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	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	52G1	5 cy Sym CB	25.270	21.2	1.577	39.853	66.555		77.000	130.000
	13.800	52 NC	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB2	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB40-1	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB74-1	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB20-1	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB10-1	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
Bus-2	13.800	Bus-2	Switchgear	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	52G2	5 cy Sym CB	25.270	21.2	1.577	39.853	66.555		77.000	130.000
	13.800	52 NC	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB13	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB54-1	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB73-1	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB53-1	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB55-1	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
	13.800	CB46-1	5 cy Sym CB	33.611	21.2	1.577	53.007	88.522		77.000	130.000
Bus-3	13.800	Bus-3	Switchgear	19.360	20.6	1.573	30.457	50.891		77.000	130.000
	13.800	52G3	5 cy Sym CB	11.020	20.6	1.573	17.335	28.966		77.000	130.000
	13.800	CB24	5 cy Sym CB	19.360	20.6	1.573	30.457	50.891		77.000	130.000
	13.800	CB7-1	5 cy Sym CB	19.360	20.6	1.573	30.457	50.891		67.000	113.100
MCC-480-01.	0.480	MCC-480-01.	Bus	40.790	11.2	1.464	59.704	101.283			
MCC-480-02.	0.480	MCC-480-02.	Bus	42.181	11.3	1.465	61.810	104.833			
MCC-480-03.	0.480	MCC-480-03.	Bus	40.790	11.2	1.464	59.704	101.283			
MCC-480-04.	0.480	MCC-480-04.	Bus	42.181	11.3	1.465	61.810	104.833			
MCC-480-05.	0.480	MCC-480-05.	Bus	49.364	11.0	1.459	72.011	122.240			
MCC-480-06.	0.480	MCC-480-06.	Bus	49.364	11.0	1.459	72.011	122.240			
MCC-480-07.	0.480	MCC-480-07.	Bus	49.364	11.0	1.459	72.011	122.240			
MCC-480-08.	0.480	MCC-480-08.	Bus	49.364	11.0	1.459	72.011	122.240			
MCC-480-09 A	0.480	MCC-480-09 A	Bus	42.302	10.7	1.453	61.475	104.430			
MCC-480-09 B	0.480	MCC-480-09 B	Bus	43.990	10.6	1.451	63.813	108.439			
MCC-480-10.	0.480	MCC-480-10.	Bus	42.302	10.7	1.453	61.475	104.430			
MCC-480-11 A	0.480	MCC-480-11 A	Bus	42.302	10.7	1.453	61.475	104.430			
MCC-480-11 B	0.480	MCC-480-11 B	Bus	43.990	10.6	1.451	63.813	108.439			

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	43.990	10.6	1.451	63.813	108.439			
MCC-480-13 A	0.480	MCC-480-13 A	Bus	42.302	10.7	1.453	61.475	104.430			
MCC-480-13 B	0.480	MCC-480-13 B	Bus	43.990	10.6	1.451	63.813	108.439			
MCC-480-14.	0.480	MCC-480-14.	Bus	42.302	10.7	1.453	61.475	104.430			
MCC-480-15 A	0.480	MCC-480-15 A	Bus	42.302	10.7	1.453	61.475	104.430			
MCC-480-15 B	0.480	MCC-480-15 B	Bus	43.990	10.6	1.451	63.813	108.439			
MCC-480-16.	0.480	MCC-480-16.	Bus	43.990	10.6	1.451	63.813	108.439			
MCC-480-17 A	0.480	MCC-480-17 A	Bus	45.123	10.6	1.450	65.433	111.198			
MCC-480-17 B	0.480	MCC-480-17 B	Bus	46.400	10.4	1.448	67.174	114.193			
MCC-480-18 A	0.480	MCC-480-18 A	Bus	45.123	10.6	1.450	65.433	111.198			
MCC-480-18 B	0.480	MCC-480-18 B	Bus	46.400	10.4	1.448	67.174	114.193			
MCC-480-19 A	0.480	MCC-480-19 A	Bus	45.123	10.6	1.450	65.433	111.198			
MCC-480-19 B	0.480	MCC-480-19 B	Bus	46.400	10.4	1.448	67.174	114.193			
MCC-480-20 A	0.480	MCC-480-20 A	Bus	45.123	10.6	1.450	65.433	111.198			
MCC-480-20 B	0.480	MCC-480-20 B	Bus	46.400	10.4	1.448	67.174	114.193			
MCC-480-21.	0.480	MCC-480-21.	Bus	45.123	10.6	1.450	65.433	111.198			
MCC-480-22.	0.480	MCC-480-22.	Bus	46.400	10.4	1.448	67.174	114.193			
OFFSITES A	0.480	OFFSITES A	Switchgear	41.174	5.5	1.280	52.706	91.133	65.000	86.500	
