

EQUIPMENT EVALUATION, SHORT CIRCUIT, PROTECTIVE DEVICE COORDINATION, & ARC FLASH STUDIES

Client :
M/s XXXX XXXX

Conducted By:
M/s Vijaya Bhanu Engineering



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1.0 ABBREVIATIONS

1.1 Organizations and Standards

ANSI - American National Standards Institute

IEEE - Institute of Electrical and Electronics Engineers IPCEA - Insulated Power Cable Engineers

Association NEMA - National Electrical Manufacturers Association NFPA - National Fire Protection Association

UL – Underwriters Laboratories, Inc.

1.2 Other Abbreviations.

A - Amperes (RMS symmetrical)

AIC – Amperes Interrupting Capacity (Three-Phase RMS sym) ASD - Adjustable Speed ac Drive

ATS - Automatic Transfer Switch

C/B - Circuit Breaker

CHP - Combined Horsepower

CFLA - Combined Full Load Amperes

CT - Current Transformer FLA - Full Load Amperes HP - Horsepower

IL - Max. Demand Load Current at PCC ISC - Short-Circuit Current at PCC

KVA - Kilovolt-Ampere

KVAm - Kilovolt-Amperes of Motor Short Circuit contribution

KW - Kilowatt

L-L - Line-To-Line

LRA - Locked-Rotor Amperes

L.V. - Low Voltage

MCC - Motor Control Center MCS - Molded Case Switch Mohms - Milliohms

MV - Medium Voltage

O.L. - Overload

PCC - Point of Common Coupling

PF - Power Factor

PWM - Pulse Width Modulated

R - Resistance

RMS - Root-Mean-Square

SCA - Short-Circuit Amperes

SCAM - Short-Circuit Amperes of Motor Contribution

S.F. - Service Factor sym. - Symmetrical

TCR - Trip Current Rating

TDD - Total Demand Distortion

THD - Total Harmonic Distortion

V - Line-To-Line Volts (RMS sym.) WCR - Withstand Current Rating

X - Reactance

Z – Impedance

%Z - Percent Impedance

SWBDS- Switch Board Distribution System

2. EXECUTIVE SUMMARY

M/s XXXXX India Pvt Ltd., XXXXXX, XXXXX hired services of M/s Vijaya Bhanu Engineering., Hyderabad, India for performing Arc Flash Hazards Assessments for their electrical power distribution in their Tornagallu plant. This report contains the results of the **Short circuit, Equipment evaluation, Protective device coordination, and Arc flash Study** by considering different modes of operation of Plant. The project objectives are to:

- Calculate the short circuit levels throughout the system and evaluate each equipment fault rating at each study bus.
- Determine optimal settings for all over current protective devices.
- Compile the Arc flash hazards at each study location. Make corrections to system coordination and provide corrective action recommendations to ensure the least amount of arc flash hazard exists.

3. INTRODUCTION

As per OSHA (Occupational Safety & Health Administration)& NFPA 70E Safety regulations, employee safety is most important while working. "The Employer shall ensure that each employee exposed to Electric Arcs shall not wear clothing that could increase injury when exposed to these Arcs". NFPA-70E & its revision A2015 include "The Employee shall implement and document overall Electrical Safety program that directs activity appropriate for the voltage, energy level & Circuit conditions". From Safety point of view, Electrical Safety auditing shall be conducted. NFPA-70E, revision A2015 guides, "An Electrical Safety program shall require auditing of the work being performed of an identified frequency to help assure that principals & procedure of electrical safety programs are being followed. All electrical safety procedure shall be reviewed & revised, based upon the auditing findings on frequency no greater than 3 years."

Arc Flash Hazard Studies are performed to determine the risk to the personnel, warn them of the hazards, and to instruct them as to what kind of personal protective equipment that they must wear.

The short-circuit analysis evaluates the adequacy of a large portion of the electrical distribution equipment in the facility, based on the maximum available short-circuit current at its location. The study includes evaluation of all medium-voltage equipment and low voltage equipment. The protective device, time-current coordination analysis, determines the suggested settings and, where appropriate, the ampere ratings and types for the electrical power system protective devices to achieve the desired system protection and electrical service continuity goals. The flash hazard analysis establishes the flash protection boundary around electrical equipment within which a worker exposed to an arcing fault would expect to receive 2nd degree burns if not adequately protected. The analysis also determines the incident energy level at a specific working distance from equipment, which can be used to select appropriate Personal Protective Equipment (PPE) to be worn when working within the flash protection boundary.

Section 3 provides introduction, **Section 4** provides detail on the Existing analysis of the plant Recommendations are explained in **Section 5**. One-line diagram considered for the scope of Arc Flash Analysis is mentioned in **Section 6**. Arc Flash Labels are provided in **Section 7**.

The Results of this study assumes that all devices are operational and properly calibrated. Regular testing and maintenance of the electrical equipment in the facility can help ensure proper device operation. Also, the recommended ground-fault settings assume that the facility's power system is effectively grounded and bonded to complete a low-impedance path for ground-fault current. Regular

testing and maintenance of the facility's grounding system, as recommended in IEC/IEEE Std. 142-1991 (IEEE Green Book—see Section 1.6.4 and 4.1.6, for example) and IEC/IEEE Std 80-1986, can help ensure continued proper operation of ground fault protective devices.

3.1 System Input Data for Calculations:

The results of the study were based on the technical information and single-line diagrams collected & compiled by XXXXXXXX, as summarized below.

1. Single line diagrams.
2. The conductor & cable lengths, types, sizes, and motor data collected & compiled from XXXXX
3. The model and type of protective devices & their settings collected from XXXXX in technical data templates.

The Coordination Study, Short Circuit Fault analysis includes the following equipment. Short circuit Contributions from motors rating less than 3.7kW are not included in the study.

- _ 415V Power Supply from XXXX.
- _ 415V Distribution Switchgear units
- _ Typical Main Distribution Panels at various locations in the plant

3.2 Assumptions:

The following assumptions were used in modeling the power system, and result in conservative, worst-case results:

- A Three phase utility contribution of 3200 KVA and single phase utility contribution of 1560 KVA was used to model utility fault contributions when fed from 415V
- All cables are considered from SKM typical cable library.
- All motors were assumed to be running. Motor sub-transient reactance is considered as per SKM software (IEC Standard).
- System voltage is modeled at 100% nominal.
- Where the cable length was not mentioned, same was considered to be between 1-10 feet.
- For above 75HP motors the positive sequence and negative sequence reactance are assumed.

3.3 System Modes of Operations:

We considered three modes of operations for the study they are

1. Utility ON and generator OFF mode

4.0 EXISTING ANALYSIS

4.1 SHORT CIRCUIT ANALYSIS

4.1.1 General Procedure

An electrical system short-circuits analysis is used for the following:

- 1) To compare the calculated maximum fault current with the interrupting ratings of over current Protective devices such as fuses and circuit breakers
- 2) To investigate applicable short-circuit series ratings and the protection of electrical equipment by Current- limiting devices.
- 3) To verify the adequacy of other equipment (such as transformers, switches, equipment bussing) to Withstand the effects of the calculated maximum fault current levels.
- 4) To assist in the selection and/or determination of settings for relays, fuses and circuit breakers.

The engineer performed the short circuit study on the existing equipment. The engineer calculated the fault current using the SKM computer program & compared the fault values to the equipment short circuit rating.

This analysis was made utilizing a digital computer programmed to calculate the maximum available three-phase, RMS symmetrical and asymmetrical short-circuit amperes at each piece of equipment in the system. The calculation procedures are based on recommendations included in IEC/IEEE standards

The computer program simulates a bolted three-phase fault at each point of consideration in the system and calculates the maximum available short-circuit current at that point without any reduction due to current-limiting protective devices which may be present. (However, the effects of current limiting devices are considered when determining the adequacy of the equipment.) The calculated short-circuit values are RMS symmetrical amperes and are comparable with the RMS symmetrical short-circuit ratings of electrical equipment. In addition, when the X/R ratio associated with this calculated RMS symmetrical current is greater than the tested breaker X/R ratio, the calculated value is increased by an appropriate multiplying factor.

The computer program was also used to calculate single line-to-ground fault currents. Actual distribution system zero sequence impedance (Z_0) values are difficult to calculate. The zero sequence impedances utilized by the computer program are based on simple, conservative linear relationships with the corresponding positive sequence impedance (Z_1).

Electrical distribution equipment must be able to withstand and/or interrupt the most severe fault duty that it may be subjected to at its location in the system. In general, circuit breakers to have a rating sufficient for interrupting the maximum available fault current present at their line side terminals. For locations where calculated fault currents exceed the ratings of equipment, recommendations for remedies are provided.

The included one-line diagrams are a simplified version of the engineer's drawings, showing only those parts of the electrical system under consideration. The various circuit locations on the diagrams have been labeled with bus identification numbers so input data could be supplied to the computer and the computer output could be readily interpreted.

4.1.2 Data Used in the Calculations.

4.1.2.1 Power Company Data

M/s XXXXXXXX, XXXXXX provided the basic information of Plant SLD (Single Line Diagram) and some information which are related to the switch gear panels & distribution Boards.

Utility Supply Configuration:

Normally, XXXXXXXX is getting the supply from the 415V distribution stations which are under the XXXXX.

A] Source feeding from 11kV Substation.

Feeder ID#	Volts	3- Phase	Line to Ground
Utility supply	415	3200 KVA	1560 KVA

The system was modeled for worst-case maximum & minimum fault currents. In order to model the system for worst-case Incident energy in the event of Arc Flash incident; maximum & minimum values of bolted fault current are calculated for various system operating conditions as mentioned below.

4.1.2.2 Cable Data

The "FEEDER DATA" computer printout lists the cable data used for each circuit segment. Included are cable lengths, number per phase, size, conductor material, cable insulation type, conduit material values. Also, circuit segment cable lengths, number per phase, and size are recorded on the one-line diagrams.

4.1.2.3 Transformer Data

Transformer nameplate provided the Make, type, Rating & the %Z values.

4.1.2.4 Motor Contribution to Short-Circuit Current

All connected motors were assumed to be running at the time of the fault. For calculation of low voltage fault duty, the contribution from all induction motors in the system was considered.

For medium and high-voltage buses, contribution for induction motors less than 50 hp are neglected, per IEC/IEEE C37 standards. Motors fed by adjustable-speed drives are also not considered, since they generally do not contribute to fault current. To increase the accuracy in the calculations motors greater than 10 kW is considered for the low Voltage Short circuit calculations.

4.1.3 Short Circuit Analysis Results Short Circuit Fault levels are determined with various system configurations as mentioned below:

Project:XXXXX

4.1.3.1 Short Circuit Reports when Utility is ON

DAPPER Unbalanced Fault Report

Comprehensive Short Circuit Study Settings

Three Phase Fault	Yes	Faulted Bus	All Buses
Single Line to Ground	Yes	Bus Voltages	First Bus From Fault
Line to Line Fault	No	Branch Currents	First Branch From Fault
Line to Line to Ground	No	Phase or Sequence	Report phase quantities
Motor Contribution	Yes	Fault Current Calculation	Initial Symmetrical RMS (with 1/2 Cycle Asym)
Transformer Tap	Yes	Asym Fault Current at Time	0.50 Cycles
Xformer Phase Shift	Yes		

Fault Location Bus Name	Bus Voltage	3-Phase Amps	3-Phase MVA	3P X/R	SLG Amps	SLG MVA	SLG X/R	Mom Amps	-----3P Asym Amps-----		
									3 Cycles	5 Cycles	8 Cycles
20 KVAR	415	1,439	1.03	0.26	1,108	0.27	0.28	1,439	1,439	1,439	1,439
20 KVAR	415	1,439	1.03	0.26	1,108	0.27	0.28	1,439	1,439	1,439	1,439
20 KVAR	415	1,439	1.03	0.26	1,108	0.27	0.28	1,439	1,439	1,439	1,439
25 KVAR	415	1,707	1.23	0.19	1,395	0.33	0.17	1,707	1,707	1,707	1,707
25 KVAR	415	1,707	1.23	0.19	1,395	0.33	0.17	1,707	1,707	1,707	1,707
25 KVAR	415	1,707	1.23	0.19	1,395	0.33	0.17	1,707	1,707	1,707	1,707
25 KVAR	415	1,707	1.23	0.19	1,395	0.33	0.17	1,707	1,707	1,707	1,707
25 KVAR	415	1,538	1.11	0.24	1,146	0.27	0.26	1,538	1,538	1,538	1,538
25 KVAR	415	1,538	1.11	0.24	1,146	0.27	0.26	1,538	1,538	1,538	1,538
25 KVAR	415	1,538	1.11	0.24	1,146	0.27	0.26	1,538	1,538	1,538	1,538

Fault Location Bus Name	Bus Voltage	3-Phase Amps	3-Phase MVA	3P X/R	SLG Amps	SLG MVA	SLG X/R	Mom Amps	-----3P Asym Amps-----		
									3 Cycles	5 Cycles	8 Cycles
25 KVAR	415	1,538	1.11	0.24	1,146	0.27	0.26	1,538	1,538	1,538	1,538
50 KVAR	415	1,707	1.23	0.19	1,395	0.33	0.17	1,707	1,707	1,707	1,707
50 KVAR	415	1,707	1.23	0.19	1,395	0.33	0.17	1,707	1,707	1,707	1,707
50 KVAR	415	1,707	1.23	0.19	1,395	0.33	0.17	1,707	1,707	1,707	1,707
50 KVAR	415	1,707	1.23	0.19	1,395	0.33	0.17	1,707	1,707	1,707	1,707
50 KVAR	415	1,439	1.03	0.26	1,108	0.27	0.28	1,439	1,439	1,439	1,439
50 KVAR	415	2,139	1.54	0.34	1,525	0.37	0.36	2,139	2,139	2,139	2,139
50 KVAR	415	2,139	1.54	0.34	1,525	0.37	0.36	2,139	2,139	2,139	2,139
50 KVAR	415	1,948	1.40	0.37	1,457	0.35	0.37	1,948	1,948	1,948	1,948
AC Power	415	1,971	1.42	0.20	1,607	0.38	0.18	1,971	1,971	1,971	1,971
Air Dryer-1	415	520	0.37	0.22	426	0.10	0.15	520	520	520	520
Air Dryer-2	415	551	0.40	0.21	451	0.11	0.15	551	551	551	551
APFC Panel	415	5,528	3.97	1.10	3,275	0.78	0.85	5,545	5,528	5,528	5,528
APFC Panel	415	8,928	6.42	1.41	7,359	1.76	1.02	9,031	8,928	8,928	8,928
APFC Panel	415	4,391	3.16	1.00	2,967	0.71	0.83	4,400	4,391	4,391	4,391
Bag house fan_DE2	415	5,456	3.92	1.09	4,103	0.98	0.85	5,473	5,456	5,456	5,456
Bag house fan_DE3	415	7,220	5.19	1.17	5,669	1.36	0.86	7,254	7,220	7,220	7,220
Belt Conveyor-1	415	297	0.21	0.33	236	0.06	0.21	297	297	297	297
Belt Conveyor-10	415	619	0.45	0.24	493	0.12	0.20	619	619	619	619
Belt Conveyor-11	415	1,098	0.79	0.26	855	0.20	0.24	1,098	1,098	1,098	1,098
Belt Conveyor-12	415	715	0.51	0.24	567	0.14	0.20	715	715	715	715
Belt Conveyor-2	415	325	0.23	0.31	259	0.06	0.21	325	325	325	325
Belt Conveyor-3	415	405	0.29	0.27	322	0.08	0.19	405	405	405	405
Belt Conveyor-4	415	474	0.34	0.25	376	0.09	0.19	474	474	474	474
Belt Conveyor-7	415	545	0.39	0.18	448	0.11	0.13	545	545	545	545
Belt Conveyor-9	415	743	0.53	0.24	589	0.14	0.20	743	743	743	743
Belt coveyor-5	415	575	0.41	0.23	454	0.11	0.19	575	575	575	575

Fault Location Bus Name	Bus Voltage	3-Phase Amps	3-Phase MVA	3P X/R	SLG Amps	SLG MVA	SLG X/R	Mom Amps	-----3P Asym Amps-----		
									3 Cycles	5 Cycles	8 Cycles
Belt conveyer-6	415	656	0.47	0.22	516	0.12	0.19	656	656	656	656
Belt conveyer-8	415	613	0.44	0.23	483	0.12	0.19	613	613	613	613
Belt Feeder-1&2	415	4,129	2.97	0.68	2,588	0.62	0.60	4,129	4,129	4,129	4,129
Belt Feeder-3	415	564	0.41	0.25	449	0.11	0.19	564	564	564	564
Belt Feeder-4	415	600	0.43	0.24	478	0.11	0.20	600	600	600	600
BF-01	415	396	0.28	0.37	310	0.07	0.24	396	396	396	396
BF-02	415	545	0.39	0.31	426	0.10	0.22	545	545	545	545
BP Hydraulic Powerp	415	195	0.14	0.15	160	0.04	Infinite	195	195	195	195
Briquetting Press	415	3,887	2.79	1.56	2,366	0.57	0.96	3,956	3,887	3,887	3,887
Bucket Elevator	415	612	0.44	0.30	468	0.11	0.22	612	612	612	612
BUS-0372	415	4,351	3.13	0.43	3,488	0.84	0.36	4,351	4,351	4,351	4,351
Changeover Switch	415	3,679	2.64	0.69	2,550	0.61	0.61	3,679	3,679	3,679	3,679
Combustion Air Fan	415	316	0.23	0.32	251	0.06	0.21	316	316	316	316
CRM Pickling Bin A	415	416	0.30	0.14	335	0.08	0.11	416	416	416	416
Discharge dust screv	415	443	0.32	0.21	354	0.08	0.17	443	443	443	443
Diverter Gate-1	415	209	0.15	0.06	172	0.04	Infinite	209	209	209	209
Diverter Gate-2	415	209	0.15	0.06	172	0.04	Infinite	209	209	209	209
Dryer Panel	415	704	0.51	0.09	583	0.14	0.09	704	704	704	704
Duty Compress-1	415	5,983	4.30	1.28	4,450	1.07	0.99	6,028	5,983	5,983	5,983
Duty Compress-2	415	5,983	4.30	1.28	4,450	1.07	0.99	6,028	5,983	5,983	5,983
Duty Compress-3	415	5,635	4.05	1.13	4,304	1.03	0.94	5,657	5,635	5,635	5,635
Exhaust Gas damper	415	161	0.12	0.59	116	0.03	Infinite	161	161	161	161
Exhaust gas ID Fan	415	1,958	1.41	0.61	1,350	0.32	0.53	1,958	1,958	1,958	1,958
Hoist for stock Conv	415	525	0.38	0.21	421	0.10	0.17	525	525	525	525
Hydrated Lime Bin A	415	416	0.30	0.14	335	0.08	0.11	416	416	416	416
IMCC-1	415	7,051	5.07	1.74	4,006	0.96	1.06	7,240	7,051	7,051	7,051

