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	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	52G1	5 cy Sym CB	33.505	18.9	1.560	52.271	87.504		77.000	130.000
	13.800	52 NC	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB2	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB40-1	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB74-1	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB20-1	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB10-1	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
Bus-2	13.800	Bus-2	Switchgear	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	52G2	5 cy Sym CB	33.505	18.9	1.560	52.271	87.504		77.000	130.000
	13.800	52 NC	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB13	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB54-1	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB73-1	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB53-1	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB55-1	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
	13.800	CB46-1	5 cy Sym CB	41.846	18.9	1.560	65.284	109.288		77.000	130.000
Bus-3	13.800	Bus-3	Switchgear	35.232	14.4	1.515	53.361	89.902		77.000	130.000
	13.800	52G3	5 cy Sym CB	26.898	14.4	1.515	40.738	68.635		77.000	130.000
	13.800	CB24	5 cy Sym CB	35.232	14.4	1.515	53.361	89.902		77.000	130.000
	13.800	CB7-1	5 cy Sym CB	35.232	14.4	1.515	53.361	89.902		67.000	113.100
MCC-480-01.	0.480	MCC-480-01.	Bus	42.624	11.1	1.462	62.305	105.723			
MCC-480-02.	0.480	MCC-480-02.	Bus	42.211	11.4	1.467	61.936	105.020			
MCC-480-03.	0.480	MCC-480-03.	Bus	42.624	11.1	1.462	62.305	105.723			
MCC-480-04.	0.480	MCC-480-04.	Bus	42.211	11.4	1.467	61.936	105.020			
MCC-480-05.	0.480	MCC-480-05.	Bus	44.974	11.1	1.461	65.706	111.506			
MCC-480-06.	0.480	MCC-480-06.	Bus	42.639	11.3	1.466	62.494	105.990			
MCC-480-07.	0.480	MCC-480-07.	Bus	44.974	11.1	1.461	65.706	111.506			
MCC-480-08.	0.480	MCC-480-08.	Bus	42.639	11.3	1.466	62.494	105.990			
MCC-480-09 A	0.480	MCC-480-09 A	Bus	44.994	10.6	1.451	65.307	110.966			
MCC-480-09 B	0.480	MCC-480-09 B	Bus	45.741	10.6	1.451	66.368	112.776			
MCC-480-10.	0.480	MCC-480-10.	Bus	44.994	10.6	1.451	65.307	110.966			
MCC-480-11 A	0.480	MCC-480-11 A	Bus	44.994	10.6	1.451	65.307	110.966			
MCC-480-11 B	0.480	MCC-480-11 B	Bus	45.741	10.6	1.451	66.368	112.776			

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	45.741	10.6	1.451	66.368	112.776			
MCC-480-13 A	0.480	MCC-480-13 A	Bus	44.994	10.6	1.451	65.307	110.966			
MCC-480-13 B	0.480	MCC-480-13 B	Bus	45.741	10.6	1.451	66.368	112.776			
MCC-480-14.	0.480	MCC-480-14.	Bus	44.994	10.6	1.451	65.307	110.966			
MCC-480-15 A	0.480	MCC-480-15 A	Bus	44.994	10.6	1.451	65.307	110.966			
MCC-480-15 B	0.480	MCC-480-15 B	Bus	45.741	10.6	1.451	66.368	112.776			
MCC-480-16.	0.480	MCC-480-16.	Bus	45.741	10.6	1.451	66.368	112.776			
MCC-480-17 A	0.480	MCC-480-17 A	Bus	46.319	10.5	1.449	67.122	114.084			
MCC-480-17 B	0.480	MCC-480-17 B	Bus	46.812	10.5	1.449	67.815	115.268			
MCC-480-18 A	0.480	MCC-480-18 A	Bus	46.319	10.5	1.449	67.122	114.084			
MCC-480-18 B	0.480	MCC-480-18 B	Bus	46.812	10.5	1.449	67.815	115.268			
MCC-480-19 A	0.480	MCC-480-19 A	Bus	46.319	10.5	1.449	67.122	114.084			
MCC-480-19 B	0.480	MCC-480-19 B	Bus	46.812	10.5	1.449	67.815	115.268			
MCC-480-20 A	0.480	MCC-480-20 A	Bus	46.319	10.5	1.449	67.122	114.084			
MCC-480-20 B	0.480	MCC-480-20 B	Bus	46.812	10.5	1.449	67.815	115.268			
MCC-480-21.	0.480	MCC-480-21.	Bus	46.319	10.5	1.449	67.122	114.084			
MCC-480-22.	0.480	MCC-480-22.	Bus	46.812	10.5	1.449	67.815	115.268			
OFFSITES A	0.480	OFFSITES A	Switchgear	41.497	5.5	1.278	53.038	91.716	65.000	86.500	
