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	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	52G1	5 cy Sym CB	36.653	22.2	1.583	58.032	96.827		77.000	130.000
	13.800	52 NC	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB2	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB3	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB40-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB74-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB20-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB10-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
Bus-2	13.800	Bus-2	Switchgear	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	52G2	5 cy Sym CB	36.653	22.2	1.583	58.032	96.827		77.000	130.000
	13.800	52 NC	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB13	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB54-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB73-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB53-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB55-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB46-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
Bus-3	13.800	Bus-3	Switchgear	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	52G3	5 cy Sym CB	36.653	22.2	1.583	58.032	96.827		77.000	130.000
	13.800	CB24	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB3	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		77.000	130.000
	13.800	CB7-1	5 cy Sym CB	44.993	22.2	1.583	71.238	118.861		67.000 *	113.100 *
MCC-480-01.	0.480	MCC-480-01.	Bus	42.470	11.0	1.460	61.985	105.211			
MCC-480-02.	0.480	MCC-480-02.	Bus	42.063	11.3	1.466	61.644	104.549			
MCC-480-03.	0.480	MCC-480-03.	Bus	42.470	11.0	1.460	61.985	105.211			
MCC-480-04.	0.480	MCC-480-04.	Bus	42.063	11.3	1.466	61.644	104.549			
MCC-480-05.	0.480	MCC-480-05.	Bus	44.817	11.0	1.459	65.379	110.982			
MCC-480-06.	0.480	MCC-480-06.	Bus	42.490	11.2	1.464	62.200	105.516			
MCC-480-07.	0.480	MCC-480-07.	Bus	44.817	11.0	1.459	65.379	110.982			
MCC-480-08.	0.480	MCC-480-08.	Bus	42.490	11.2	1.464	62.200	105.516			
MCC-480-09 A	0.480	MCC-480-09 A	Bus	43.446	10.6	1.450	63.017	107.088			
MCC-480-09 B	0.480	MCC-480-09 B	Bus	44.282	10.5	1.450	64.205	109.115			
MCC-480-10.	0.480	MCC-480-10.	Bus	43.446	10.6	1.450	63.017	107.088			

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-480-11 A	0.480	MCC-480-11 A	Bus	43.446	10.6	1.450	63.017	107.088			
MCC-480-11 B	0.480	MCC-480-11 B	Bus	44.282	10.5	1.450	64.205	109.115			
MCC-480-12.	0.480	MCC-480-12.	Bus	44.282	10.5	1.450	64.205	109.115			
MCC-480-13 A	0.480	MCC-480-13 A	Bus	43.446	10.6	1.450	63.017	107.088			
MCC-480-13 B	0.480	MCC-480-13 B	Bus	44.282	10.5	1.450	64.205	109.115			
MCC-480-14.	0.480	MCC-480-14.	Bus	43.446	10.6	1.450	63.017	107.088			
MCC-480-15 A	0.480	MCC-480-15 A	Bus	43.446	10.6	1.450	63.017	107.088			
MCC-480-15 B	0.480	MCC-480-15 B	Bus	44.282	10.5	1.450	64.205	109.115			
MCC-480-16.	0.480	MCC-480-16.	Bus	44.282	10.5	1.450	64.205	109.115			
MCC-480-17 A	0.480	MCC-480-17 A	Bus	46.175	10.4	1.447	66.833	113.618			
MCC-480-17 B	0.480	MCC-480-17 B	Bus	46.670	10.4	1.447	67.531	114.810			
MCC-480-18 A	0.480	MCC-480-18 A	Bus	46.175	10.4	1.447	66.833	113.618			
MCC-480-18 B	0.480	MCC-480-18 B	Bus	46.670	10.4	1.447	67.531	114.810			
MCC-480-19 A	0.480	MCC-480-19 A	Bus	46.175	10.4	1.447	66.833	113.618			
MCC-480-19 B	0.480	MCC-480-19 B	Bus	46.670	10.4	1.447	67.531	114.810			
MCC-480-20 A	0.480	MCC-480-20 A	Bus	46.175	10.4	1.447	66.833	113.618			
MCC-480-20 B	0.480	MCC-480-20 B	Bus	46.670	10.4	1.447	67.531	114.810			
MCC-480-21.	0.480	MCC-480-21.	Bus	46.175	10.4	1.447	66.833	113.618			
MCC-480-22.	0.480	MCC-480-22.	Bus	46.670	10.4	1.447	67.531	114.810			
OFFSITES A	0.480	OFFSITES A	Switchgear	41.593	5.5	1.278	53.158	91.924	65.000	86.500	
