5.5	1.025	42.539	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.500	5.5	1.025	42.539	0.480	20.00	65.000	65.000
PDC-480-01-A	0.480				42.627	11.1						
PDC-480-01-B	0.480				42.214	11.4						
PDC-480-02-A	0.480				44.977	11.1						
PDC-480-02-B	0.480				42.641	11.3						
PDC-480-03-A	0.480				50.241	10.1						
PDC-480-03-B	0.480				50.241	10.1						
PDC-480-04-A	0.480				43.198	10.7						
PDC-480-04-B	0.480				44.747	10.6						
PDC-480-05A	0.480				46.321	10.5						
PDC-480-05B	0.480				46.814	10.5						
PDC-4160-01-A	4.160				14.937	13.9						
PDC-4160-01-B	4.160				15.407	14.5						
PDC-4160-02-A	4.160				14.565	13.9						

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.
PDC-4160-02-B	4.160	CB61-1	5 cy Sym CB	3.0	14.887	13.8	1.000	14.887	4.760		20.000	22.885
PDC-4160-03-A	4.160				15.701	14.6						
PDC-4160-03-B	4.160	CB81	5 cy Sym CB	3.0	15.725	14.6	1.000	15.725	4.760		20.000	22.885
SW-13800-01-A	13.800	CB82	5 cy Sym CB	3.0	35.741	12.0	1.000	35.741	15.000		42.000	45.652
		CB84	5 cy Sym CB	3.0	35.741	12.0	1.000	35.741	15.000		42.000	45.652
		CB93	5 cy Sym CB	3.0	35.741	12.0	1.000	35.741	15.000		42.000	45.652
		CB94	5 cy Sym CB	3.0	35.741	12.0	1.000	35.741	15.000		42.000	45.652
SW-13800-01-B	13.800	CB82	5 cy Sym CB	3.0	35.741	12.0	1.000	35.741	15.000		42.000	45.652
		CB83-2	5 cy Sym CB	3.0	35.741	12.0	1.000	35.741	15.000		42.000	45.652
		CB91	5 cy Sym CB	3.0	35.741	12.0	1.000	35.741	15.000		42.000	45.652
		CB1-1	5 cy Sym CB	3.0	35.741	12.0	1.000	35.741	15.000		42.000	45.652
Tren A - BUS A	4.160	CB4-1	5 cy Sym CB	3.0	17.136	6.7	1.000	17.136	4.760		29.000	33.183
Tren A - BUS B	4.160	CB4-1	5 cy Sym CB	3.0	17.136	6.7	1.000	17.136	4.760		29.000	33.183
Tren B - BUS A	4.160	CB76-1	5 cy Sym CB	3.0	16.753	9.7	1.000	16.753	15.000		37.000	48.000
		CB80-1	5 cy Sym CB	3.0	16.753	9.7	1.000	16.753	4.760		29.000	33.183
Tren B - BUS B	4.160	CB80-1	5 cy Sym CB	3.0	16.753	9.7	1.000	16.753	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-1	13.800	52G1	5 cy Sym CB	44.014	29.42	12.947
Bus-2	13.800	52G2	5 cy Sym CB	44.014	29.42	12.947

Option 2

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-3	13.800	52G3	5 cy Sym CB	35.500	20.72	7.354