Fault Location Bus Name	Bus Voltage	3-Phase Amps	3-Phase MVA	3P X/R	SLG Amps	SLG MVA	SLG X/R	Mom Amps	-----3P Asym Amps-----		
									3 Cycles	5 Cycles	8 Cycles
IMCC-2	415	5,371	3.86	1.38	3,561	0.85	1.01	5,426	5,371	5,371	5,371
IMCC-3	415	10,581	7.61	2.20	9,100	2.18	1.39	11,171	10,581	10,581	10,581
MAIN INCOMER	415	12,309	8.85	2.25	17,762	4.26	2.32	13,041	12,309	12,309	12,309
Metallic dust Bin Ac	415	416	0.30	0.14	335	0.08	0.11	416	416	416	416
Mill Scale Screw	415	876	0.63	0.30	673	0.16	0.26	876	876	876	876
Mill scaleBin Activa	415	336	0.24	0.15	272	0.07	0.11	336	336	336	336
Mixer-1	415	4,199	3.02	1.04	2,532	0.61	0.75	4,209	4,199	4,199	4,199
Mixer-2	415	4,400	3.16	1.06	2,640	0.63	0.77	4,412	4,400	4,400	4,400
MLDB Power	415	5,227	3.76	0.55	4,181	1.00	0.45	5,227	5,227	5,227	5,227
PCPMP-5	415	852	0.61	0.18	676	0.16	0.18	852	852	852	852
PCPMP-5,6,7	415	3,392	2.44	0.66	2,372	0.57	0.59	3,392	3,392	3,392	3,392
PCPMP-6	415	852	0.61	0.18	676	0.16	0.18	852	852	852	852
PCPMP-7	415	852	0.61	0.18	676	0.16	0.18	852	852	852	852
PDB for power outle	415	1,035	0.74	0.13	852	0.20	0.12	1,035	1,035	1,035	1,035
Product Stock Covey	415	525	0.38	0.21	421	0.10	0.17	525	525	525	525
Progressive Cavity P	415	509	0.37	0.27	406	0.10	0.22	509	509	509	509
Progressive Cavity P	415	502	0.36	0.23	402	0.10	0.20	502	502	502	502
Progressive Cavity P	415	542	0.39	0.27	431	0.10	0.22	542	542	542	542
Progressive Cavity P	415	535	0.38	0.23	428	0.10	0.20	535	535	535	535
Raw power supply	415	532	0.38	0.07	442	0.11	0.07	532	532	532	532
Rolling Shutter-1	415	253	0.18	0.09	210	0.05	0.07	253	253	253	253
Rolling Shutter-2	415	170	0.12	0.11	141	0.03	Infinite	170	170	170	170
Rolling Shutter-3	415	196	0.14	0.10	163	0.04	Infinite	196	196	196	196
Rolling Shutter-4	415	143	0.10	0.13	118	0.03	Infinite	143	143	143	143
Rotary Air Lock	415	416	0.30	0.06	345	0.08	0.05	416	416	416	416
Rotary air lock-6	415	194	0.14	0.06	162	0.04	Infinite	194	194	194	194
Rotary Air Valve Ba	415	115	0.08	0.05	95	0.02	Infinite	115	115	115	115

Fault Location Bus Name	Bus Voltage	3-Phase Amps	3-Phase MVA	3P X/R	SLG Amps	SLG MVA	SLG X/R	Mom Amps	-----3P Asym Amps-----		
									3 Cycles	5 Cycles	8 Cycles
Rotary Air Valve Ba	415	115	0.08	0.05	95	0.02	Infinite	115	115	115	115
Rotary Air Valve Ba	415	115	0.08	0.05	95	0.02	Infinite	115	115	115	115
Rotary Air Valve Cy	415	115	0.08	0.05	95	0.02	Infinite	115	115	115	115
Rotary Drier	415	2,540	1.83	0.74	1,678	0.40	0.64	2,540	2,540	2,540	2,540
SC-02	415	531	0.38	0.20	421	0.10	0.17	531	531	531	531
SC-03	415	531	0.38	0.20	421	0.10	0.17	531	531	531	531
SC-04	415	531	0.38	0.20	421	0.10	0.17	531	531	531	531
Screw conveyor	415	4,090	2.94	0.68	2,577	0.62	0.60	4,091	4,090	4,090	4,090
Screw Conveyor	415	348	0.25	0.12	288	0.07	0.10	348	348	348	348
Screw Conveyor	415	333	0.24	0.10	276	0.07	0.09	333	333	333	333
Screw Conveyor	415	535	0.38	0.10	443	0.11	0.09	535	535	535	535
Slewing	415	525	0.38	0.21	421	0.10	0.17	525	525	525	525
Spare	415	5,624	4.04	0.58	4,499	1.08	0.47	5,624	5,624	5,624	5,624
Spare	415	5,624	4.04	0.58	4,499	1.08	0.47	5,624	5,624	5,624	5,624
Spare	415	5,624	4.04	0.58	4,499	1.08	0.47	5,624	5,624	5,624	5,624
Spare	415	704	0.51	0.09	583	0.14	0.09	704	704	704	704
Spare	415	5,624	4.04	0.58	4,499	1.08	0.47	5,624	5,624	5,624	5,624
Spare	415	5,624	4.04	0.58	4,499	1.08	0.47	5,624	5,624	5,624	5,624
Spare	415	704	0.51	0.09	583	0.14	0.09	704	704	704	704
Spare	415	5,624	4.04	0.58	4,499	1.08	0.47	5,624	5,624	5,624	5,624
Spare	415	5,624	4.04	0.58	4,499	1.08	0.47	5,624	5,624	5,624	5,624
Spare	415	594	0.43	0.10	475	0.11	0.12	594	594	594	594
Spare	415	100	0.07	0.03	83	0.02	Infinite	100	100	100	100
Spare	415	3,117	2.24	0.60	2,206	0.53	0.56	3,117	3,117	3,117	3,117
Spare	415	594	0.43	0.10	475	0.11	0.12	594	594	594	594
Spare	415	100	0.07	0.03	83	0.02	Infinite	100	100	100	100
Ups Supply	415	1	0.00	8.00	0	0.00	Infinite	1	1	1	1

Fault Location Bus Name	Bus Voltage	3-Phase Amps	3-Phase MVA	3P X/R	SLG Amps	SLG MVA	SLG X/R	Mom Amps	-----3P Asym Amps-----		
									3 Cycles	5 Cycles	8 Cycles
Vibrating Conveyor-	415	598	0.43	0.14	477	0.11	0.14	598	598	598	598
Vibrating Conveyor-	415	598	0.43	0.14	477	0.11	0.14	598	598	598	598
Vibrating Screen-1B	415	607	0.44	0.19	480	0.12	0.17	607	607	607	607
Vibrating Screen-2A	415	593	0.43	0.21	475	0.11	0.18	593	593	593	593
Vibrating Screen-2B	415	593	0.43	0.21	475	0.11	0.18	593	593	593	593
Vibrating Screen-A	415	622	0.45	0.20	486	0.12	0.17	622	622	622	622
Water Pump-1	415	360	0.26	0.14	293	0.07	0.13	360	360	360	360
Water Pump-2	415	525	0.38	0.17	424	0.10	0.16	525	525	525	525
Welding Machine-1	415	704	0.51	0.09	583	0.14	0.09	704	704	704	704
Welding Machine-2	415	704	0.51	0.09	583	0.14	0.09	704	704	704	704
Welding Machine-3	415	704	0.51	0.09	583	0.14	0.09	704	704	704	704

Listed in the tables are the calculated short-circuit currents at each piece of equipment and the ratings of the lowest rated device in the equipment enclosure.

Low voltage circuit breakers have an interrupting or momentary rating, which are identical, expressed in symmetrical rms current based on 1.01"d symmetrical rms at time of fault initiation. However, the breakers are tested to interrupt the asymmetrical peak current at a given X/R ratio or equivalent power factor.

If the fault point where the breaker is being applied has a lower power factor or higher X/R ratio than the test values, then the system calculated rms symmetrical current must be modified by an X/R Dependent multiplying factor (MF).

Low voltage power fuses have an interrupting or momentary rating, which are identical, expressed in Symmetrical rms amperes based on 1.01"d symmetrical rms at time of fault initiation. However, the Fuses are tested to interrupt the asymmetrical peak current at a given X/R ratio 4.899 or equivalent Power factor of 20%.

The below shown table gives the complete input and output data from the SKM Power Tools, Power Engineering software.

Project: XXXXX

4.1.4 Fault Analysis Input Report

Input Report (English)

Utilities

Contribution From Name	Bus Name	In/Out Service	Nominal Voltage	----- Contribution Data -----			PU (100 MVA Base)		
					DutyUnits	X/R	R PU	X PU	
UTIL-0001	MAIN INCOMER	In	415	3P:	3,166 kVA	8.00	Pos:	3.918	31.342
				SLG:	1,560 kVA	8.00	Zero:	0.116	0.924

Non-Motor Loads

Name	Phase	In/Out Service	Bus Name	L-L Volts	Rated size	Units	PF	Type
WM-1	ABC	In	Welding Machine-1	433	10.00	kW	0.80	Lag
WM-2	ABC	In	Welding Machine-2	433	10.00	kW	0.80	Lag
WM-3	ABC	In	Welding Machine-3	433	10.00	kW	0.80	Lag
Drier Panel	ABC	In	Dryer Panel	433	10.00	kW	0.80	Lag
Ups Load	ABC	In	Ups Supply	433	5.00	kW	0.80	Lag
MLDB	ABC	In	MLDB Power	433	15.00	kW	0.80	Lag
Air Conditioner	ABC	In	AC Power	415	20.00	kW	0.80	Lag
Raw pwr sply	ABC	In	Raw power supply	433	10.00	kW	0.80	Lag
PDB Pwr supply	ABC	In	PDB for power outlets	433	15.00	kW	0.80	Lag

Induction Motors

Name Phases	# of Motors	Bus Name Connection	In/Out Service	L-L Volts	Status	# of Poles	----- Contribution Data -----		
							Base kVA	Xd"	X/R
AD-1	1	Air Dryer-1	In	415	Running	4	10.08	0.169	10.0
ABC		Wye							
AD-2	1	Air Dryer-2	In	415	Running	4	10.08	0.169	10.0
ABC		Wye							
BA-1A	1	Mill scaleBin Activator	In	415	Running	4	2.11	0.169	10.0
ABC		Wye							

Name Phases	# of Motors	Bus Name Connection	In/Out Service	L-L Volts	Status	# of Poles	----- Contribution Data -----		
							Base kVA	Xd"	X/R
BA-1B ABC	1	Mill scaleBin Activator Wye	In	415	Running	4	2.11	0.169	10.0
BA-2A ABC	1	Metallic dust Bin Activator Wye	In	415	Running	4	2.11	0.169	10.0
BA-2B ABC	1	Metallic dust Bin Activator Wye	In	415	Running	4	2.11	0.169	10.0
BA-3A ABC	1	CRM Pickling Bin Activator Wye	In	415	Running	4	2.11	0.169	10.0
BA-3B ABC	1	CRM Pickling Bin Activator Wye	In	415	Running	4	2.11	0.169	10.0
BA-4A ABC	1	Hydrated Lime Bin Activator Wye	In	415	Running	4	2.11	0.169	10.0
BA-4B ABC	1	Hydrated Lime Bin Activator Wye	In	415	Running	4	2.11	0.169	10.0
BC-07 ABC	1	Belt Conveyor-7 Wye	In	415	Running	4	7.39	0.169	10.0
BC-09 ABC	1	Belt Conveyor-9 Wye	In	415	Running	4	10.08	0.169	10.0
BC-1 ABC	1	Belt Conveyor-1 Wye	In	415	Running	4	10.08	0.169	10.0
BC-10 ABC	1	Belt Conveyor-10 Wye	In	415	Running	4	10.08	0.169	10.0
BC-11 ABC	1	Belt Conveyor-11 Wye	In	415	Running	4	10.08	0.169	10.0
BC-12 ABC	1	Belt Conveyor-12 Wye	In	415	Running	4	10.08	0.169	10.0
BC-2 ABC	1	Belt Conveyor-2 Wye	In	415	Running	4	10.08	0.169	10.0
BC-3 ABC	1	Belt Conveyor-3 Wye	In	415	Running	4	10.08	0.169	10.0
BC-4 ABC	1	Belt Conveyor-4 Wye	In	415	Running	4	10.08	0.169	10.0
BC-5 ABC	1	Belt conveyor-5 Wye	In	415	Running	4	10.08	0.169	10.0

Name Phases	# of Motors	Bus Name Connection	In/Out Service	L-L Volts	Status	# of Poles	----- Contribution Data -----		
							Base kVA	Xd"	X/R
BC-6 ABC	1	Belt coveyor-6 Wye	In	415	Running	4	10.08	0.169	10.0
BC-8 ABC	1	Belt coveyor-8 Wye	In	415	Running	4	10.08	0.169	10.0
BE-01 ABC	1	Bucket Elevator Wye	In	415	Running	4	17.19	0.162	3.2
BF_01 ABC	1	BF-01 Wye	In	415	Running	4	14.78	0.169	10.0
BF_02 ABC	1	BF-02 Wye	In	415	Running	4	14.78	0.169	10.0
BFE-03 ABC	1	Belt Feeder-3 Wye	In	415	Running	4	10.08	0.169	10.0
BFE-04 ABC	1	Belt Feeder-4 Wye	In	415	Running	4	10.08	0.169	10.0
BFSC-1 ABC	1	Discharge dust screw ou Wye	In	415	Running	4	7.39	0.169	10.0
BFSC-2 ABC	1	Screw Conveyor Wye	In	415	Running	4	2.02	0.169	10.0
BFSC-3 ABC	1	Screw Conveyor Wye	In	415	Running	4	2.96	0.169	10.0
BFSC-4 ABC	1	Screw Conveyor Wye	In	415	Running	4	2.02	0.169	10.0
BHFN-01 ABC	1	Exhaust gas ID Fan Wye	In	415	Running	4	49.73	0.169	10.0
BHFN-1 ABC	1	Bag house fan_DE2 Wye	In	415	Running	4	147.85	0.169	10.0
BHFN-2 ABC	1	Bag house fan_DE3 Wye	In	415	Running	4	147.85	0.169	10.0
BP Pack ABC	1	BP Hydralic Powerpack Wye	In	415	Running	4	2.96	0.169	10.0
Briquetting press-01 ABC	1	Briquetting Press Wye	In	415	Running	4	251.34	0.169	10.0
CAF-1 ABC	1	Combustion Air Fan Wye	In	415	Running	4	10.08	0.169	10.0

Name Phases	# of Motors	Bus Name Connection	In/Out Service	L-L Volts	Status	# of Poles	----- Contribution Data -----		
							Base kVA	Xd"	X/R
CMP-1	1	Duty Compress-1	In	415	Running	4	177.42	0.169	10.0
ABC		Wye							
CMP-2	1	Duty Compress-2	In	415	Running	4	177.42	0.169	10.0
ABC		Wye							
CMP-3	1	Duty Compress-3	In	415	Running	4	100.81	0.169	10.0
ABC		Wye							
DG-01	1	Diverter Gate-1	In	415	Running	4	0.74	0.169	10.0
ABC		Wye							
DG-02	1	Diverter Gate-2	In	415	Running	4	0.74	0.169	10.0
ABC		Wye							
DR-01	1	Rotary Drier	In	415	Running	4	60.48	0.169	10.0
ABC		Wye							
Hoist for SBC-1	1	Hoist for stock Conveyo	In	415	Running	4	7.39	0.169	10.0
ABC		Wye							
LD-1	1	Exhaust Gas damper	In	415	Running	4	10.94	0.162	3.2
ABC		Wye							
MXH-01	1	Mixer-1	In	415	Running	4	147.85	0.169	10.0
ABC		Wye							
MXH-02	1	Mixer-2	In	415	Running	4	147.85	0.169	10.0
ABC		Wye							
PCPMP_5	1	PCPMP-5	In	415	Running	4	2.02	0.169	10.0
ABC		Wye							
PCPMP_6	1	PCPMP-6	In	415	Running	4	2.02	0.169	10.0
ABC		Wye							
PCPMP_7	1	PCPMP-7	In	415	Running	4	2.02	0.169	10.0
ABC		Wye							
PCPMP-1	1	Progressive Cavity Pum	In	415	Running	4	10.08	0.169	10.0
ABC		Wye							
PCPMP-2	1	Progressive Cavity Pum	In	415	Running	4	7.39	0.169	10.0
ABC		Wye							
PCPMP-3	1	Progressive Cavity Pum	In	415	Running	4	10.08	0.169	10.0
ABC		Wye							
PCPMP-4	1	Progressive Cavity Pum	In	415	Running	4	7.39	0.169	10.0
ABC		Wye							

Name Phases	# of Motors	Bus Name Connection	In/Out Service	L-L Volts	Status	# of Poles	----- Contribution Data -----		
							Base kVA	Xd"	X/R
RF-05 ABC	1	Rotary Air Lock Wye	In	415	Running	4	0.74	0.169	10.0
RF-06 ABC	1	Rotary air lock-6 Wye	In	415	Running	4	0.74	0.169	10.0
RF-1 ABC	1	Rotary Air Valve Cyclor Wye	In	415	Running	4	0.34	0.169	10.0
RF-2 ABC	1	Rotary Air Valve Bag Fi Wye	In	415	Running	4	0.34	0.169	10.0
RF-3 ABC	1	Rotary Air Valve Bag fi Wye	In	415	Running	4	0.34	0.169	10.0
RF-4 ABC	1	Rotary Air Valve Bag fi Wye	In	415	Running	4	0.34	0.169	10.0
RS-1 ABC	1	Rolling Shutter-1 Wye	In	415	Running	4	2.02	0.169	10.0
RS-2 ABC	1	Rolling Shutter-2 Wye	In	415	Running	4	2.02	0.169	10.0
RS-3 ABC	1	Rolling Shutter-3 Wye	In	415	Running	4	2.02	0.169	10.0
RS-4 ABC	1	Rolling Shutter-4 Wye	In	415	Running	4	2.02	0.169	10.0
SBC-1 ABC	1	Product Stock Coveyor Wye	In	415	Running	4	7.39	0.169	10.0
SC_02 ABC	1	SC-02 Wye	In	415	Running	4	7.39	0.169	10.0
SC_06 ABC	1	SC-03 Wye	In	415	Running	4	7.39	0.169	10.0
SC_07 ABC	1	SC-04 Wye	In	415	Running	4	7.39	0.169	10.0
SC-01 ABC	1	Mill Scale Screw Wye	In	415	Running	4	14.78	0.169	10.0
Slewing for SBC-1 ABC	1	Slewing Wye	In	415	Running	4	7.39	0.169	10.0
VC-1A ABC	1	Vibrating Conveyor-A Wye	In	415	Running	4	2.82	0.169	10.0