OFFSITES B	0.480	OFFSITES B	Switchgear	41.593	5.5	1.278	53.158	91.924	65.000	86.500	
PDC-480-01-A	0.480	PDC-480-01-A	Bus	42.470	11.0	1.460	61.985	105.211			
PDC-480-01-B	0.480	PDC-480-01-B	Bus	42.063	11.3	1.466	61.644	104.549			
PDC-480-02-A	0.480	PDC-480-02-A	Bus	44.817	11.0	1.459	65.379	110.982			
PDC-480-02-B	0.480	PDC-480-02-B	Bus	42.490	11.2	1.464	62.200	105.516			
PDC-480-03-A	0.480	PDC-480-03-A	Bus	43.446	10.6	1.450	63.017	107.088			
PDC-480-03-B	0.480	PDC-480-03-B	Bus	44.282	10.5	1.450	64.205	109.115			
PDC-480-04-A	0.480	PDC-480-04-A	Bus	43.446	10.6	1.450	63.017	107.088			
PDC-480-04-B	0.480	PDC-480-04-B	Bus	44.282	10.5	1.450	64.205	109.115			
PDC-480-05A	0.480	PDC-480-05A	Bus	46.175	10.4	1.447	66.833	113.618			
PDC-480-05B	0.480	PDC-480-05B	Bus	46.670	10.4	1.447	67.531	114.810			
PDC-4160-01-A	4.160	PDC-4160-01-A	Switchgear	16.246	13.2	1.497	24.324	41.079		58.000	97.880
PDC-4160-01-B	4.160	PDC-4160-01-B	Switchgear	16.554	14.0	1.509	24.987	42.127		58.000	97.880
PDC-4160-02-A	4.160	PDC-4160-02-A	Switchgear	16.107	13.0	1.494	24.070	40.666		58.000	97.880
PDC-4160-02-B	4.160	PDC-4160-02-B	Switchgear	16.253	13.0	1.494	24.289	41.035		58.000	97.880
	4.160	CB61-1	5 cy Sym CB	16.253	13.0	1.494	24.289	41.035		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	17.419	14.2	1.512	26.336	44.386		58.000	97.880
PDC-4160-03-B	4.160	PDC-4160-03-B	Switchgear	17.464	14.2	1.512	26.408	44.506		58.000	97.880
	4.160	CB81	5 cy Sym CB	17.464	14.2	1.512	26.408	44.506		32.000	54.000
SW-13800-01-A	13.800	SW-13800-01-A	Switchgear	33.431	8.7	1.403	46.920	80.200		67.000	113.100
	13.800	CB84	5 cy Sym CB	33.431	8.7	1.403	46.920	80.200		67.000	113.100
	13.800	CB93	5 cy Sym CB	33.431	8.7	1.403	46.920	80.200		67.000	113.100
	13.800	CB94	5 cy Sym CB	33.431	8.7	1.403	46.920	80.200		67.000	113.100
SW-13800-01-B	13.800	SW-13800-01-B	Switchgear	33.484	8.8	1.407	47.096	80.473		67.000	113.100
	13.800	CB83-2	5 cy Sym CB	33.484	8.8	1.407	47.096	80.473		67.000	113.100
	13.800	CB91	5 cy Sym CB	33.484	8.8	1.407	47.096	80.473		67.000	113.100
	13.800	CB1-1	5 cy Sym CB	33.484	8.8	1.407	47.096	80.473		67.000	113.100
Tren A - BUS A	4.160	Tren A - BUS A	Switchgear	18.772	6.9	1.343	25.215	43.382		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.772	6.9	1.343	25.215	43.382		58.000	97.000
Tren A - BUS B	4.160	Tren A - BUS B	Switchgear	18.772	6.9	1.343	25.215	43.382		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.772	6.9	1.343	25.215	43.382		58.000	97.000
Tren B - BUS A	4.160	Tren B - BUS A	Switchgear	17.680	9.6	1.428	25.252	43.034		39.000	65.810
	4.160	CB76-1	5 cy Sym CB	17.680	9.6	1.428	25.252	43.034		77.000	130.000
	4.160	CB80-1	5 cy Sym CB	17.680	9.6	1.428	25.252	43.034		58.000	97.000
Tren B - BUS B	4.160	Tren B - BUS B	Switchgear	17.680	9.6	1.428	25.252	43.034		39.000	65.810
	4.160	CB80-1	5 cy Sym CB	17.680	9.6	1.428	25.252	43.034		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	33.757	23.0	1.000	33.757	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB2	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB3	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB40-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB74-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB20-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB10-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
Bus-2	13.800	52G2	5 cy Sym CB	3.0	33.757	23.0	1.000	33.757	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB13	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB54-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB73-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB53-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB55-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB46-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