OFFSITES B	0.480	OFFSITES B	Switchgear	41.174	5.5	1.280	52.706	91.133	65.000	86.500	
PDC-480-01-A	0.480	PDC-480-01-A	Bus	40.790	11.2	1.464	59.704	101.283			
PDC-480-01-B	0.480	PDC-480-01-B	Bus	42.181	11.3	1.465	61.810	104.833			
PDC-480-02-A	0.480	PDC-480-02-A	Bus	49.364	11.0	1.459	72.011	122.240			
PDC-480-02-B	0.480	PDC-480-02-B	Bus	49.364	11.0	1.459	72.011	122.240			
PDC-480-03-A	0.480	PDC-480-03-A	Bus	42.302	10.7	1.453	61.475	104.430			
PDC-480-03-B	0.480	PDC-480-03-B	Bus	43.990	10.6	1.451	63.813	108.439			
PDC-480-04-A	0.480	PDC-480-04-A	Bus	42.302	10.7	1.453	61.475	104.430			
PDC-480-04-B	0.480	PDC-480-04-B	Bus	43.990	10.6	1.451	63.813	108.439			
PDC-480-05A	0.480	PDC-480-05A	Bus	45.123	10.6	1.450	65.433	111.198			
PDC-480-05B	0.480	PDC-480-05B	Bus	46.400	10.4	1.448	67.174	114.193			
PDC-4160-01-A	4.160	PDC-4160-01-A	Switchgear	13.982	13.9	1.508	21.085	35.556		58.000	97.880
PDC-4160-01-B	4.160	PDC-4160-01-B	Switchgear	16.740	14.0	1.509	25.264	42.595		58.000	97.880
PDC-4160-02-A	4.160	PDC-4160-02-A	Switchgear	14.547	13.5	1.502	21.853	36.879		58.000	97.880
PDC-4160-02-B	4.160	PDC-4160-02-B	Switchgear	15.829	13.1	1.497	23.690	40.011		58.000	97.880
	4.160	CB61-1	5 cy Sym CB	15.829	13.1	1.497	23.690	40.011		32.000	54.000
PDC-4160-03-A	4.160	PDC-4160-03-A	Switchgear	15.825	14.8	1.519	24.046	40.484		58.000	97.880
PDC-4160-03-B	4.160	PDC-4160-03-B	Switchgear	17.034	14.4	1.514	25.793	43.457		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	17.034	14.4	1.514	25.793	43.457		32.000	54.000
SW-13800-01-A	13.800	SW-13800-01-A	Switchgear	17.111	12.4	1.484	25.398	42.968		67.000	113.100
	13.800	CB84	5 cy Sym CB	17.111	12.4	1.484	25.398	42.968		67.000	113.100
	13.800	CB93	5 cy Sym CB	17.111	12.4	1.484	25.398	42.968		67.000	113.100
	13.800	CB94	5 cy Sym CB	17.111	12.4	1.484	25.398	42.968		67.000	113.100
SW-13800-01-B	13.800	SW-13800-01-B	Switchgear	27.008	10.0	1.437	38.817	66.075		67.000	113.100
	13.800	CB83-2	5 cy Sym CB	27.008	10.0	1.437	38.817	66.075		67.000	113.100
	13.800	CB91	5 cy Sym CB	27.008	10.0	1.437	38.817	66.075		67.000	113.100
	13.800	CB1-1	5 cy Sym CB	27.008	10.0	1.437	38.817	66.075		67.000	113.100
Tren A - BUS A	4.160	Tren A - BUS A	Switchgear	18.171	7.1	1.350	24.525	42.168		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.171	7.1	1.350	24.525	42.168		58.000	97.000
Tren A - BUS B	4.160	Tren A - BUS B	Switchgear	18.171	7.1	1.350	24.525	42.168		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.171	7.1	1.350	24.525	42.168		58.000	97.000
Tren B - BUS A	4.160	Tren B - BUS A	Switchgear	17.072	9.8	1.432	24.450	41.647		39.000	65.810
	4.160	CB76-1	5 cy Sym CB	17.072	9.8	1.432	24.450	41.647		77.000	130.000
	4.160	CB80-1	5 cy Sym CB	17.072	9.8	1.432	24.450	41.647		58.000	97.000
Tren B - BUS B	4.160	Tren B - BUS B	Switchgear	17.072	9.8	1.432	24.450	41.647		39.000	65.810
	4.160	CB80-1	5 cy Sym CB	17.072	9.8	1.432	24.450	41.647		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	23.381	21.9	1.000	23.381	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB2	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB40-1	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB74-1	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB20-1	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB10-1	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
Bus-2	13.800	52G2	5 cy Sym CB	3.0	23.381	21.9	1.000	23.381	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB13	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB54-1	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB73-1	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB53-1	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB55-1	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