Name Phases	# of Motors	Bus Name Connection	In/Out Service	L-L Volts	Status	# of Poles	----- Contribution Data -----		
							Base kVA	Xd"	X/R
VC-1B ABC	1	Vibrating Conveyor-B Wye	In	415	Running	4	2.82	0.169	10.0
VS-1A ABC	1	Vibrating Screen-A Wye	In	415	Running	4	8.59	0.162	3.2
VS-1B ABC	1	Vibrating Screen-1B Wye	In	415	Running	4	7.39	0.169	10.0
VS-2A ABC	1	Vibrating Screen-2A Wye	In	415	Running	4	7.39	0.169	10.0
VS-2B ABC	1	Vibrating Screen-2B Wye	In	415	Running	4	7.39	0.169	10.0
WP for Mixer-1 ABC	1	Water Pump-1 Wye	In	415	Running	4	2.96	0.169	10.0
WP for mixer-2 ABC	1	Water Pump-2 Wye	In	415	Running	4	2.96	0.169	10.0

Cables

Name Phases	From Bus To Bus	In/Out Service	Qty /Ph	Length Feet	Size	----- Cable Description -----			Ohms/ 1000 feet	
						Cond. Type	Duct Type	Insul	R	jX
CBL-0007 ABC	MAIN INCOMER IMCC-1	In	2	2,297	240	Aluminum	Non-Magnetic	XLP1	Pos: 0.050 Zero: 0.078	0.024 0.061
CBL-0008 ABC	IMCC-1 Belt Conveyor-1	In	1	1,017	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0009 ABC	IMCC-1 Mixer-1	In	2	591	95	Aluminum	Non-Magnetic	XLP3	Pos: 0.130 Zero: 0.199	0.022 0.056
CBL-0010 ABC	IMCC-1 Belt Conveyor-2	In	1	919	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0011 ABC	IMCC-1 Combustion Air Fi	In	1	1,066	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058
CBL-0012 ABC	IMCC-1 Belt Conveyor-3	In	1	722	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0013 ABC	IMCC-1 Belt Conveyor-4	In	1	607	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0014 ABC	IMCC-1 Mixer-2	In	2	525	95	Aluminum	Non-Magnetic	XLP3	Pos: 0.130 Zero: 0.199	0.022 0.056

Name Phases	From Bus To Bus	In/Out Service	Qty /Ph	Length Feet	Size	----- Cable Description -----			Ohms/ 1000 feet	
						Cond. Type	Duct Type	Insul	R	jX
CBL-0016 ABC	Screw conveyor SC-03	In	1	492	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0017 ABC	Screw conveyor SC-04	In	1	492	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0018 ABC	IMCC-1 Screw conveyor	In	1	98	35	Aluminum	Non-Magnetic	XLP3	Pos: 0.340 Zero: 0.539	0.023 0.058
CBL-0019 ABC	IMCC-1 Belt conveyer-6	In	1	427	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0020 ABC	IMCC-1 Belt conveyer-8	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0021 ABC	IMCC-1 Rotary Air Valve C	In	1	722	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081
CBL-0022 ABC	IMCC-1 Rotary Air Valve E	In	1	722	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081
CBL-0023 ABC	IMCC-1 Rotary Air Valve F	In	1	722	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081
CBL-0024 ABC	IMCC-1 Rotary Air Valve F	In	1	722	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081
CBL-0025 ABC	IMCC-1 Belt conveyer-5	In	1	492	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0026 ABC	PCPMP-5,6,7 PCPMP-6	In	1	262	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0027 ABC	PCPMP-5,6,7 PCPMP-7	In	1	262	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0028 ABC	IMCC-2 PCPMP-5,6,7	In	1	98	35	Aluminum	Non-Magnetic	XLP3	Pos: 0.340 Zero: 0.539	0.023 0.058
CBL-0030 ABC	IMCC-1 Vibrating Conveyer	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0033 ABC	IMCC-1 Discharge dust screw	In	1	722	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058
CBL-0034 ABC	IMCC-1 Mill scale Bin Activator	In	2	492	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081
CBL-0035 ABC	IMCC-1 Metallic dust Bin Activator	In	2	394	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081
CBL-0036 ABC	IMCC-1 APFC Panel	In	1	98	95	Aluminum	Non-Magnetic	XLP1	Pos: 0.130 Zero: 0.199	0.026 0.066
CBL-0037 ABC	APFC Panel 25 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058

Name Phases	From Bus To Bus	In/Out Service	Qty /Ph	Length Feet	Size	----- Cable Description -----			Ohms/ 1000 feet		
						Cond. Type	Duct Type	Insul	R	jX	
CBL-0038 ABC	APFC Panel 25 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0039 ABC	APFC Panel 25 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0040 ABC	APFC Panel 25 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0041 ABC	APFC Panel 50 KVAR	In	1	164	25	Aluminum	Non-Magnetic	XLP3	Pos: 0.470 Zero: 0.746	0.023 0.058	
CBL-0042 ABC	APFC Panel 50 KVAR	In	1	164	25	Aluminum	Non-Magnetic	XLP3	Pos: 0.470 Zero: 0.746	0.023 0.058	
CBL-0043 ABC	APFC Panel 20 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0044 ABC	APFC Panel 20 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0045 ABC	APFC Panel 20 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0046 ABC	APFC Panel 50 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0047 ABC	APFC Panel 50 KVAR	In	1	164	25	Aluminum	Non-Magnetic	XLP3	Pos: 0.470 Zero: 0.746	0.023 0.058	
CBL-0048 ABC	APFC Panel 50 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0049 ABC	IMCC-1 CRM Pickling Bin	In	2	394	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0050 ABC	IMCC-1 Hydrated Lime Bir	In	2	394	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0051 ABC	APFC Panel 50 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0052 ABC	APFC Panel 25 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0053 ABC	APFC Panel 25 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0054 ABC	IMCC-1 Bucket Elevator	In	1	558	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0055 ABC	IMCC-1 Exhaust Gas damp	In	1	722	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0056 ABC	IMCC-1 Vibrating Screen-/	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	

Name Phases	From Bus To Bus	In/Out Service	Qty /Ph	Length Feet	Size	----- Cable Description -----			Ohms/ 1000 feet		
						Cond. Type	Duct Type	Insul	R	jX	
CBL-0057 ABC	IMCC-1 Diverter Gate-1	In	1	394	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0058 ABC	IMCC-1 Diverter Gate-2	In	1	394	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0059 ABC	IMCC-1 Spare	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0060 ABC	IMCC-1 Spare	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0061 ABC	IMCC-1 Rotary Drier	In	1	722	70	Copper	Non-Magnetic	XLP1	Pos: 0.100 Zero: 0.166	0.026 0.066	
CBL-0062 ABC	IMCC-1 Exhaust gas ID Fai	In	1	722	50	Copper	Non-Magnetic	XLP1	Pos: 0.150 Zero: 0.239	0.027 0.068	
CBL-0063 ABC	IMCC-1 Mill Scale Screw	In	1	591	16	Copper	Non-Magnetic	XLP1	Pos: 0.450 Zero: 0.711	0.029 0.073	
CBL-0064 ABC	APFC Panel 50 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0065 ABC	APFC Panel 50 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0066 ABC	APFC Panel 25 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0067 ABC	APFC Panel 25 KVAR	In	1	164	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058	
CBL-0070 ABC	IMCC-2 Belt Feeder-3	In	1	492	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0071 ABC	IMCC-2 Belt Conveyor-9	In	1	361	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0072 ABC	IMCC-2 Belt Feeder-4	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0073 ABC	IMCC-3 Rolling Shutter-1	In	1	328	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0074 ABC	IMCC-2 Water Pump-1	In	1	771	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0075 ABC	IMCC-3 Bag house fan_DE	In	2	919	185	Aluminum	Non-Magnetic	XLP3	Pos: 0.060 Zero: 0.102	0.022 0.056	
CBL-0076 ABC	IMCC-2 Vibrating Screen-2	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0077 ABC	IMCC-3 Spare	In	1	394	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	

Name Phases	From Bus To Bus	In/Out Service	Qty /Ph	Length Feet	Size	----- Cable Description -----			Ohms/ 1000 feet	
						Cond. Type	Duct Type	Insul	R	jX
CBL-0078 ABC	IMCC-2 Belt Conveyor-10	In	1	443	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0079 ABC	Screw conveyor SC-02	In	1	492	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0080 ABC	Belt Feeder-1&2 BF-01	In	1	820	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058
CBL-0081 ABC	IMCC-2 Vibrating Screen-2	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0082 ABC	IMCC-2 Product Stock Cov	In	1	525	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0083 ABC	IMCC-2 Hoist for stock Coi	In	1	525	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0084 ABC	IMCC-2 Changeover Switcl	In	1	33	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0085 ABC	IMCC-2 Slewing	In	1	525	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0086 ABC	Belt Feeder-1&2 BF-02	In	1	558	16	Aluminum	Non-Magnetic	XLP3	Pos: 0.750 Zero: 1.187	0.023 0.058
CBL-0087 ABC	IMCC-1 Belt Feeder-1&2	In	1	98	35	Aluminum	Non-Magnetic	XLP3	Pos: 0.340 Zero: 0.539	0.023 0.058
CBL-0088 ABC	IMCC-1 Vibrating Screen-1	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0089 ABC	IMCC-1 Vibrating Conveyc	In	1	459	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0090 ABC	IMCC-2 Belt Conveyor-11	In	1	230	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0091 ABC	IMCC-2 Belt Conveyor-12	In	1	377	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061
CBL-0092 ABC	IMCC-2 Briquetting Press	In	2	1,247	185	Aluminum	Non-Magnetic	XLP3	Pos: 0.060 Zero: 0.102	0.022 0.056
CBL-0093 ABC	IMCC-2 Spare	In	1	820	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081
CBL-0094 ABC	IMCC-2 Spare	In	1	820	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081
CBL-0095 ABC	IMCC-2 BP Hydraulic Powe	In	1	427	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081
CBL-0096 ABC	IMCC-2 APFC Panel	In	1	98	95	Aluminum	Non-Magnetic	XLP1	Pos: 0.130 Zero: 0.199	0.026 0.066

Name Phases	From Bus To Bus	In/Out Service	Qty /Ph	Length Feet	Size	----- Cable Description -----			Ohms/ 1000 feet		
						Cond. Type	Duct Type	Insul	R	jX	
CBL-0097 ABC	IMCC-2 Progressive Cavity	In	1	984	25	Aluminum	Non-Magnetic	XLP3	Pos: 0.470 Zero: 0.746	0.023 0.058	
CBL-0098 ABC	IMCC-2 Progressive Cavity	In	1	984	25	Aluminum	Non-Magnetic	XLP3	Pos: 0.470 Zero: 0.746	0.023 0.058	
CBL-0099 ABC	IMCC-2 Progressive Cavity	In	1	919	25	Aluminum	Non-Magnetic	XLP3	Pos: 0.470 Zero: 0.746	0.023 0.058	
CBL-0100 ABC	IMCC-2 Progressive Cavity	In	1	919	25	Aluminum	Non-Magnetic	XLP3	Pos: 0.470 Zero: 0.746	0.023 0.058	
CBL-0101 ABC	IMCC-2 Water Pump-2	In	1	919	25	Aluminum	Non-Magnetic	XLP3	Pos: 0.470 Zero: 0.746	0.023 0.058	
CBL-0102 ABC	PCPMP-5,6,7 PCPMP-5	In	1	262	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0103 ABC	IMCC-3 APFC Panel	In	2	98	95	Aluminum	Non-Magnetic	XLP1	Pos: 0.130 Zero: 0.199	0.026 0.066	
CBL-0104 ABC	IMCC-3 Spare	In	1	33	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0105 ABC	IMCC-3 Spare	In	1	394	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0106 ABC	IMCC-3 Welding Machine-	In	1	394	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0107 ABC	IMCC-3 Spare	In	1	33	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0108 ABC	IMCC-3 Air Dryer-2	In	1	525	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0109 ABC	IMCC-3 Rolling Shutter-2	In	1	492	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0110 ABC	IMCC-3 Rolling Shutter-3	In	1	427	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0111 ABC	IMCC-3 Rolling Shutter-4	In	1	591	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0112 ABC	IMCC-3 Welding Machine-	In	1	394	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0113 ABC	IMCC-3 Welding Machine-	In	1	394	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0114 ABC	IMCC-3 BUS-0372	In	1	49	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0115 ABC	IMCC-3 Bag house fan_DE	In	2	328	120	Aluminum	Non-Magnetic	XLP3	Pos: 0.100 Zero: 0.157	0.022 0.056	

Name Phases	From Bus To Bus	In/Out Service	Qty /Ph	Length Feet	Size	----- Cable Description -----			Ohms/ 1000 feet		
						Cond. Type	Duct Type	Insul	R	jX	
CBL-0124 ABC	IMCC-3 Dryer Panel	In	1	394	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0125 ABC	IMCC-3 Duty Compress-1	In	1	492	240	Aluminum	Non-Magnetic	XLP3	Pos: 0.050 Zero: 0.078	0.022 0.056	
CBL-0126 ABC	IMCC-3 Duty Compress-2	In	1	492	240	Aluminum	Non-Magnetic	XLP3	Pos: 0.050 Zero: 0.078	0.022 0.056	
CBL-0127 ABC	IMCC-3 Duty Compress-3	In	1	492	240	Aluminum	Non-Magnetic	XLP3	Pos: 0.050 Zero: 0.078	0.022 0.056	
CBL-0128 ABC	IMCC-3 MLDB Power	In	1	66	25	Aluminum	Non-Magnetic	XLP3	Pos: 0.470 Zero: 0.746	0.023 0.058	
CBL-0129 ABC	IMCC-3 Spare	In	1	33	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0130 ABC	IMCC-3 Spare	In	1	33	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0131 ABC	IMCC-3 Spare	In	1	33	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0132 ABC	MAIN INCOMER IMCC-2	In	2	2,297	240	Aluminum	Non-Magnetic	XLP1	Pos: 0.050 Zero: 0.078	0.024 0.061	
CBL-0133 ABC	MAIN INCOMER IMCC-3	In	3	1,050	240	Aluminum	Non-Magnetic	XLP1	Pos: 0.050 Zero: 0.078	0.024 0.061	
CBL-0134 ABC	IMCC-3 Screw Conveyor	In	1	525	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0135 ABC	IMCC-3 Belt Conveyor-7	In	1	525	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0136 ABC	IMCC-3 Rotary Air Lock	In	1	197	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0137 ABC	IMCC-3 AC Power	In	1	131	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0138 ABC	IMCC-3 Rotary air lock-6	In	1	427	2.5	Copper	Non-Magnetic	XLP1	Pos: 2.880 Zero: 4.578	0.032 0.081	
CBL-0139 ABC	IMCC-3 Spare	In	1	33	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0140 ABC	IMCC-3 Air Dryer-1	In	1	558	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0141 ABC	IMCC-3 Raw power supply	In	1	525	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0142 ABC	IMCC-3 Screw Conveyor	In	1	853	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	

Name Phases	From Bus To Bus	In/Out Service	Qty /Ph	Length Feet	Size	----- Cable Description -----			Ohms/ 1000 feet		
						Cond. Type	Duct Type	Insul	R	jX	
CBL-0143 ABC	APFC Panel Spare	In	1	33	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0144 ABC	IMCC-3 Screw Conveyor	In	1	820	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	
CBL-0145 ABC	IMCC-3 PDB for power out	In	1	295	16	Aluminum	Non-Magnetic	XLP1	Pos: 0.750 Zero: 1.187	0.029 0.073	
CBL-0146 ABC	IMCC-3 Spare	In	1	33	10	Aluminum	Non-Magnetic	XLP3	Pos: 0.840 Zero: 1.331	0.024 0.061	

4.2 EQUIPMENT EVALUATION

Using the short circuit results, the equipment for the facility is evaluated. There are three sets of limits: **Pass, Marginal, and Fail**. If the evaluation comparison result is less than the Marginal limit, the programs will report the evaluation result for the device as **pass**. If the evaluation result reaches the Marginal limit but still smaller than the limit of Fail, the program will report the evaluation result for the device as **Marginal**. Otherwise, the device will be reported as **Fail**. Table below provides the limits used for the study guidelines.

4.2.1 Equipment Evaluation Results & Recommendations.

The following printouts are the results of the equipment evaluation comparisons. As shown in the report, all devices passed the evaluation. Generally, in many cases, equipment is rated for the lowest rated device in the assembly. If this is the case, changing the devices in each assembly may improve the overall rating of the equipment. Caution should be rendered with the equipment labeled as Marginal. Any increased motor load may cause this equipment to become over duty.