OFFSITES B	0.480	OFFSITES B	Switchgear	41.497	5.5	1.278	53.038	91.716	65.000	86.500	
PDC-480-01-A	0.480	PDC-480-01-A	Bus	42.624	11.1	1.462	62.305	105.723			
PDC-480-01-B	0.480	PDC-480-01-B	Bus	42.211	11.4	1.467	61.936	105.020			
PDC-480-02-A	0.480	PDC-480-02-A	Bus	44.974	11.1	1.461	65.706	111.506			
PDC-480-02-B	0.480	PDC-480-02-B	Bus	42.639	11.3	1.466	62.494	105.990			
PDC-480-03-A	0.480	PDC-480-03-A	Bus	44.994	10.6	1.451	65.307	110.966			
PDC-480-03-B	0.480	PDC-480-03-B	Bus	45.741	10.6	1.451	66.368	112.776			
PDC-480-04-A	0.480	PDC-480-04-A	Bus	44.994	10.6	1.451	65.307	110.966			
PDC-480-04-B	0.480	PDC-480-04-B	Bus	45.741	10.6	1.451	66.368	112.776			
PDC-480-05A	0.480	PDC-480-05A	Bus	46.319	10.5	1.449	67.122	114.084			
PDC-480-05B	0.480	PDC-480-05B	Bus	46.812	10.5	1.449	67.815	115.268			
PDC-4160-01-A	4.160	PDC-4160-01-A	Switchgear	16.480	13.9	1.507	24.835	41.885		58.000	97.880
PDC-4160-01-B	4.160	PDC-4160-01-B	Switchgear	16.786	14.7	1.518	25.476	42.903		58.000	97.880
PDC-4160-02-A	4.160	PDC-4160-02-A	Switchgear	18.652	13.6	1.503	28.029	47.301		58.000	97.880
	4.160	CB59-1	5 cy Sym CB	18.652	13.6	1.503	28.029	47.301		58.000	97.000
PDC-4160-02-B	4.160	PDC-4160-02-B	Switchgear	18.652	13.6	1.503	28.029	47.301		58.000	97.880
	4.160	CB59-1	5 cy Sym CB	18.652	13.6	1.503	28.029	47.301		58.000	97.000
	4.160	CB61-1	5 cy Sym CB	18.652	13.6	1.503	28.029	47.301		32.000	54.000

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-A	4.160	PDC-4160-03-A	Switchgear	17.655	14.9	1.520	26.836	45.178		58.000	97.880
PDC-4160-03-B	4.160	PDC-4160-03-B	Switchgear	17.698	14.8	1.520	26.897	45.283		58.000	97.880
	4.160	CB81	5 cy Sym CB	17.698	14.8	1.520	26.897	45.283		32.000	54.000
SW-13800-01-A	13.800	SW-13800-01-A	Switchgear	38.344	12.0	1.478	56.665	95.949		67.000	113.100
	13.800	CB82	5 cy Sym CB	38.344	12.0	1.478	56.665	95.949		67.000	113.100
	13.800	CB84	5 cy Sym CB	38.344	12.0	1.478	56.665	95.949		67.000	113.100
	13.800	CB94	5 cy Sym CB	38.344	12.0	1.478	56.665	95.949		67.000	113.100
SW-13800-01-B	13.800	SW-13800-01-B	Switchgear	38.344	12.0	1.478	56.665	95.949		67.000	113.100
	13.800	CB82	5 cy Sym CB	38.344	12.0	1.478	56.665	95.949		67.000	113.100
	13.800	CB83-2	5 cy Sym CB	38.344	12.0	1.478	56.665	95.949		67.000	113.100
	13.800	CB91	5 cy Sym CB	38.344	12.0	1.478	56.665	95.949		67.000	113.100
	13.800	CB1-1	5 cy Sym CB	38.344	12.0	1.478	56.665	95.949		67.000	113.100
Tren A - BUS A	4.160	Tren A - BUS A	Switchgear	18.630	6.9	1.343	25.026	43.057		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.630	6.9	1.343	25.026	43.057		58.000	97.000
Tren A - BUS B	4.160	Tren A - BUS B	Switchgear	18.630	6.9	1.343	25.026	43.057		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.630	6.9	1.343	25.026	43.057		58.000	97.000
Tren B - BUS A	4.160	Tren B - BUS A	Switchgear	17.540	9.6	1.427	25.034	42.667		39.000	65.810
	4.160	CB76-1	5 cy Sym CB	17.540	9.6	1.427	25.034	42.667		77.000	130.000
	4.160	CB80-1	5 cy Sym CB	17.540	9.6	1.427	25.034	42.667		58.000	97.000
Tren B - BUS B	4.160	Tren B - BUS B	Switchgear	17.540	9.6	1.427	25.034	42.667		39.000	65.810
	4.160	CB80-1	5 cy Sym CB	17.540	9.6	1.427	25.034	42.667		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	31.112	19.6	1.000	31.112	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB2	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB40-1	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB74-1	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB20-1	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB10-1	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
