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	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	52G1	5 cy Sym CB	25.674	21.1	1.577	40.479	67.604		77.000	130.000
	13.800	52 NC	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB2	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB40-1	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB74-1	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB20-1	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB10-1	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
Bus-2	13.800	Bus-2	Switchgear	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	52G2	5 cy Sym CB	25.674	21.1	1.577	40.479	67.604		77.000	130.000
	13.800	52 NC	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB13	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB54-1	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB73-1	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB53-1	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB55-1	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
	13.800	CB46-1	5 cy Sym CB	34.015	21.1	1.577	53.630	89.567		77.000	130.000
Bus-3	13.800	Bus-3	Switchgear	18.693	20.7	1.574	29.417	49.150		77.000	130.000
	13.800	52G3	5 cy Sym CB	10.352	20.7	1.574	16.291	27.220		77.000	130.000
	13.800	CB24	5 cy Sym CB	18.693	20.7	1.574	29.417	49.150		77.000	130.000
	13.800	CB7-1	5 cy Sym CB	18.693	20.7	1.574	29.417	49.150		67.000	113.100
MCC-480-01.	0.480	MCC-480-01.	Bus	41.254	11.1	1.462	60.316	102.344			
MCC-480-02.	0.480	MCC-480-02.	Bus	41.807	11.4	1.466	61.306	103.964			
MCC-480-03.	0.480	MCC-480-03.	Bus	41.254	11.1	1.462	60.316	102.344			
MCC-480-04.	0.480	MCC-480-04.	Bus	41.807	11.4	1.466	61.306	103.964			
MCC-480-05.	0.480	MCC-480-05.	Bus	43.573	11.1	1.461	63.674	108.052			
MCC-480-06.	0.480	MCC-480-06.	Bus	42.233	11.3	1.465	61.862	104.929			
MCC-480-07.	0.480	MCC-480-07.	Bus	43.573	11.1	1.461	63.674	108.052			
MCC-480-08.	0.480	MCC-480-08.	Bus	42.233	11.3	1.465	61.862	104.929			
MCC-480-09 A	0.480	MCC-480-09 A	Bus	42.206	10.7	1.453	61.323	104.176			
MCC-480-09 B	0.480	MCC-480-09 B	Bus	44.014	10.6	1.451	63.855	108.508			
MCC-480-10.	0.480	MCC-480-10.	Bus	42.206	10.7	1.453	61.323	104.176			
MCC-480-11 A	0.480	MCC-480-11 A	Bus	42.206	10.7	1.453	61.323	104.176			
MCC-480-11 B	0.480	MCC-480-11 B	Bus	44.014	10.6	1.451	63.855	108.508			

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	44.014	10.6	1.451	63.855	108.508			
MCC-480-13 A	0.480	MCC-480-13 A	Bus	42.206	10.7	1.453	61.323	104.176			
MCC-480-13 B	0.480	MCC-480-13 B	Bus	44.014	10.6	1.451	63.855	108.508			
MCC-480-14.	0.480	MCC-480-14.	Bus	42.206	10.7	1.453	61.323	104.176			
MCC-480-15 A	0.480	MCC-480-15 A	Bus	42.206	10.7	1.453	61.323	104.176			
MCC-480-15 B	0.480	MCC-480-15 B	Bus	44.014	10.6	1.451	63.855	108.508			
MCC-480-16.	0.480	MCC-480-16.	Bus	44.014	10.6	1.451	63.855	108.508			
MCC-480-17 A	0.480	MCC-480-17 A	Bus	47.858	10.5	1.449	69.330	117.844			
MCC-480-17 B	0.480	MCC-480-17 B	Bus	48.331	10.5	1.448	69.995	118.981			
MCC-480-18 A	0.480	MCC-480-18 A	Bus	47.858	10.5	1.449	69.330	117.844			
MCC-480-18 B	0.480	MCC-480-18 B	Bus	48.331	10.5	1.448	69.995	118.981			
MCC-480-19 A	0.480	MCC-480-19 A	Bus	47.858	10.5	1.449	69.330	117.844			
MCC-480-19 B	0.480	MCC-480-19 B	Bus	48.331	10.5	1.448	69.995	118.981			
MCC-480-20 A	0.480	MCC-480-20 A	Bus	47.858	10.5	1.449	69.330	117.844			
MCC-480-20 B	0.480	MCC-480-20 B	Bus	48.331	10.5	1.448	69.995	118.981			
MCC-480-21.	0.480	MCC-480-21.	Bus	47.858	10.5	1.449	69.330	117.844			
MCC-480-22.	0.480	MCC-480-22.	Bus	48.331	10.5	1.448	69.995	118.981			
OFFSITES A	0.480	OFFSITES A	Switchgear	41.194	5.5	1.280	52.727	91.169	65.000	86.500	
OFFSITES B	0.480	OFFSITES B	Switchgear	41.194	5.5	1.280	52.727	91.169	65.000	86.500	