4.2.2 Equipment Evaluation Report:-

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	125A	Pass	VL160X	415	39.74	5.53		100.00		
	APFC Panel		160A	415	125.00	40.00		13.82		
	SIEMENS		VL 125X		31.79					Symm
	125A	Pass	VL160X	415	39.74	5.53		100.00		
	APFC Panel		160A	415	125.00	40.00		13.82		
	SIEMENS		VL 125X		31.79					Symm
	125A	Pass	VL160X	415	44.85	8.93		100.00		
	APFC Panel		160A	415	125.00	40.00		22.32		
	SIEMENS		VL 125X		35.88					Symm
	125A	Pass	VL160X	415	44.85	8.93		100.00		
	APFC Panel		160A	415	125.00	40.00		22.32		
	SIEMENS		VL 125X		35.88					Symm
	125A	Pass	VL160X	415	44.85	8.93		100.00		
	APFC Panel		160A	415	125.00	40.00		22.32		
	SIEMENS		VL 125X		35.88					Symm
	63A	Pass	3RV2	415	19.86	5.53		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		36.85		
	SIEMENS		MCB		31.53					Symm
	63A	Pass	3RV2	415	19.86	5.53		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		36.85		
	SIEMENS		MCB		31.53					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	63A	Pass	3RV2	415	19.86	5.53		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		36.85		
	SIEMENS		MCB		31.53					Symm
	63A	Pass	3RV2	415	19.86	5.53		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		36.85		
	SIEMENS		MCB		31.53					Symm
	63A	Pass	3RV2	415	22.42	8.93		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		59.52		
	SIEMENS		MCB		35.59					Symm
	63A	Pass	3RV2	415	44.85	8.93		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		59.52		
	SIEMENS		MCB		71.19					Symm
	63A	Pass	3RV2	415	22.42	8.93		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		59.52		
	SIEMENS		MCB		35.59					Symm
	63A	Pass	3RV2	415	44.85	8.93		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		59.52		
	SIEMENS		MCB		71.19					Symm
	125A	Pass	VL160X	415	42.41	4.39		100.00		
	APFC Panel		160A	415	125.00	40.00		10.98		
	SIEMENS		VL 125X		33.93					Symm
	125A	Pass	VL160X	415	42.42	4.39		100.00		
	APFC Panel		160A	415	125.00	40.00		10.98		
	SIEMENS		VL 125X		33.94					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	63A	Pass	3RV2	415	16.96	4.39		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		29.27		
	SIEMENS		MCB		26.92					Symm
	63A	Pass	3RV2	415	16.96	4.39		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		29.27		
	SIEMENS		MCB		26.92					Symm
	63A	Pass	3RV2	415	16.96	4.39		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		29.27		
	SIEMENS		MCB		26.92					Symm
	63A	Pass	3RV2	415	0.00	4.39		100.00		
	APFC Panel		1-63A, 2-3 Pole, IEC	415	63.00	15.00		29.27		
	SIEMENS		MCB		0.00					Symm
	16A	Pass	3RV2	415	12.21	4.13		100.00		
	Belt Feeder-1&2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		27.53		
	SIEMENS		MCB		76.33					Symm
	16A	Pass	3RV2	415	12.37	4.13		100.00		
	Belt Feeder-1&2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		27.53		
	SIEMENS		MCB		77.29					Symm
	100A	Pass	VL160X	415	51.00	7.05		100.00		
	IMCC-1		160A	415	125.00	40.00		17.63		
	SIEMENS		VL 125X		40.80					Symm
	100A	Pass	VL160X	415	41.81	7.05		100.00		
	IMCC-1		160A	415	125.00	40.00		17.63		
	SIEMENS		VL 125X		33.45					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	16A	Pass	3RV2	415	8.38	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		52.38					Symm
	16A	Pass	3RV2	415	8.56	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		53.51					Symm
	16A	Pass	3RV2	415	8.55	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		53.45					Symm
	16A	Pass	3RV2	415	2.42	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		15.15					Symm
	16A	Pass	3RV2	415	6.27	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		39.18					Symm
	16A	Pass	3RV2	415	7.31	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		45.68					Symm
	16A	Pass	3RV2	415	8.41	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		52.56					Symm
	16A	Pass	3RV2	415	8.47	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		52.94					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	16A	Pass	3RV2	415	8.51	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		53.16					Symm
	16A	Pass	3RV2	415	6.30	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		39.37					Symm
	16A	Pass	3RV2	415	2.42	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		15.15					Symm
	16A	Pass	3RV2	415	8.54	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		53.38					Symm
	16A	Pass	3RV2	415	0.00	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		0.00					Symm
	16A	Pass	3RV2	415	0.00	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		0.00					Symm
	20A	Pass	3RV2	415	8.40	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	20.00	15.00		47.01		
	SIEMENS		MCB		42.00					Symm
	20A	Pass	3RV2	415	14.38	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	20.00	15.00		47.01		
	SIEMENS		MCB		71.88					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	250A	Pass	VL250N	415	124.27	7.05		95.84		
	IMCC-1		250A	433	250.00	45.00		15.67		
	SIEMENS		VL250N		49.71					Symm
	250A	Pass	VL250N	415	124.62	7.05		95.84		
	IMCC-1		250A	433	250.00	45.00		15.67		
	SIEMENS		VL250N		49.85					Symm
	3.2A	Pass	3RV2	415	0.00	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	3.20	15.00		47.01		
	SIEMENS		MCB		0.00					Symm
	3.2A	Pass	3RV2	415	8.58	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	16.00	15.00		47.01		
	SIEMENS		MCB		53.61					Symm
	3.2A	Pass	3RV2	415	0.00	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	3.20	15.00		47.01		
	SIEMENS		MCB		0.00					Symm
	3.2A	Pass	3RV2	415	0.00	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	3.20	15.00		47.01		
	SIEMENS		MCB		0.00					Symm
	3.2A	Pass	3RV2	415	0.00	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	3.20	15.00		47.01		
	SIEMENS		MCB		0.00					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	3.2A	Pass	3RV2	415	0.00	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	3.20	15.00		47.01		
	SIEMENS		MCB		0.00					Symm
	400A	Pass	VL400N	415	158.94	7.05		100.00		
	IMCC-1		400A	415	400.00	45.00		15.67		
	SIEMENS		VL400N		39.73					Symm
	5A	Pass	3RV2	415	3.59	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	6.00	15.00		47.01		
	SIEMENS		MCB		59.91					Symm
	5A	Pass	3RV2	415	3.60	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	6.00	15.00		47.01		
	SIEMENS		MCB		60.06					Symm
	5A	Pass	3RV2	415	3.60	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	6.00	15.00		47.01		
	SIEMENS		MCB		60.06					Symm
	5A	Pass	3RV2	415	3.60	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	6.00	15.00		47.01		
	SIEMENS		MCB		60.06					Symm
	63A	Pass	3RV2	415	18.82	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	63.00	15.00		47.01		
	SIEMENS		MCB		29.87					Symm
	63A	Pass	3RV2	415	24.58	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	63.00	15.00		47.01		
	SIEMENS		MCB		39.01					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	63A	Pass	3RV2	415	12.54	7.05		100.00		
	IMCC-1		1-63A, 2-3 Pole, IEC	415	63.00	15.00		47.01		
	SIEMENS		MCB		19.90					Symm
	16A	Pass	3RV2	415	9.12	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		57.01					Symm
	16A	Pass	3RV2	415	9.17	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		57.28					Symm
	16A	Pass	3RV2	415	2.70	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		16.89					Symm
	16A	Pass	3RV2	415	6.73	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		42.05					Symm
	16A	Pass	3RV2	415	6.72	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		41.97					Symm
	16A	Pass	3RV2	415	6.72	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		41.97					Symm
	16A	Pass	3RV2	415	0.00	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		0.00					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	16A	Pass	3RV2	415	6.72	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		41.97					Symm
	16A	Pass	3RV2	415	9.13	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		57.08					Symm
	16A	Pass	3RV2	415	9.14	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		57.11					Symm
	16A	Pass	3RV2	415	9.21	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		57.56					Symm
	16A	Pass	3RV2	415	9.16	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		57.25					Symm
	16A	Pass	3RV2	415	6.73	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		42.05					Symm
	16A	Pass	3RV2	415	2.71	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	16.00	15.00		35.80		
	SIEMENS		MCB		16.93					Symm
	300A	Pass	VL400N	415	135.71	5.37		100.00		
	IMCC-2		400A	415	320.00	45.00		11.93		
	SIEMENS		VL400N		42.41					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	32A	Pass	3RV2	415	2.68	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	32.00	15.00		35.80		
	SIEMENS		MCB		8.38					Symm
	32A	Pass	3RV2	415	9.10	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	32.00	15.00		35.80		
	SIEMENS		MCB		28.44					Symm
	32A	Pass	3RV2	415	6.71	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	32.00	15.00		35.80		
	SIEMENS		MCB		20.97					Symm
	400A	Pass	VL400N	415	219.70	5.37		100.00		
	IMCC-2		400A	415	400.00	45.00		11.93		
	SIEMENS		VL400N		54.92					Symm
	63A	Pass	3RV2	415	9.11	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	63.00	15.00		35.80		
	SIEMENS		MCB		14.46					Symm
	63A	Pass	3RV2	415	6.72	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	63.00	15.00		35.80		
	SIEMENS		MCB		10.66					Symm
	63A	Pass	3RV2	415	5.56	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	63.00	15.00		35.80		
	SIEMENS		MCB		8.82					Symm
	8A	Pass	3RV2	415	0.00	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	8.00	10.00		53.71		
	SIEMENS		MCB		0.00					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	8A	Pass	3RV2	415	0.00	5.37		100.00		
	IMCC-2		1-63A, 2-3 Pole, IEC	415	8.00	10.00		53.71		
	SIEMENS		MCB		0.00					Symm
	125A	Pass	VL160X	415	37.47	10.58		100.00		
	IMCC-3		160A	415	125.00	40.00		26.45		
	SIEMENS		VL 125X		29.97					Symm
	16A	Pass	3RV2	415	0.00	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		0.00					Symm
	16A	Pass	3RV2	415	0.00	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		0.00					Symm
	16A	Pass	3RV2	415	0.00	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		0.00					Symm
	16A	Pass	3RV2	415	0.00	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		0.00					Symm
	16A	Pass	3RV2	415	0.00	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		0.00					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	16A	Pass	3RV2	415	0.00	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		0.00					Symm
	16A	Pass	3RV2	415	1.96	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		12.22					Symm
	16A	Pass	3RV2	415	7.09	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		44.32					Symm
	16A	Pass	3RV2	415	0.00	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		0.00					Symm
	16A	Pass	3RV2	415	1.95	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		12.19					Symm
	16A	Pass	3RV2	415	2.85	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		17.83					Symm
	16A	Pass	3RV2	415	0.00	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	16.00	15.00		70.54		
	SIEMENS		MCB		0.00					Symm
	250A	Pass	VL250N	415	140.44	10.58		95.84		
	IMCC-3		250A	433	250.00	45.00		23.51		
	SIEMENS		VL250N		56.18					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	250A	Pass	VL250N	415	168.36	10.58		95.84		
	IMCC-3		250A	433	250.00	45.00		23.51		
	SIEMENS		VL250N		67.34					Symm
	250A	Pass	VL250N	415	168.36	10.58		95.84		
	IMCC-3		250A	433	250.00	45.00		23.51		
	SIEMENS		VL250N		67.34					Symm
	250A	Pass	VL250N	415	96.74	10.58		95.84		
	IMCC-3		250A	433	250.00	45.00		23.51		
	SIEMENS		VL250N		38.70					Symm
	250A	Pass	VL250N	415	142.17	10.58		95.84		
	IMCC-3		250A	433	250.00	45.00		23.51		
	SIEMENS		VL250N		56.87					Symm
	3.2A	Pass	3RV2	415	1.95	11.25 (*N1)		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	3.20	15.00		74.98		
	SIEMENS		MCB		60.83					Symm
	3.2A	Pass	3RV2	415	1.94	11.25 (*N1)		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	3.20	15.00		74.98		
	SIEMENS		MCB		60.56					Symm
	3.2A	Pass	3RV2	415	1.94	11.25 (*N1)		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	3.20	15.00		74.98		
	SIEMENS		MCB		60.67					Symm
	3.2A	Pass	3RV2	415	1.93	11.25 (*N1)		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	3.20	15.00		74.98		
	SIEMENS		MCB		60.40					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	3.2A	Pass	3RV2	415	0.00	11.25 (*N1)		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	3.20	15.00		74.98		
	SIEMENS		MCB		0.00					Symm
	3.2A	Pass	3RV2	415	0.00	11.25 (*N1)		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	3.20	15.00		74.98		
	SIEMENS		MCB		0.00					Symm
	32A	Pass	3RV2	415	9.62	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	32.00	15.00		70.54		
	SIEMENS		MCB		30.05					Symm
	32A	Pass	3RV2	415	25.93	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	32.00	15.00		70.54		
	SIEMENS		MCB		81.02					Symm
	32A	Pass	3RV2	415	25.93	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	32.00	15.00		70.54		
	SIEMENS		MCB		81.02					Symm
	32A	Pass	3RV2	415	25.93	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	32.00	15.00		70.54		
	SIEMENS		MCB		81.02					Symm
	32A	Pass	3RV2	415	13.84	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	32.00	15.00		70.54		
	SIEMENS		MCB		43.24					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	32A	Pass	3RV2	415	9.60	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	32.00	15.00		70.54		
	SIEMENS		MCB		30.01					Symm
	32A	Pass	3RV2	415	26.34	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	32.00	15.00		70.54		
	SIEMENS		MCB		82.32					Symm
	600A	Pass	VL630N	415	313.93	10.58		100.00		
	IMCC-3		630A	415	630.00	45.00		23.51		
	SIEMENS		VL630N		49.83					Symm
	63A	Pass	3RV2	415	51.08	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	63.00	15.00		70.54		
	SIEMENS		MCB		81.08					Symm
	63A	Pass	3RV2	415	38.91	10.58		100.00		
	IMCC-3		1-63A, 2-3 Pole, IEC	415	63.00	15.00		70.54		
	SIEMENS		MCB		61.76					Symm
	Incomer to IMCC-1	Pass	3WT8 ETU 8WT	415	476.79	17.76		83.00		
	MAIN INCOMER		LSI 630-3200A	500	800.00	66.00		26.91		
	SIEMENS		3WT8 ETU8WT		59.60					Symm
	Incomer to IMCC-2	Pass	3WT8 ETU 8WT	415	311.65	17.76		83.00		
	MAIN INCOMER		LSI 630-3200A	500	800.00	66.00		26.91		
	SIEMENS		3WT8 ETU8WT		38.96					Symm
	Incomer to IMCC-3	Pass	3WT8 ETU 8WT	415	892.26	17.76		83.00		
	MAIN INCOMER		LSI 630-3200A	500	1250.00	66.00		26.91		
	SIEMENS		3WT8 ETU8WT		71.38					Symm

	Device/Bus Manufacturer	Status	Description	Voltage (V) Bus/Device	Continuous Amps LF/Dev/Rating%	INT kA Calc/Dev/Series	Close-Latch kA Calc/Dev	Rating% Volt/INT/C-L	K	PartingTime Speed Cycles
	8A	Pass	3RV2	415	1.85	3.39		100.00		
	PCPMP-5,6,7		1-63A, 2-3 Pole, IEC	415	8.00	10.00		33.92		
	SIEMENS		MCB		23.15					Symm
	8A	Pass	3RV2	415	1.85	3.39		100.00		
	PCPMP-5,6,7		1-63A, 2-3 Pole, IEC	415	8.00	10.00		33.92		
	SIEMENS		MCB		23.15					Symm
	8A	Pass	3RV2	415	1.85	3.39		100.00		
	PCPMP-5,6,7		1-63A, 2-3 Pole, IEC	415	8.00	10.00		33.92		
	SIEMENS		MCB		23.15					Symm
	16A	Pass	3RV2	415	6.27	4.09		100.00		
	Screw conveyor		1-63A, 2-3 Pole, IEC	415	16.00	15.00		27.27		
	SIEMENS		MCB		39.21					Symm
	16A	Pass	3RV2	415	6.27	4.09		100.00		
	Screw conveyor		1-63A, 2-3 Pole, IEC	415	16.00	15.00		27.27		
	SIEMENS		MCB		39.21					Symm
	16A	Pass	3RV2	415	6.27	4.09		100.00		
	Screw conveyor		1-63A, 2-3 Pole, IEC	415	16.00	15.00		27.27		
	SIEMENS		MCB		39.21					Symm
(*N1) System X/R higher than Test X/R, Calc INT kA modified based on low voltage factor.										

4.3 PROTECTIVE DEVICE COORDINATION

4.3.1 General Procedure

A protective device, time-current coordination analysis, is an organized effort to determine their settings and, where appropriate the ampere ratings and types for the over-current protective devices in an electrical system. The objective of the coordination analysis is to effect a time-current coordination among the devices, thereby achieving the desired system protection and electrical service continuity goals.

Maximum protection requires that the over current protective devices be rated, selected, and adjusted to allow the normal load currents to flow while instantaneously opening the circuit when abnormal currents flow. However, maximum service continuity requires that the over current protective devices be rated, selected, and adjusted so that only the over current protective device nearest the fault opens and isolates the faulted circuit from the system, permitting the rest of the system to remain in operation. Protective devices farther from the fault location should therefore essentially act as backup protection for the devices nearer to the fault, allowing the fault to be cleared with a minimum of disruption to the system. This is referred to as "selective coordination" between the protective devices. This may allow longer duration faults when the fault point is nearer the service entrance. However, such faults are not as common, and setting the protective devices to operate in this manner is, generally, more desirable than de-energizing most or all of the system for a fault near one of the loads.

Selecting and setting the protective devices is a procedure where the time-current characteristic curves of the various devices in series are compared with one another on a log-log graph. This procedure should take into account boundaries defined by load currents; short-circuit currents, and ANSI, IEEE and IEC requirements.

Selective coordination usually will be obtained when the log-log plots of time-current characteristics show sufficient clear space or no overlap between the curves for the protective devices operating in series. Coordination will often stop short of complete selectivity when an acceptable compromise is reached between the various boundaries imposed on the selecting and setting procedure.

4.3.2 Specific Procedure

4.3.2.1 Time over current Relay Coordination

The Electromechanical and solid-state over current relays will be examined and settings selected to provide the best possible coordination with the appropriate line and load side protective devices. These relay time-current curves are plotted as single lines as opposed to the manufacturing tolerance band plotted for fuse and low-voltage circuit breakers. However, certain time margins have been considered when coordinating these devices. These time margins account for manufacturing tolerances, induction disk over-travel circuit breaker opening time and a safety margin. In most of the cases the 0.4-second margin was used for electromechanical relay tripping curves, and 0.3 seconds margin for tripping curves between solid state and electromechanical relays. As no such relays are present in the plant no coordination has done on them.