Bus-2	13.800	52G2	5 cy Sym CB	3.0	31.112	19.6	1.000	31.112	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB13	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB54-1	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB73-1	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB53-1	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB55-1	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
		CB46-1	5 cy Sym CB	3.0	39.453	19.6	1.015	40.044	15.000		37.000	40.217
Bus-3	13.800	52G3	5 cy Sym CB	3.0	25.093	14.9	1.000	25.093	15.000		37.000	40.217
		CB24	5 cy Sym CB	3.0	33.429	14.9	1.000	33.429	15.000		37.000	40.217
		CB7-1	5 cy Sym CB	3.0	33.429	14.9	1.000	33.429	15.000		42.000	45.652
MCC-480-01.	0.480				42.624	11.1						
MCC-480-02.	0.480				42.211	11.4						
MCC-480-03.	0.480				42.624	11.1						
MCC-480-04.	0.480				42.211	11.4						
MCC-480-05.	0.480				44.974	11.1						
MCC-480-06.	0.480				42.639	11.3						
MCC-480-07.	0.480				44.974	11.1						
MCC-480-08.	0.480				42.639	11.3						
MCC-480-09 A	0.480				44.994	10.6						
MCC-480-09 B	0.480				45.741	10.6						
MCC-480-10.	0.480				44.994	10.6						
MCC-480-11 A	0.480				44.994	10.6						
MCC-480-11 B	0.480				45.741	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				45.741	10.6						
MCC-480-13 A	0.480				44.994	10.6						
MCC-480-13 B	0.480				45.741	10.6						
MCC-480-14.	0.480				44.994	10.6						
MCC-480-15 A	0.480				44.994	10.6						
MCC-480-15 B	0.480				45.741	10.6						
MCC-480-16.	0.480				45.741	10.6						
MCC-480-17 A	0.480				46.319	10.5						
MCC-480-17 B	0.480				46.812	10.5						
MCC-480-18 A	0.480				46.319	10.5						
MCC-480-18 B	0.480				46.812	10.5						
MCC-480-19 A	0.480				46.319	10.5						
MCC-480-19 B	0.480				46.812	10.5						
MCC-480-20 A	0.480				46.319	10.5						
MCC-480-20 B	0.480				46.812	10.5						
MCC-480-21.	0.480				46.319	10.5						
MCC-480-22.	0.480				46.812	10.5						
OFFSITES A	0.480	CB58-1	Molded Case		41.497	5.5	1.025	42.537	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.497	5.5	1.025	42.537	0.480	20.00	65.000	65.000
OFFSITES B	0.480	CB57-1	Molded Case		41.497	5.5	1.025	42.537	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.497	5.5	1.025	42.537	0.480	20.00	65.000	65.000
PDC-480-01-A	0.480				42.624	11.1						
PDC-480-01-B	0.480				42.211	11.4						
PDC-480-02-A	0.480				44.974	11.1						
PDC-480-02-B	0.480				42.639	11.3						
PDC-480-03-A	0.480				44.994	10.6						
PDC-480-03-B	0.480				45.741	10.6						
PDC-480-04-A	0.480				44.994	10.6						
PDC-480-04-B	0.480				45.741	10.6						
PDC-480-05A	0.480				46.319	10.5						
PDC-480-05B	0.480				46.812	10.5						
PDC-4160-01-A	4.160				14.936	13.9						
PDC-4160-01-B	4.160				15.406	14.5						
PDC-4160-02-A	4.160	CB59-1	5 cy Sym CB	3.0	15.396	13.9	1.000	15.396	4.760		29.000	33.183

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	CB59-1	5 cy Sym CB	3.0	15.396	13.9	1.000	15.396	4.760		29.000	33.183
		CB61-1	5 cy Sym CB	3.0	15.396	13.9	1.000	15.396	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	15.724	14.6	1.000	15.724	4.760		20.000	22.885
SW-13800-01-A	13.800	CB82	5 cy Sym CB	3.0	35.728	12.0	1.000	35.728	15.000		42.000	45.652
		CB84	5 cy Sym CB	3.0	35.728	12.0	1.000	35.728	15.000		42.000	45.652
		CB94	5 cy Sym CB	3.0	35.728	12.0	1.000	35.728	15.000		42.000	45.652
SW-13800-01-B	13.800	CB82	5 cy Sym CB	3.0	35.728	12.0	1.000	35.728	15.000		42.000	45.652
		CB83-2	5 cy Sym CB	3.0	35.728	12.0	1.000	35.728	15.000		42.000	45.652
		CB91	5 cy Sym CB	3.0	35.728	12.0	1.000	35.728	15.000		42.000	45.652
		CB1-1	5 cy Sym CB	3.0	35.728	12.0	1.000	35.728	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	43.999	29.42	12.944
Bus-2	13.800	52G2	5 cy Sym CB	43.999	29.42	12.944

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	35.487	20.71	7.351