Bus-3	13.800	52G3	5 cy Sym CB	3.0	33.757	23.0	1.000	33.757	15.000		37.000	40.217
		CB24	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB3	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		37.000	40.217 *
		CB7-1	5 cy Sym CB	3.0	42.098	23.0	1.033	43.507	15.000		42.000	45.652
MCC-480-01.	0.480				42.470	11.0						
MCC-480-02.	0.480				42.063	11.3						
MCC-480-03.	0.480				42.470	11.0						
MCC-480-04.	0.480				42.063	11.3						
MCC-480-05.	0.480				44.817	11.0						
MCC-480-06.	0.480				42.490	11.2						
MCC-480-07.	0.480				44.817	11.0						
MCC-480-08.	0.480				42.490	11.2						
MCC-480-09 A	0.480				43.446	10.6						
MCC-480-09 B	0.480				44.282	10.5						
MCC-480-10.	0.480				43.446	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-480-11 A	0.480				43.446	10.6						
MCC-480-11 B	0.480				44.282	10.5						
MCC-480-12.	0.480				44.282	10.5						
MCC-480-13 A	0.480				43.446	10.6						
MCC-480-13 B	0.480				44.282	10.5						
MCC-480-14.	0.480				43.446	10.6						
MCC-480-15 A	0.480				43.446	10.6						
MCC-480-15 B	0.480				44.282	10.5						
MCC-480-16.	0.480				44.282	10.5						
MCC-480-17 A	0.480				46.175	10.4						
MCC-480-17 B	0.480				46.670	10.4						
MCC-480-18 A	0.480				46.175	10.4						
MCC-480-18 B	0.480				46.670	10.4						
MCC-480-19 A	0.480				46.175	10.4						
MCC-480-19 B	0.480				46.670	10.4						
MCC-480-20 A	0.480				46.175	10.4						
MCC-480-20 B	0.480				46.670	10.4						
MCC-480-21.	0.480				46.175	10.4						
MCC-480-22.	0.480				46.670	10.4						
OFFSITES A	0.480	CB58-1	Molded Case		41.593	5.5	1.025	42.633	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.593	5.5	1.025	42.633	0.480	20.00	65.000	65.000
OFFSITES B	0.480	CB57-1	Molded Case		41.593	5.5	1.025	42.633	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.593	5.5	1.025	42.633	0.480	20.00	65.000	65.000
PDC-480-01-A	0.480				42.470	11.0						
PDC-480-01-B	0.480				42.063	11.3						
PDC-480-02-A	0.480				44.817	11.0						
PDC-480-02-B	0.480				42.490	11.2						
PDC-480-03-A	0.480				43.446	10.6						
PDC-480-03-B	0.480				44.282	10.5						
PDC-480-04-A	0.480				43.446	10.6						
PDC-480-04-B	0.480				44.282	10.5						
PDC-480-05A	0.480				46.175	10.4						
PDC-480-05B	0.480				46.670	10.4						
PDC-4160-01-A	4.160				14.704	13.1						

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.
PDC-4160-01-B	4.160				15.176	13.8						
PDC-4160-02-A	4.160				14.448	13.1						
PDC-4160-02-B	4.160	CB61-1	5 cy Sym CB	3.0	14.550	13.1	1.000	14.550	4.760		20.000	22.885
PDC-4160-03-A	4.160				15.466	13.9						
PDC-4160-03-B	4.160	CB81	5 cy Sym CB	3.0	15.494	13.9	1.000	15.494	4.760		20.000	22.885
SW-13800-01-A	13.800	CB84	5 cy Sym CB	3.0	31.320	8.7	1.000	31.320	15.000		42.000	45.652
		CB93	5 cy Sym CB	3.0	31.320	8.7	1.000	31.320	15.000		42.000	45.652
		CB94	5 cy Sym CB	3.0	31.320	8.7	1.000	31.320	15.000		42.000	45.652
SW-13800-01-B	13.800	CB83-2	5 cy Sym CB	3.0	31.393	8.8	1.000	31.393	15.000		42.000	45.652
		CB91	5 cy Sym CB	3.0	31.393	8.8	1.000	31.393	15.000		42.000	45.652
		CB1-1	5 cy Sym CB	3.0	31.393	8.8	1.000	31.393	15.000		42.000	45.652
Tren A - BUS A	4.160	CB4-1	5 cy Sym CB	3.0	17.268	6.7	1.000	17.268	4.760		29.000	33.183
Tren A - BUS B	4.160	CB4-1	5 cy Sym CB	3.0	17.268	6.7	1.000	17.268	4.760		29.000	33.183
Tren B - BUS A	4.160	CB76-1	5 cy Sym CB	3.0	16.883	9.8	1.000	16.883	15.000		37.000	48.000
		CB80-1	5 cy Sym CB	3.0	16.883	9.8	1.000	16.883	4.760		29.000	33.183
Tren B - BUS B	4.160	CB80-1	5 cy Sym CB	3.0	16.883	9.8	1.000	16.883	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	47.740	36.43	17.392
Bus-2	13.800	52G2	5 cy Sym CB	47.740	36.43	17.392

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	47.740	36.43	17.392