4.3.2.2 Low Voltage Breaker Settings

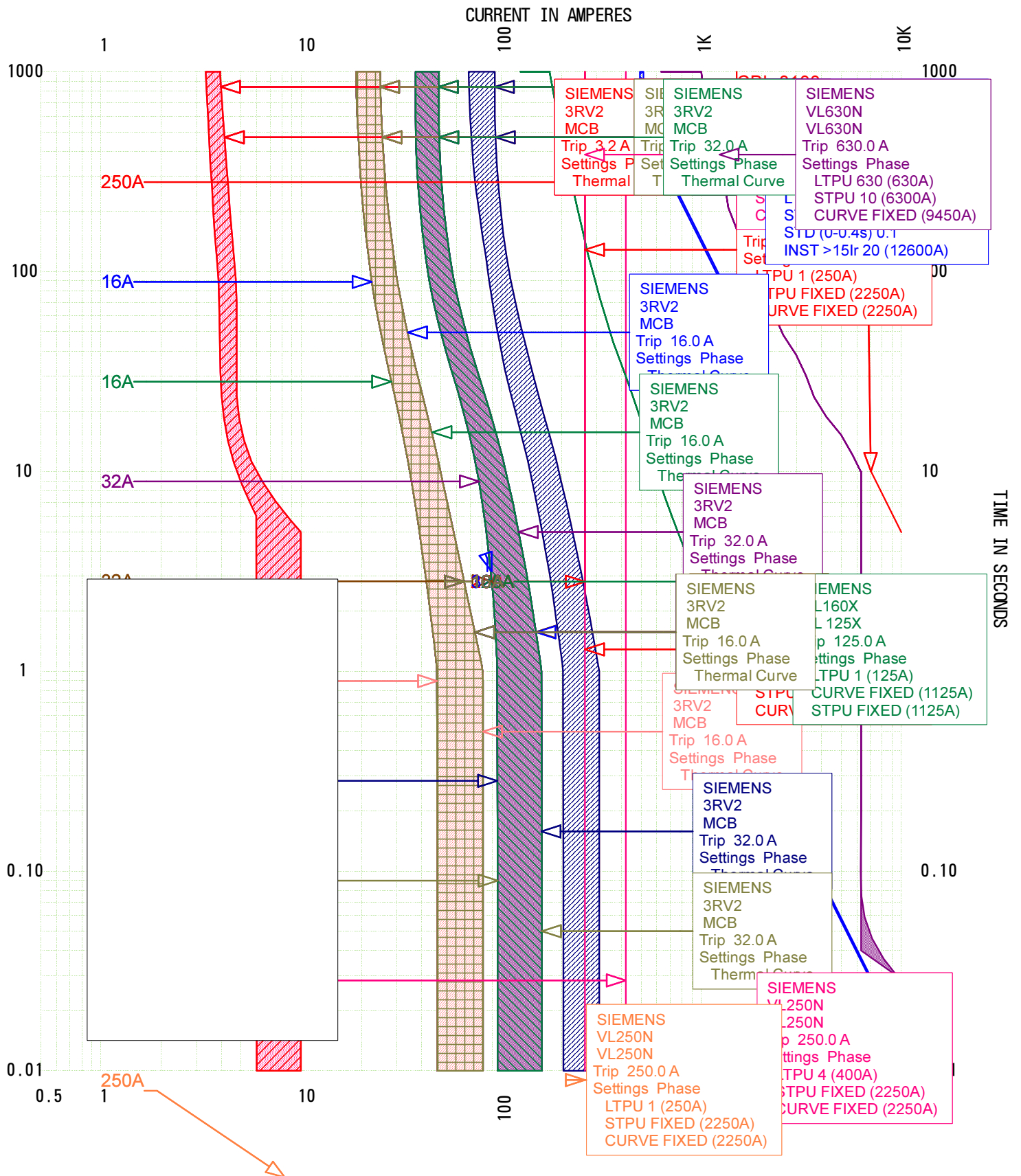
All the low voltage phase fault as well as ground fault relay pick-up settings were set based on the breaker current rated values, and the short time delay in minimum values with the appropriate instantaneous tripping.

4.3.3 Analysis of Results

The basic results of a protective device coordination analysis are the time-current coordination graphs that are plotted to illustrate the degree of selective coordination achieved in the system. Adjacent to each Single line diagram TCC curves is plotted. TCC curves show the device number, description, and settings for each device.



4.3.4 AS FOUND TCC CURVES

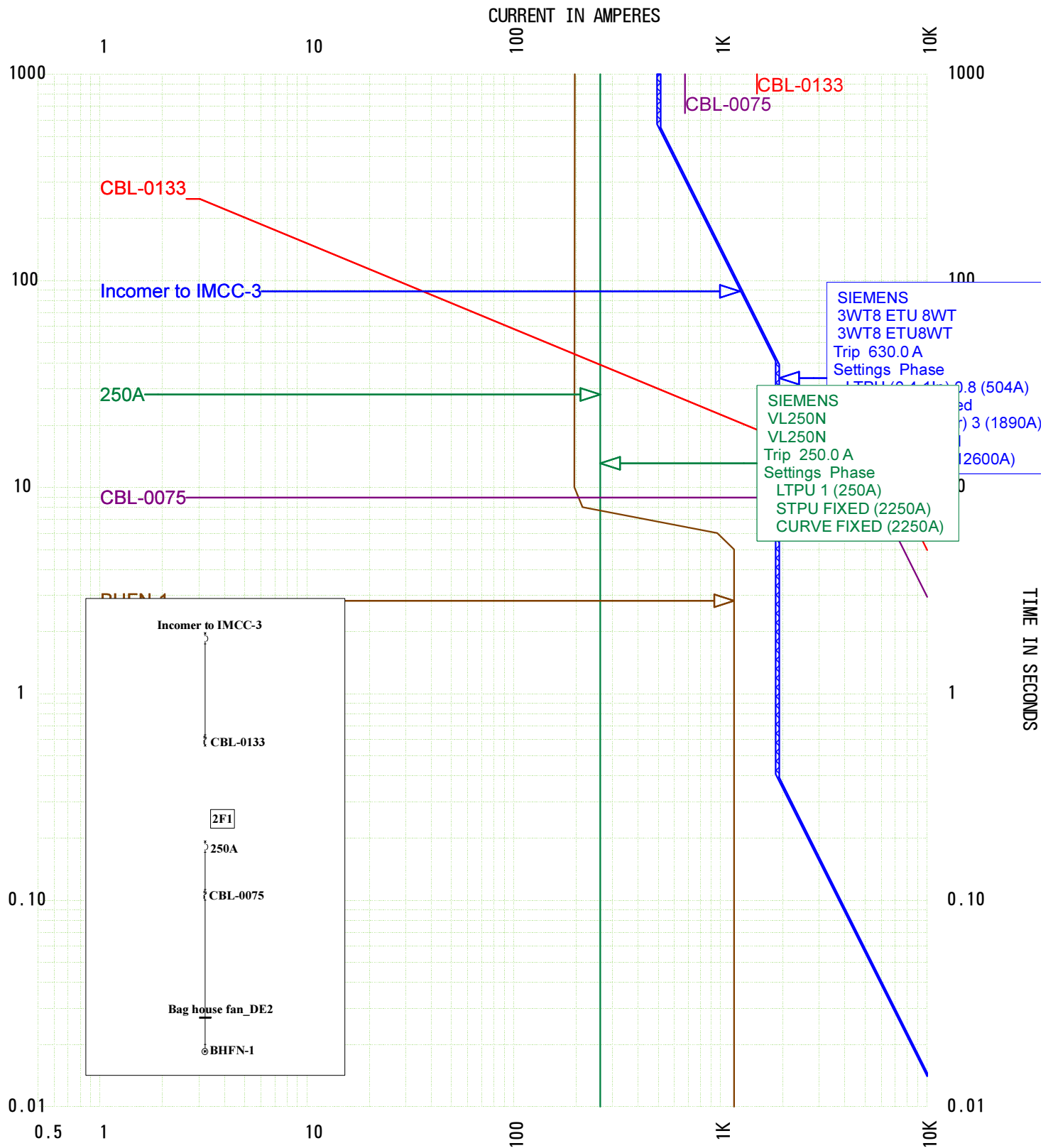


TCC Name: Incoming-3
Online: Incoming-3
July 23, 2014 2:04 PM

Current Scale x 1

Reference Voltage: 415

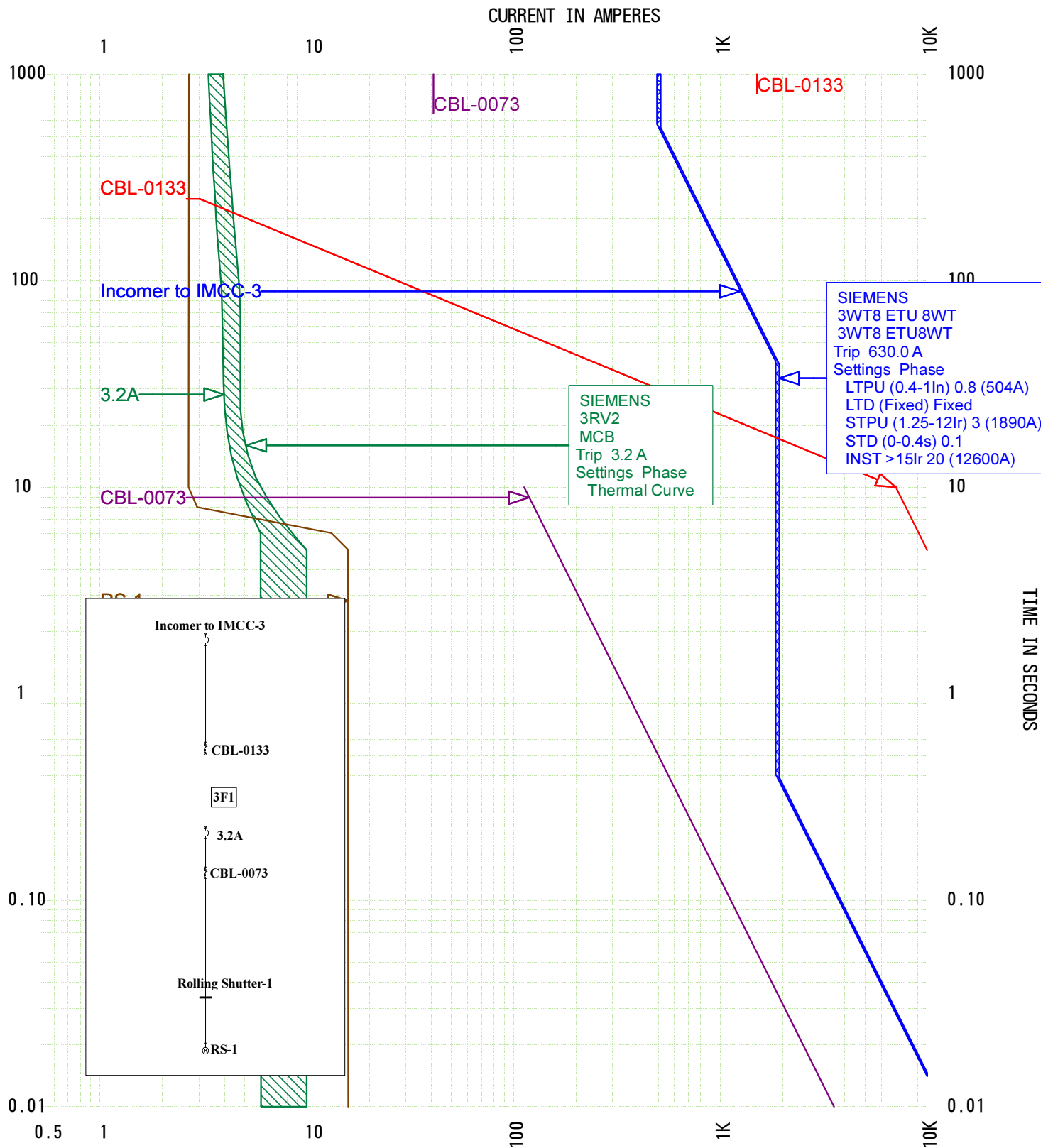
SKM Systems Analysis, Inc.



TCC Name: Bag house fan
 Online: Bag house fan
 July 23, 2014 2:04 PM

Current Scale x 1

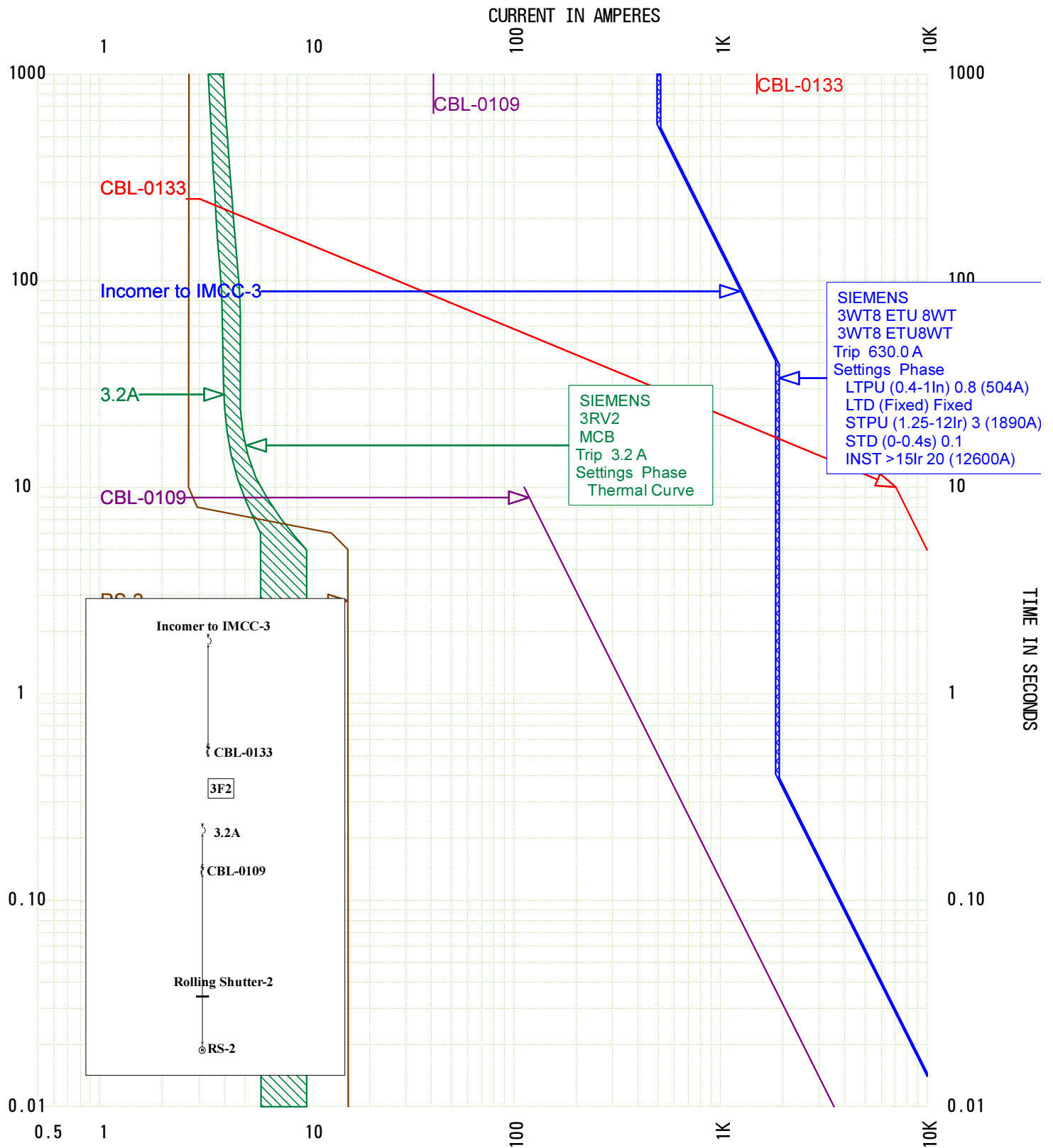
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Rolling sheet-1
 Online: Rolling sheet-1
 July 23, 2014 2:04 PM

Current Scale x 1

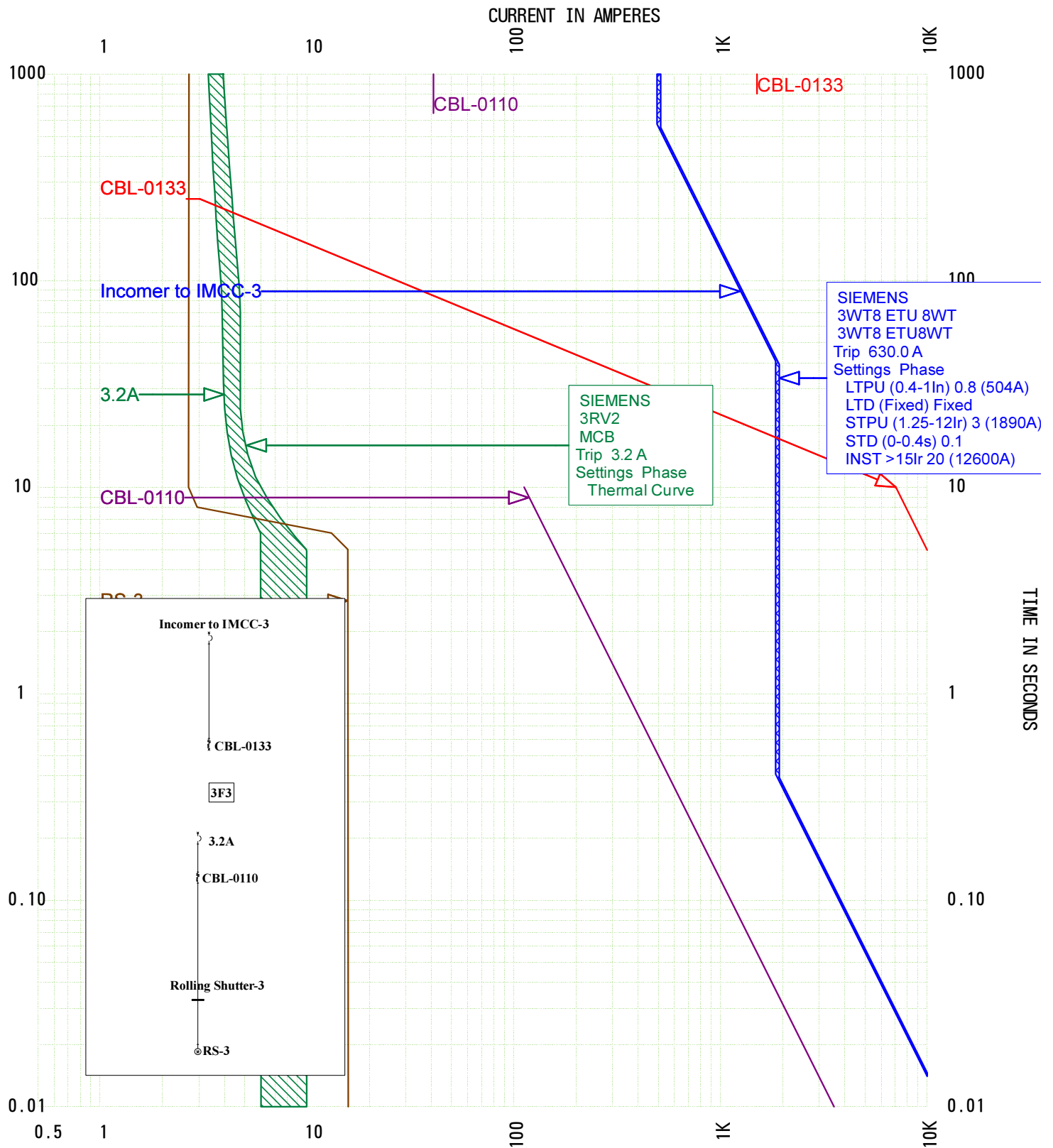
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Rolling sheet-2
 Online: Rolling sheet-2
 July 23, 2014 2:04 PM