		CB46-1	5 cy Sym CB	3.0	31.722	21.9	1.031	32.703	15.000		37.000	40.217
Bus-3	13.800	52G3	5 cy Sym CB	3.0	9.937	21.1	1.000	9.937	15.000		37.000	40.217
		CB24	5 cy Sym CB	3.0	18.277	21.1	1.029	18.811	15.000		37.000	40.217
		CB7-1	5 cy Sym CB	3.0	18.277	21.1	1.029	18.811	15.000		42.000	45.652
MCC-480-01.	0.480				40.790	11.2						
MCC-480-02.	0.480				42.181	11.3						
MCC-480-03.	0.480				40.790	11.2						
MCC-480-04.	0.480				42.181	11.3						
MCC-480-05.	0.480				49.364	11.0						
MCC-480-06.	0.480				49.364	11.0						
MCC-480-07.	0.480				49.364	11.0						
MCC-480-08.	0.480				49.364	11.0						
MCC-480-09 A	0.480				42.302	10.7						
MCC-480-09 B	0.480				43.990	10.6						
MCC-480-10.	0.480				42.302	10.7						
MCC-480-11 A	0.480				42.302	10.7						
MCC-480-11 B	0.480				43.990	10.6						

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				43.990	10.6						
MCC-480-13 A	0.480				42.302	10.7						
MCC-480-13 B	0.480				43.990	10.6						
MCC-480-14.	0.480				42.302	10.7						
MCC-480-15 A	0.480				42.302	10.7						
MCC-480-15 B	0.480				43.990	10.6						
MCC-480-16.	0.480				43.990	10.6						
MCC-480-17 A	0.480				45.123	10.6						
MCC-480-17 B	0.480				46.400	10.4						
MCC-480-18 A	0.480				45.123	10.6						
MCC-480-18 B	0.480				46.400	10.4						
MCC-480-19 A	0.480				45.123	10.6						
MCC-480-19 B	0.480				46.400	10.4						
MCC-480-20 A	0.480				45.123	10.6						
MCC-480-20 B	0.480				46.400	10.4						
MCC-480-21.	0.480				45.123	10.6						
MCC-480-22.	0.480				46.400	10.4						
OFFSITES A	0.480	CB58-1	Molded Case		41.174	5.5	1.027	42.271	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.174	5.5	1.027	42.271	0.480	20.00	65.000	65.000
OFFSITES B	0.480	CB57-1	Molded Case		41.174	5.5	1.027	42.271	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.174	5.5	1.027	42.271	0.480	20.00	65.000	65.000
PDC-480-01-A	0.480				40.790	11.2						
PDC-480-01-B	0.480				42.181	11.3						
PDC-480-02-A	0.480				49.364	11.0						
PDC-480-02-B	0.480				49.364	11.0						
PDC-480-03-A	0.480				42.302	10.7						
PDC-480-03-B	0.480				43.990	10.6						
PDC-480-04-A	0.480				42.302	10.7						
PDC-480-04-B	0.480				43.990	10.6						
PDC-480-05A	0.480				45.123	10.6						
PDC-480-05B	0.480				46.400	10.4						
PDC-4160-01-A	4.160				12.865	13.8						
PDC-4160-01-B	4.160				14.977	13.9						
PDC-4160-02-A	4.160				12.863	13.7						

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	14.119	13.3	1.000	14.119	4.760		20.000	22.885
PDC-4160-03-A	4.160				13.848	14.5						
PDC-4160-03-B	4.160	CB81	5 cy Sym CB	3.0	15.057	14.1	1.000	15.057	4.760		20.000	22.885
SW-13800-01-A	13.800	CB84	5 cy Sym CB	3.0	16.012	12.3	1.000	16.012	15.000		42.000	45.652
		CB93	5 cy Sym CB	3.0	16.012	12.3	1.000	16.012	15.000		42.000	45.652
		CB94	5 cy Sym CB	3.0	16.012	12.3	1.000	16.012	15.000		42.000	45.652
SW-13800-01-B	13.800	CB83-2	5 cy Sym CB	3.0	25.358	10.0	1.000	25.358	15.000		42.000	45.652
		CB91	5 cy Sym CB	3.0	25.358	10.0	1.000	25.358	15.000		42.000	45.652
		CB1-1	5 cy Sym CB	3.0	25.358	10.0	1.000	25.358	15.000		42.000	45.652
Tren A - BUS A	4.160	CB4-1	5 cy Sym CB	3.0	16.666	6.9	1.000	16.666	4.760		29.000	33.183
Tren A - BUS B	4.160	CB4-1	5 cy Sym CB	3.0	16.666	6.9	1.000	16.666	4.760		29.000	33.183
Tren B - BUS A	4.160	CB76-1	5 cy Sym CB	3.0	16.271	10.0	1.000	16.271	15.000		37.000	48.000
		CB80-1	5 cy Sym CB	3.0	16.271	10.0	1.000	16.271	4.760		29.000	33.183
Tren B - BUS B	4.160	CB80-1	5 cy Sym CB	3.0	16.271	10.0	1.000	16.271	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	33.066	35.37	11.696
Bus-2	13.800	52G2	5 cy Sym CB	33.066	35.37	11.696
Bus-3	13.800	52G3	5 cy Sym CB	14.053	34.91	4.906

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