PDC-480-01-A	0.480	PDC-480-01-A	Bus	41.254	11.1	1.462	60.316	102.344			
PDC-480-01-B	0.480	PDC-480-01-B	Bus	41.807	11.4	1.466	61.306	103.964			
PDC-480-02-A	0.480	PDC-480-02-A	Bus	43.573	11.1	1.461	63.674	108.052			
PDC-480-02-B	0.480	PDC-480-02-B	Bus	42.233	11.3	1.465	61.862	104.929			
PDC-480-03-A	0.480	PDC-480-03-A	Bus	42.206	10.7	1.453	61.323	104.176			
PDC-480-03-B	0.480	PDC-480-03-B	Bus	44.014	10.6	1.451	63.855	108.508			
PDC-480-04-A	0.480	PDC-480-04-A	Bus	42.206	10.7	1.453	61.323	104.176			
PDC-480-04-B	0.480	PDC-480-04-B	Bus	44.014	10.6	1.451	63.855	108.508			
PDC-480-05A	0.480	PDC-480-05A	Bus	47.858	10.5	1.449	69.330	117.844			
PDC-480-05B	0.480	PDC-480-05B	Bus	48.331	10.5	1.448	69.995	118.981			
PDC-4160-01-A	4.160	PDC-4160-01-A	Switchgear	14.558	13.6	1.504	21.890	36.936		58.000	97.880
PDC-4160-01-B	4.160	PDC-4160-01-B	Switchgear	16.162	14.2	1.512	24.439	41.189		58.000	97.880
PDC-4160-02-A	4.160	PDC-4160-02-A	Switchgear	14.427	13.4	1.501	21.652	36.548		58.000	97.880
PDC-4160-02-B	4.160	PDC-4160-02-B	Switchgear	15.863	13.2	1.497	23.751	40.111		58.000	97.880
	4.160	CB61-1	5 cy Sym CB	15.863	13.2	1.497	23.751	40.111		32.000	54.000
PDC-4160-03-A	4.160	PDC-4160-03-A	Switchgear	20.537	15.2	1.525	31.310	52.677		58.000	97.880
	4.160	CB78	5 cy Sym CB	20.537	15.2	1.525	31.310	52.677		58.000	97.000

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-B	4.160	PDC-4160-03-B	Switchgear	20.537	15.2	1.525	31.310	52.677		58.000	97.880
	4.160	CB78	5 cy Sym CB	20.537	15.2	1.525	31.310	52.677		58.000	97.000
	4.160	CB81	5 cy Sym CB	20.537	15.2	1.525	31.310	52.677		32.000 #	54.000 #
SW-13800-01-A	13.800	SW-13800-01-A	Switchgear	16.424	12.0	1.478	24.283	41.113		67.000	113.100
	13.800	CB93	5 cy Sym CB	16.424	12.0	1.478	24.283	41.113		67.000	113.100
	13.800	CB94	5 cy Sym CB	16.424	12.0	1.478	24.283	41.113		67.000	113.100
SW-13800-01-B	13.800	SW-13800-01-B	Switchgear	27.447	10.1	1.441	39.544	67.283		67.000	113.100
	13.800	CB83-2	5 cy Sym CB	27.447	10.1	1.441	39.544	67.283		67.000	113.100
	13.800	CB91	5 cy Sym CB	27.447	10.1	1.441	39.544	67.283		67.000	113.100
	13.800	CB1-1	5 cy Sym CB	27.447	10.1	1.441	39.544	67.283		67.000	113.100
Tren A - BUS A	4.160	Tren A - BUS A	Switchgear	18.198	7.1	1.349	24.555	42.222		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.198	7.1	1.349	24.555	42.222		58.000	97.000
Tren A - BUS B	4.160	Tren A - BUS B	Switchgear	18.198	7.1	1.349	24.555	42.222		39.000	65.810
	4.160	CB4-1	5 cy Sym CB	18.198	7.1	1.349	24.555	42.222		58.000	97.000
Tren B - BUS A	4.160	Tren B - BUS A	Switchgear	17.099	9.8	1.432	24.486	41.708		39.000	65.810
	4.160	CB76-1	5 cy Sym CB	17.099	9.8	1.432	24.486	41.708		77.000	130.000
	4.160	CB80-1	5 cy Sym CB	17.099	9.8	1.432	24.486	41.708		58.000	97.000
Tren B - BUS B	4.160	Tren B - BUS B	Switchgear	17.099	9.8	1.432	24.486	41.708		39.000	65.810
	4.160	CB80-1	5 cy Sym CB	17.099	9.8	1.432	24.486	41.708		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	23.661	21.8	1.000	23.661	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB2	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB40-1	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB74-1	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB20-1	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB10-1	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
Bus-2	13.800	52G2	5 cy Sym CB	3.0	23.661	21.8	1.000	23.661	15.000		37.000	40.217
		52 NC	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB13	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB54-1	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB73-1	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB53-1	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB55-1	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