Current Scale x 1

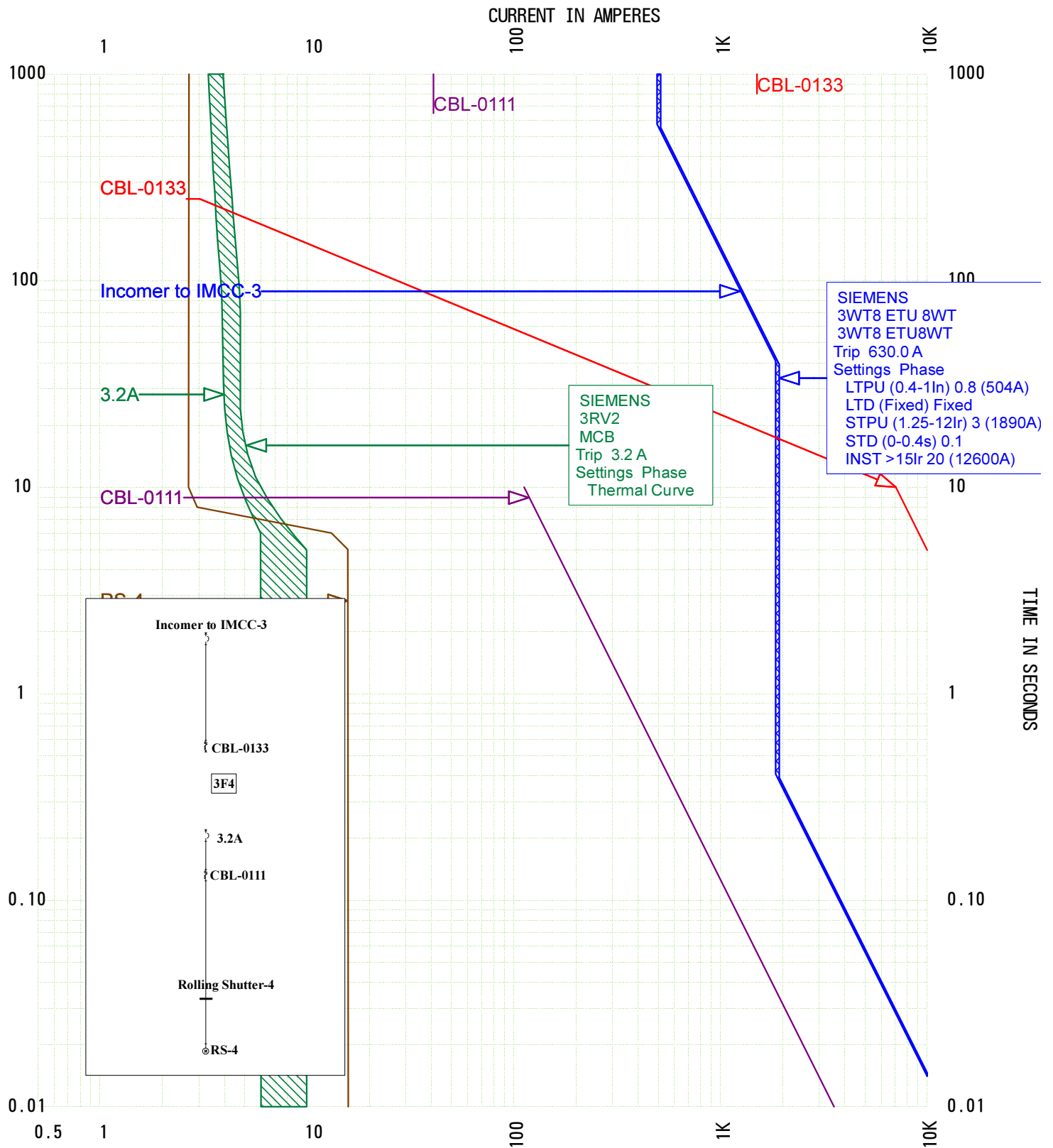
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Rolling sheet-3
 Online: Rolling sheet-3
 July 23, 2014 2:04 PM

Current Scale x 1

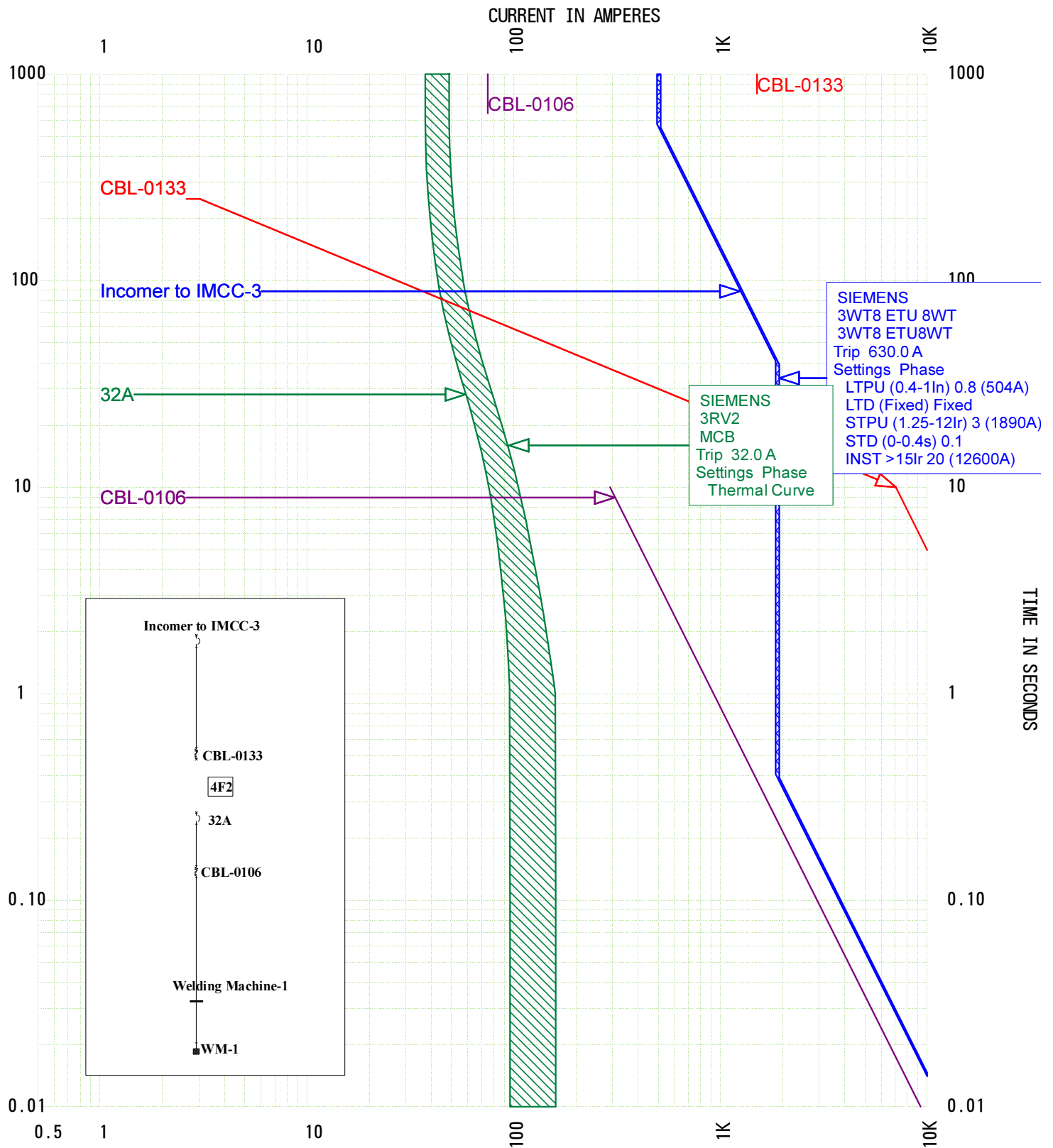
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Rolling sheet-4
 Online: Rolling sheet-4
 July 23, 2014 2:04 PM

Current Scale x 1

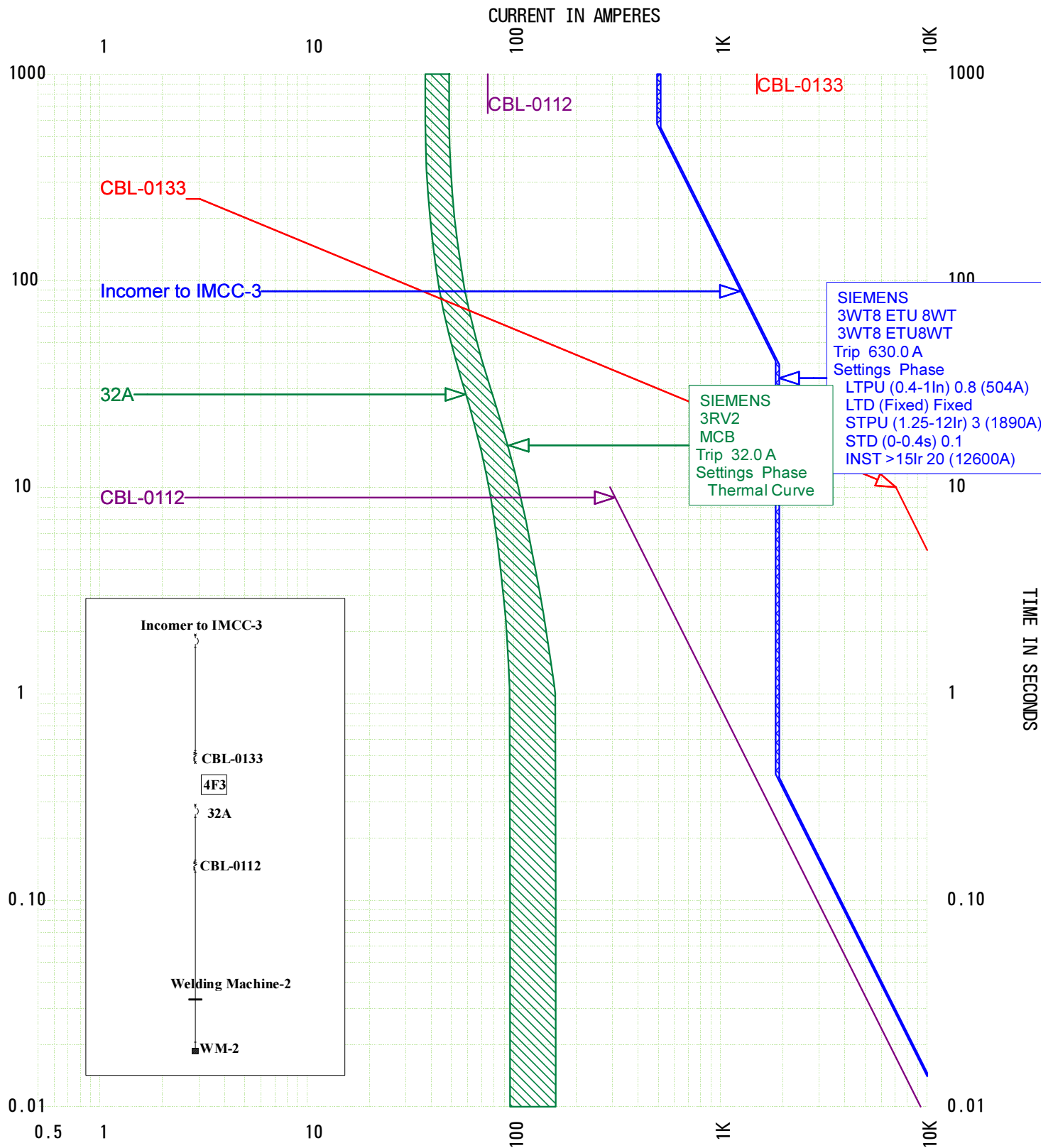
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Welding Machine-1
 Oonline: Welding Machine-1
 July 23, 2014 2:04 PM

Current Scale x 1

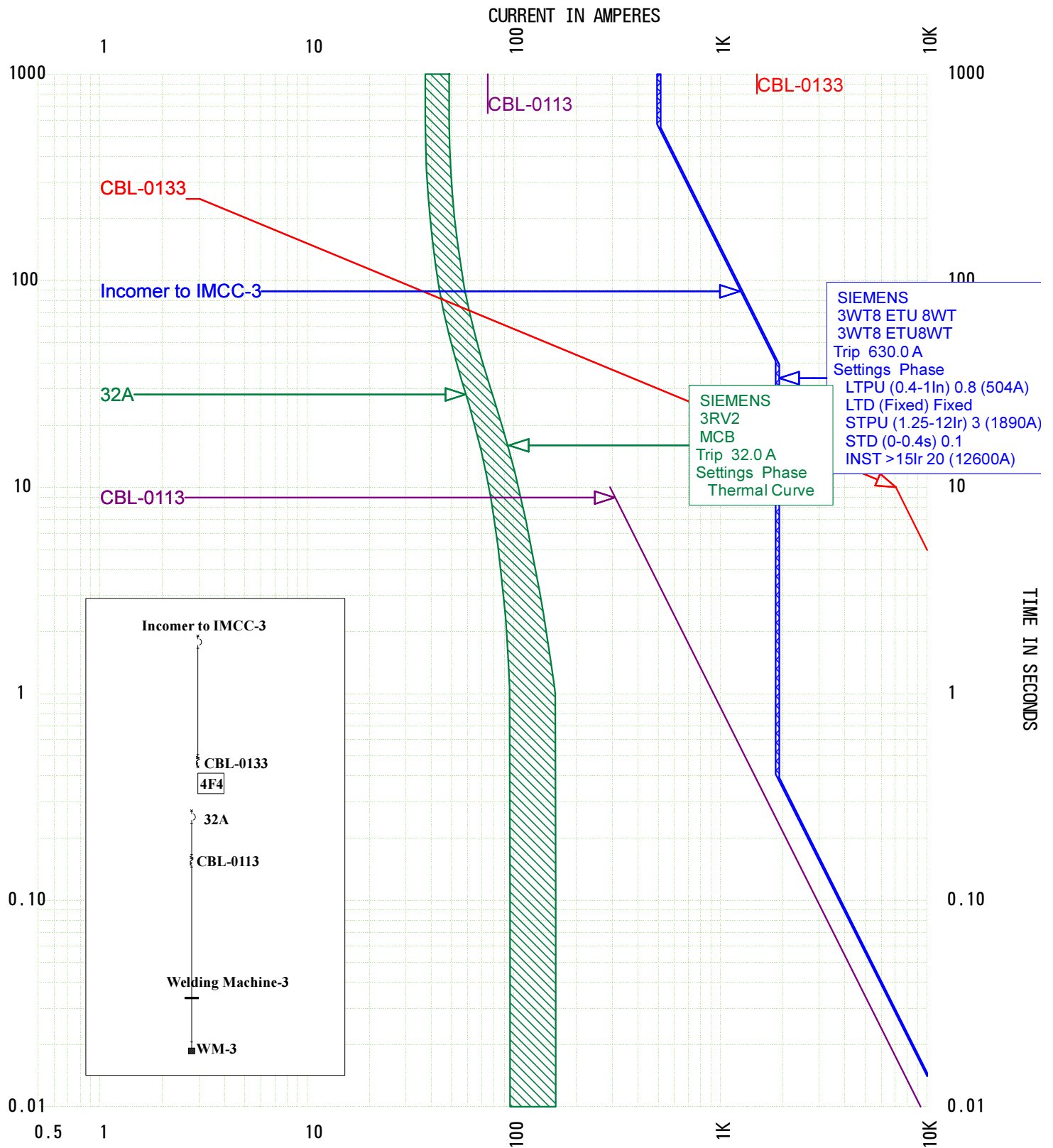
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Welding Machine-2
 Online: Welding Machine-2
 July 23, 2014 2:04 PM

Current Scale x 1

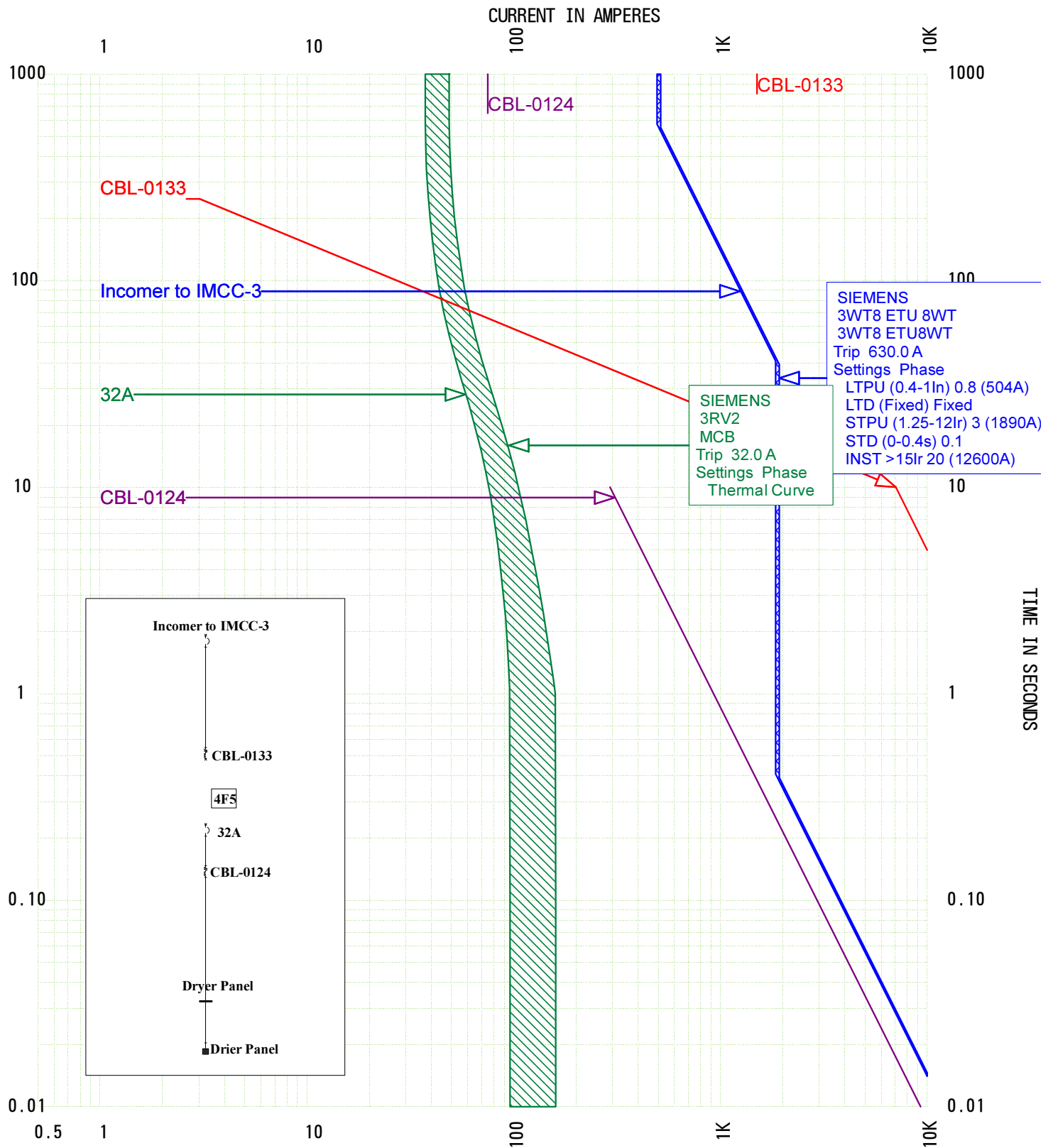
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Welding Machine-3
 Online: Welding Machine-3
 July 23, 2014 2:04 PM

Current Scale x 1

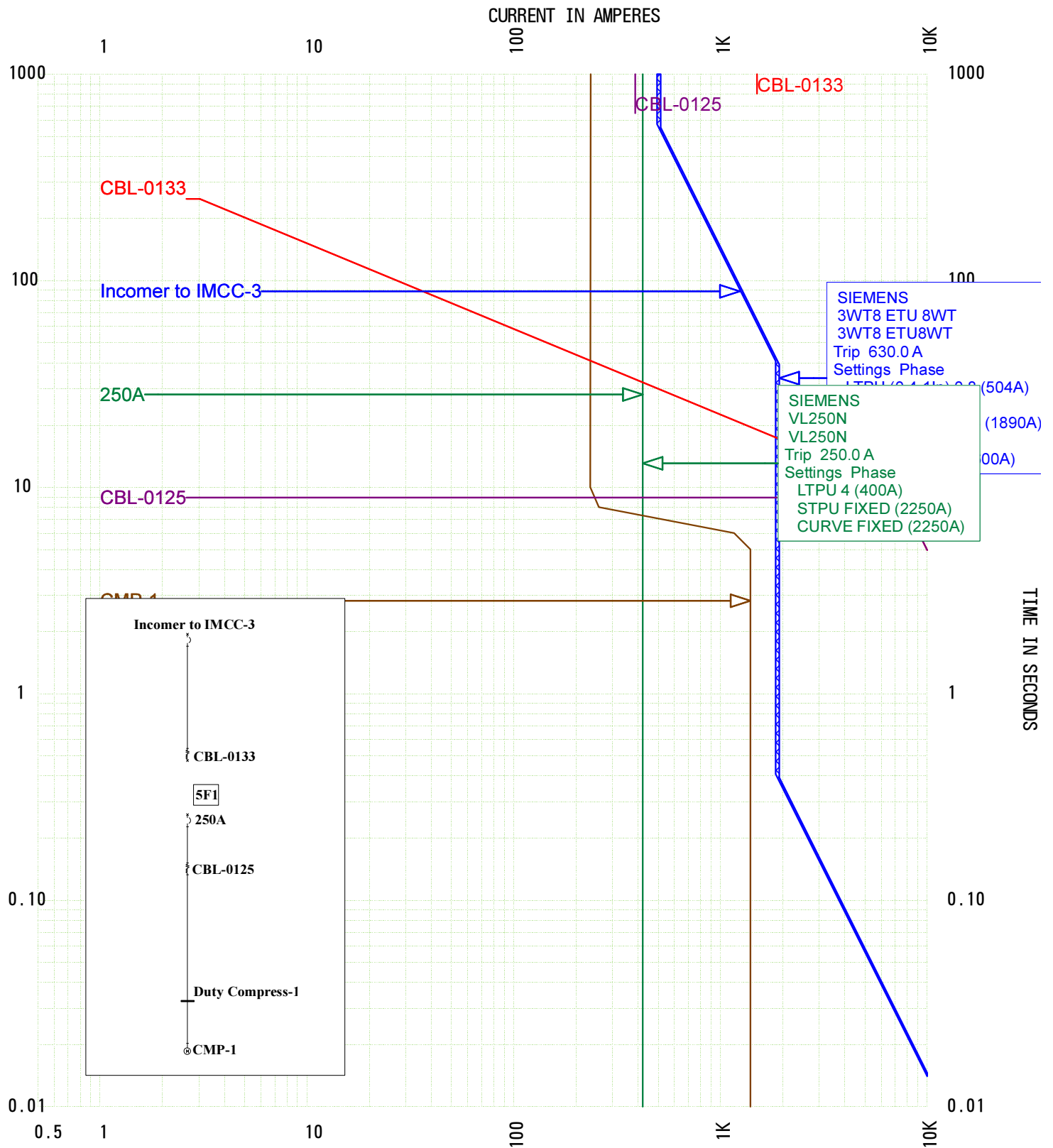
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Drier Panel
 Online: Drier Panel
 July 23, 2014 2:04 PM

Current Scale x 1

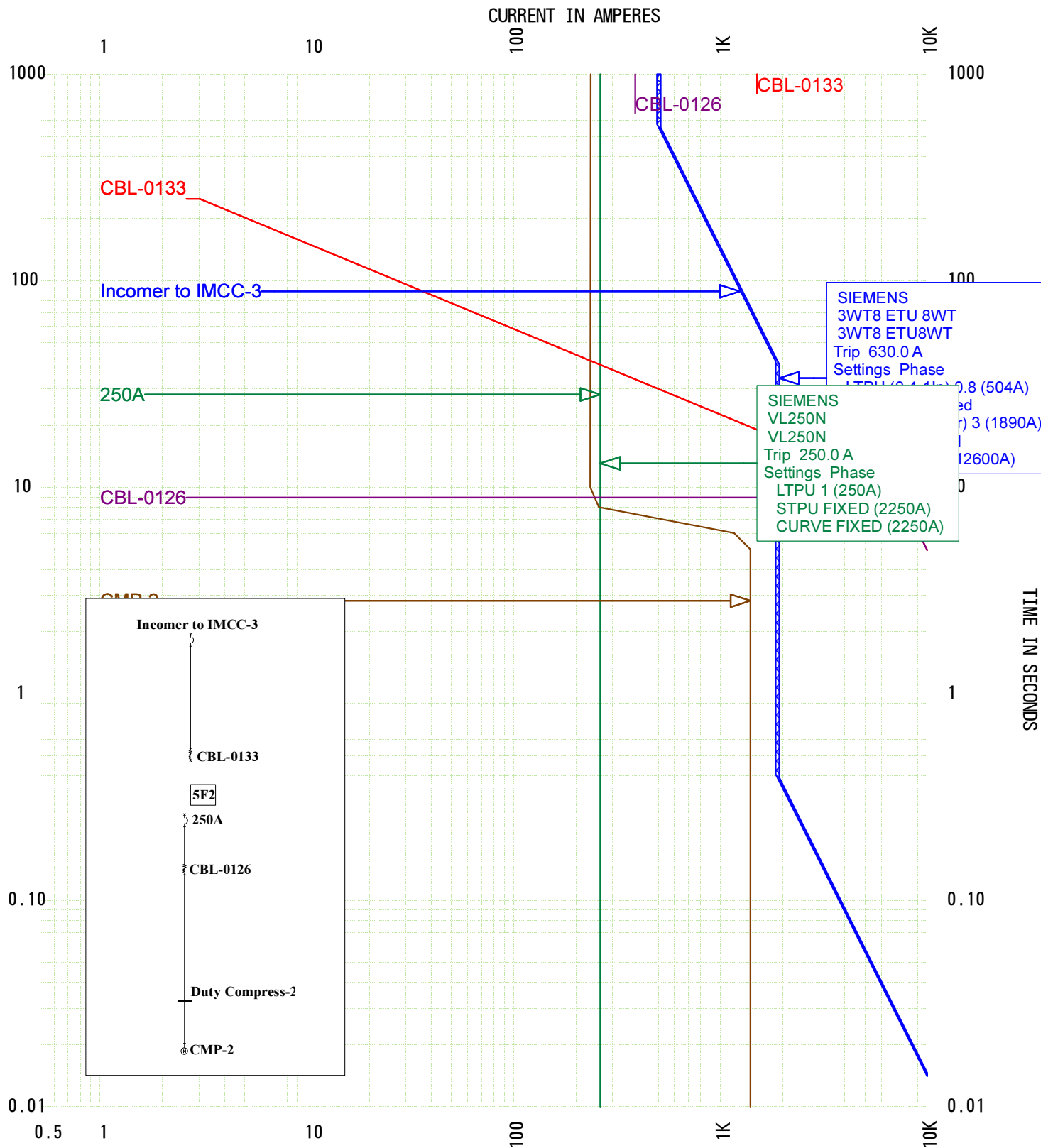
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Duty compressor-1
 Online: Duty compressor-1
 July 23, 2014 2:04 PM

Current Scale x 1

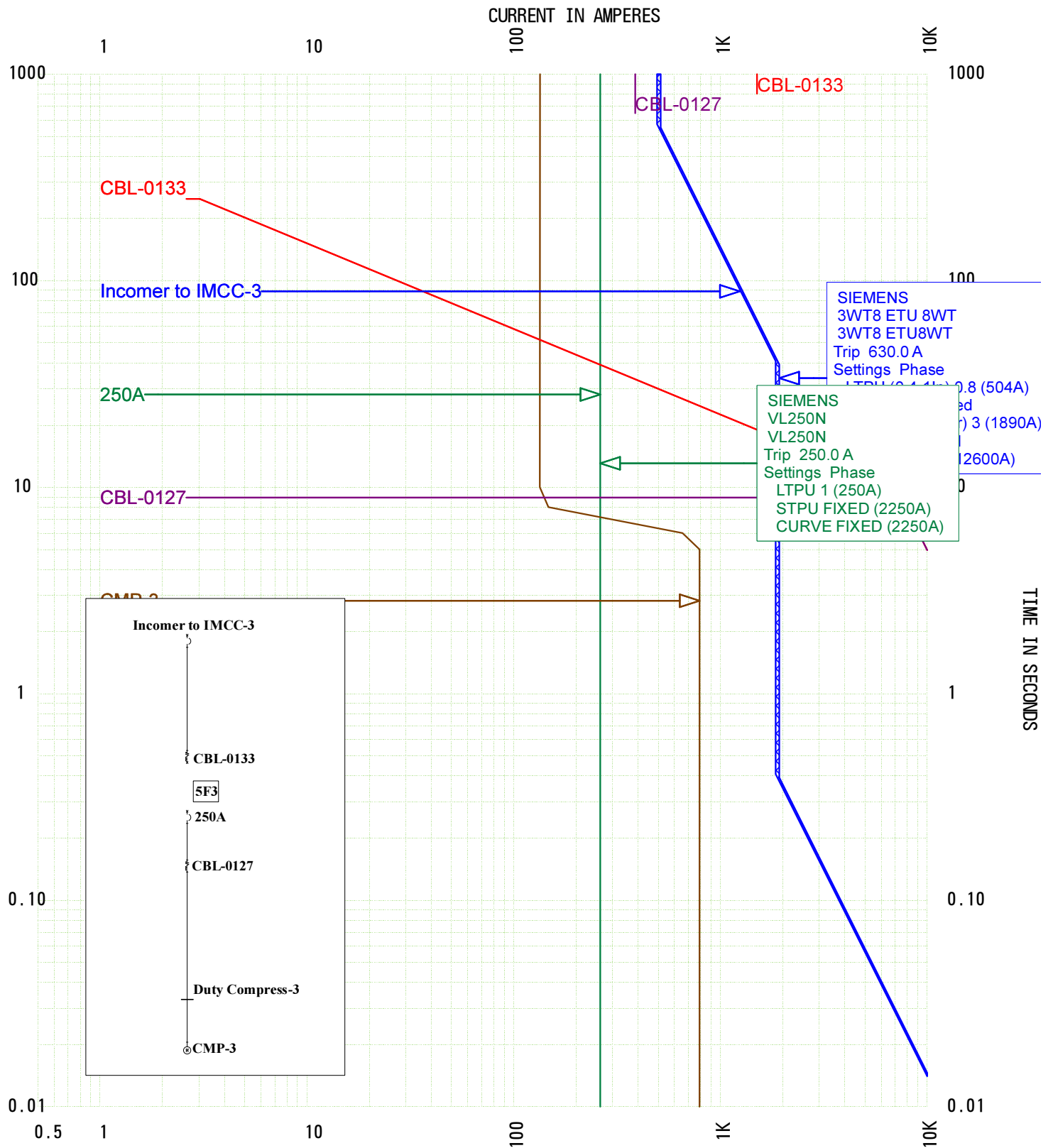
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Duty compressor-2
 Online: Duty compressor-2
 July 23, 2014 2:04 PM

Current Scale x 1

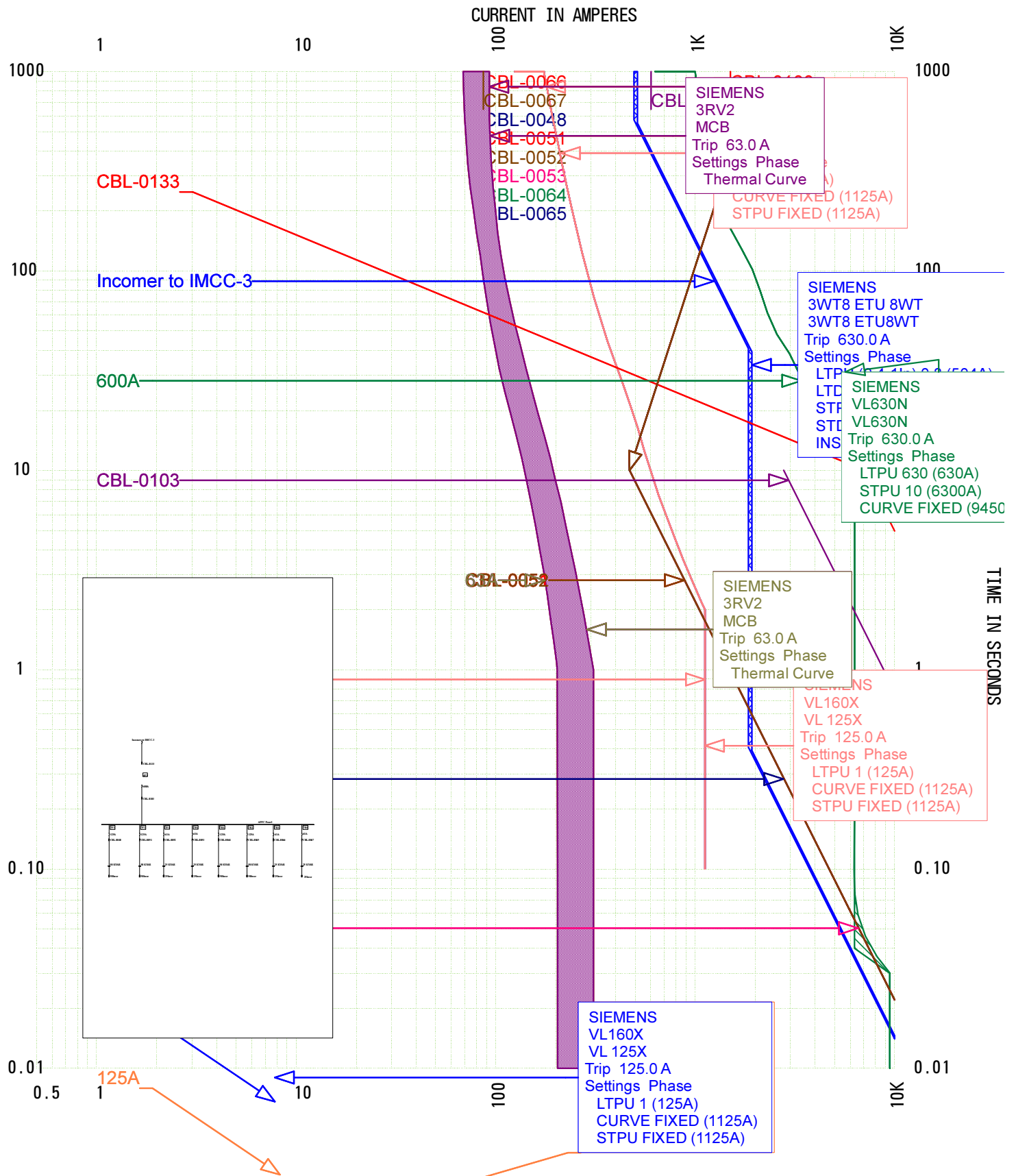
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Duty compressor-3
 Online: Duty compressor-3
 July 23, 2014 2:04 PM

Current Scale x 1

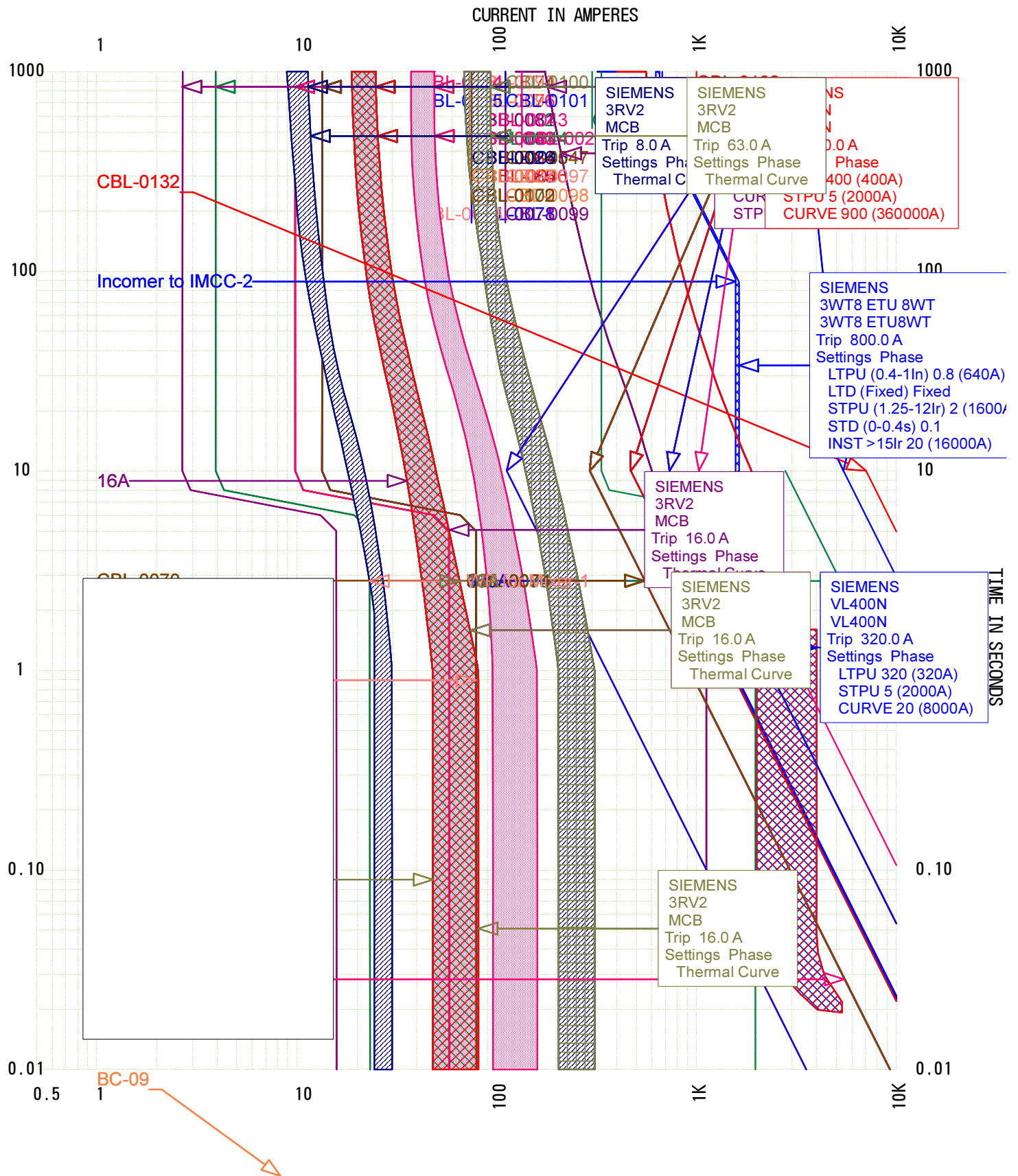
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Apfc Panel
 Online: Apfc Panel
 July 23, 2014 2:04 PM

Current Scale x 1

Reference Voltage: 415
 SKM Systems Analysis, Inc.