		CB46-1	5 cy Sym CB	3.0	32.002	21.8	1.031	32.995	15.000		37.000	40.217
Bus-3	13.800	52G3	5 cy Sym CB	3.0	9.564	21.1	1.000	9.564	15.000		37.000	40.217
		CB24	5 cy Sym CB	3.0	17.905	21.1	1.029	18.420	15.000		37.000	40.217
		CB7-1	5 cy Sym CB	3.0	17.905	21.1	1.029	18.420	15.000		42.000	45.652
MCC-480-01.	0.480				41.254	11.1						
MCC-480-02.	0.480				41.807	11.4						
MCC-480-03.	0.480				41.254	11.1						
MCC-480-04.	0.480				41.807	11.4						
MCC-480-05.	0.480				43.573	11.1						
MCC-480-06.	0.480				42.233	11.3						
MCC-480-07.	0.480				43.573	11.1						
MCC-480-08.	0.480				42.233	11.3						
MCC-480-09 A	0.480				42.206	10.7						
MCC-480-09 B	0.480				44.014	10.6						
MCC-480-10.	0.480				42.206	10.7						
MCC-480-11 A	0.480				42.206	10.7						
MCC-480-11 B	0.480				44.014	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				44.014	10.6						
MCC-480-13 A	0.480				42.206	10.7						
MCC-480-13 B	0.480				44.014	10.6						
MCC-480-14.	0.480				42.206	10.7						
MCC-480-15 A	0.480				42.206	10.7						
MCC-480-15 B	0.480				44.014	10.6						
MCC-480-16.	0.480				44.014	10.6						
MCC-480-17 A	0.480				47.858	10.5						
MCC-480-17 B	0.480				48.331	10.5						
MCC-480-18 A	0.480				47.858	10.5						
MCC-480-18 B	0.480				48.331	10.5						
MCC-480-19 A	0.480				47.858	10.5						
MCC-480-19 B	0.480				48.331	10.5						
MCC-480-20 A	0.480				47.858	10.5						
MCC-480-20 B	0.480				48.331	10.5						
MCC-480-21.	0.480				47.858	10.5						
MCC-480-22.	0.480				48.331	10.5						
OFFSITES A	0.480	CB58-1	Molded Case		41.194	5.5	1.027	42.288	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.194	5.5	1.027	42.288	0.480	20.00	65.000	65.000
OFFSITES B	0.480	CB57-1	Molded Case		41.194	5.5	1.027	42.288	0.480	20.00	65.000	65.000
		CB56-1	Molded Case		41.194	5.5	1.027	42.288	0.480	20.00	65.000	65.000
PDC-480-01-A	0.480				41.254	11.1						
PDC-480-01-B	0.480				41.807	11.4						
PDC-480-02-A	0.480				43.573	11.1						
PDC-480-02-B	0.480				42.233	11.3						
PDC-480-03-A	0.480				42.206	10.7						
PDC-480-03-B	0.480				44.014	10.6						
PDC-480-04-A	0.480				42.206	10.7						
PDC-480-04-B	0.480				44.014	10.6						
PDC-480-05A	0.480				47.858	10.5						
PDC-480-05B	0.480				48.331	10.5						
PDC-4160-01-A	4.160				13.037	13.6						
PDC-4160-01-B	4.160				14.766	14.0						
PDC-4160-02-A	4.160				12.794	13.6						

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.
PDC-4160-02-B	4.160	CB61-1	5 cy Sym CB	3.0	14.144	13.3	1.000	14.144	4.760		20.000	22.885
PDC-4160-03-A	4.160	CB78	5 cy Sym CB	3.0	16.711	14.8	1.000	16.711	4.760		29.000	33.183
PDC-4160-03-B	4.160	CB78	5 cy Sym CB	3.0	16.711	14.8	1.000	16.711	4.760		29.000	33.183
		CB81	5 cy Sym CB	3.0	16.711	14.8	1.000	16.711	4.760		20.000	22.885
SW-13800-01-A	13.800	CB93	5 cy Sym CB	3.0	15.634	12.0	1.000	15.634	15.000		42.000	45.652
		CB94	5 cy Sym CB	3.0	15.634	12.0	1.000	15.634	15.000		42.000	45.652
SW-13800-01-B	13.800	CB83-2	5 cy Sym CB	3.0	25.654	10.1	1.000	25.654	15.000		42.000	45.652
		CB91	5 cy Sym CB	3.0	25.654	10.1	1.000	25.654	15.000		42.000	45.652
		CB1-1	5 cy Sym CB	3.0	25.654	10.1	1.000	25.654	15.000		42.000	45.652
Tren A - BUS A	4.160	CB4-1	5 cy Sym CB	3.0	16.686	6.9	1.000	16.686	4.760		29.000	33.183
Tren A - BUS B	4.160	CB4-1	5 cy Sym CB	3.0	16.686	6.9	1.000	16.686	4.760		29.000	33.183
Tren B - BUS A	4.160	CB76-1	5 cy Sym CB	3.0	16.292	9.9	1.000	16.292	15.000		37.000	48.000
		CB80-1	5 cy Sym CB	3.0	16.292	9.9	1.000	16.292	4.760		29.000	33.183
Tren B - BUS B	4.160	CB80-1	5 cy Sym CB	3.0	16.292	9.9	1.000	16.292	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	33.462	35.40	11.845
Bus-2	13.800	52G2	5 cy Sym CB	33.462	35.40	11.845
Bus-3	13.800	52G3	5 cy Sym CB	13.526	34.75	4.700

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