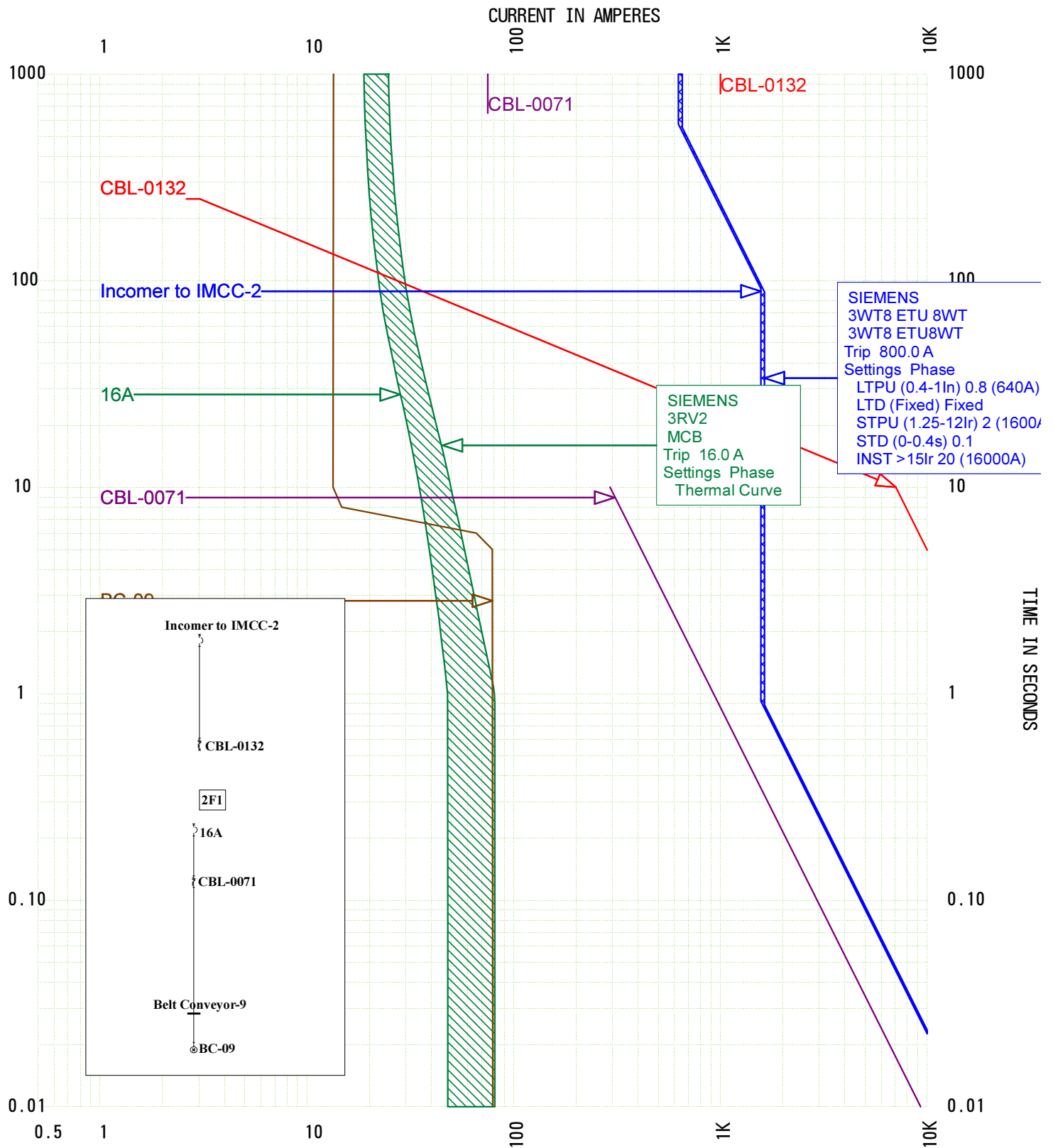


TCC Name: Incomer-2
 Online: Incomer-2
 July 23, 2014 2:04 PM

Current Scale x 1

Reference Voltage: 415

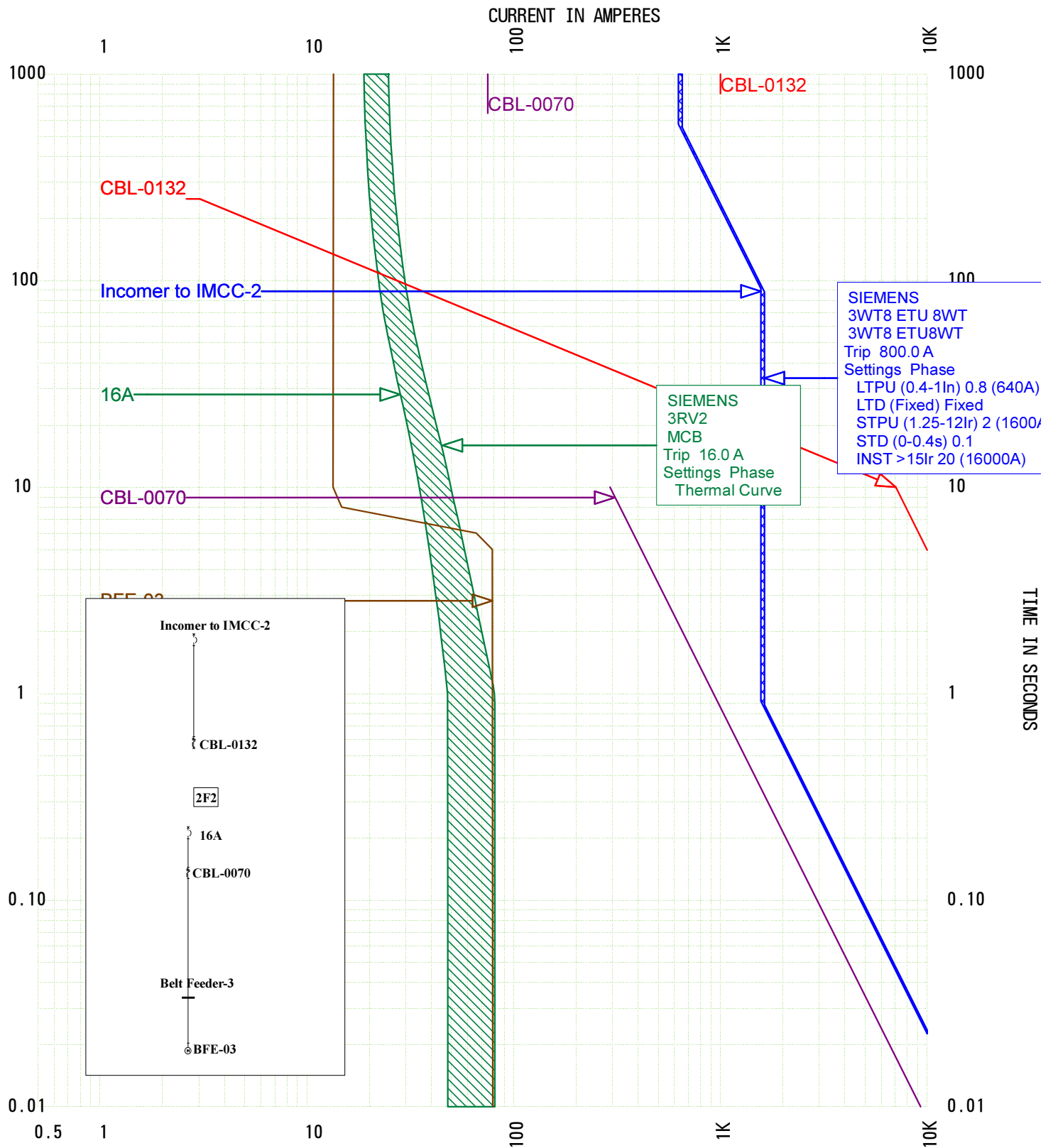
SKM Systems Analysis, Inc.



TCC Name: Belt conveyor-9
 Online: Belt conveyor-9
 July 23, 2014 2:04 PM

Current Scale x 1

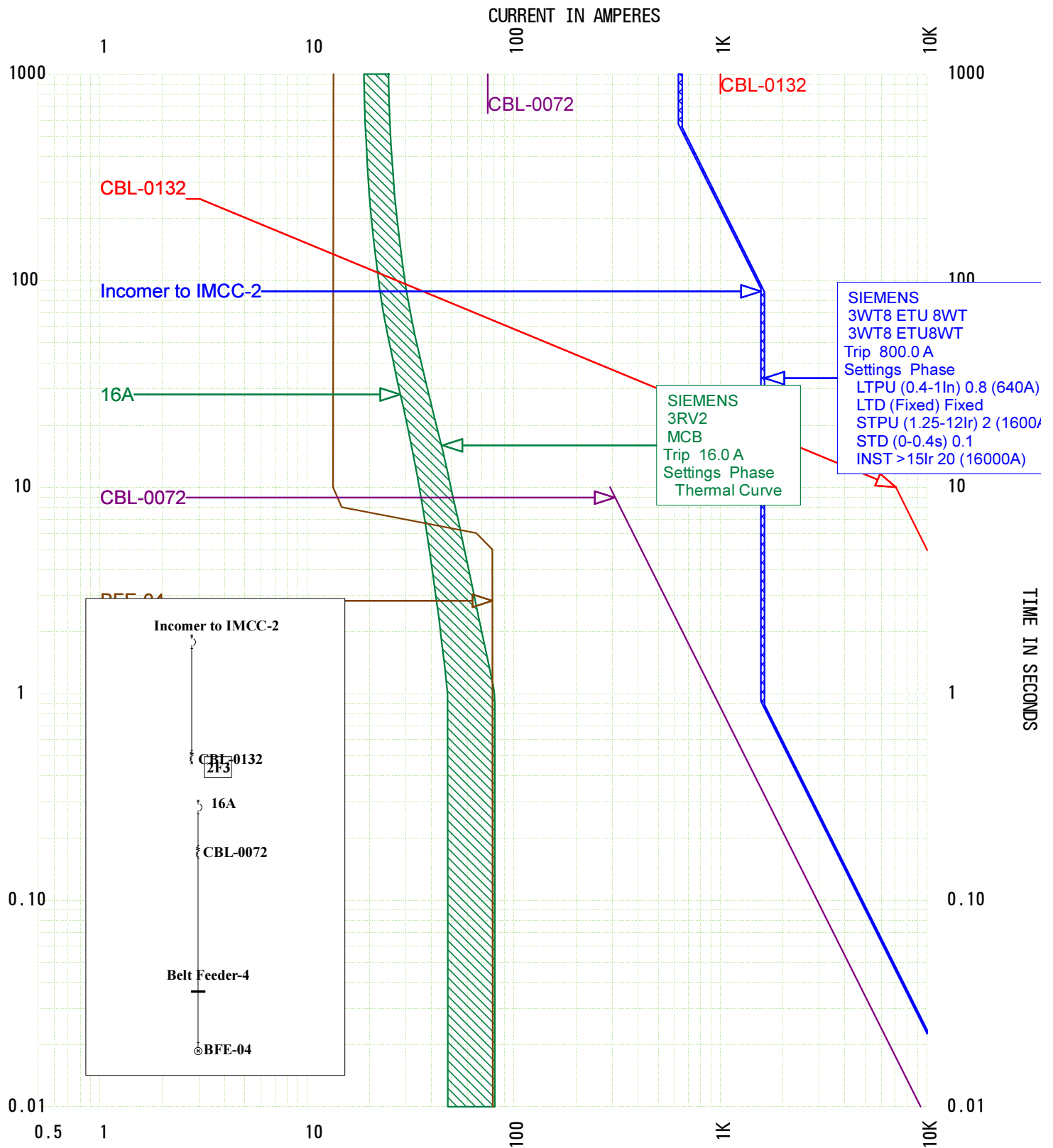
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Belt feeder-3
 Online: Belt feeder-3
 July 23, 2014 2:04 PM

Current Scale x 1

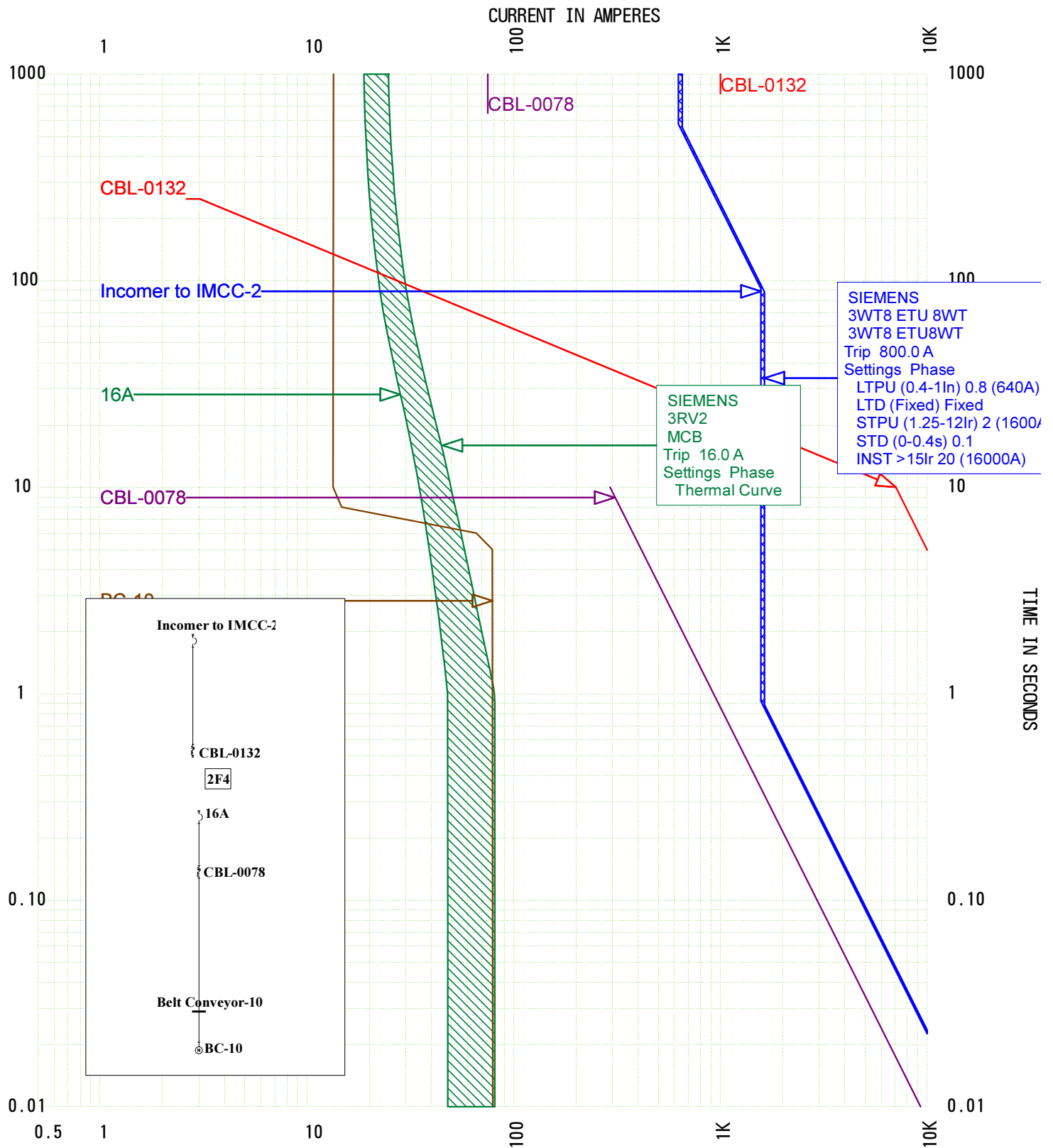
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Belt feeder-4
 Online: Belt feeder-4
 July 23, 2014 2:04 PM

Current Scale x 1

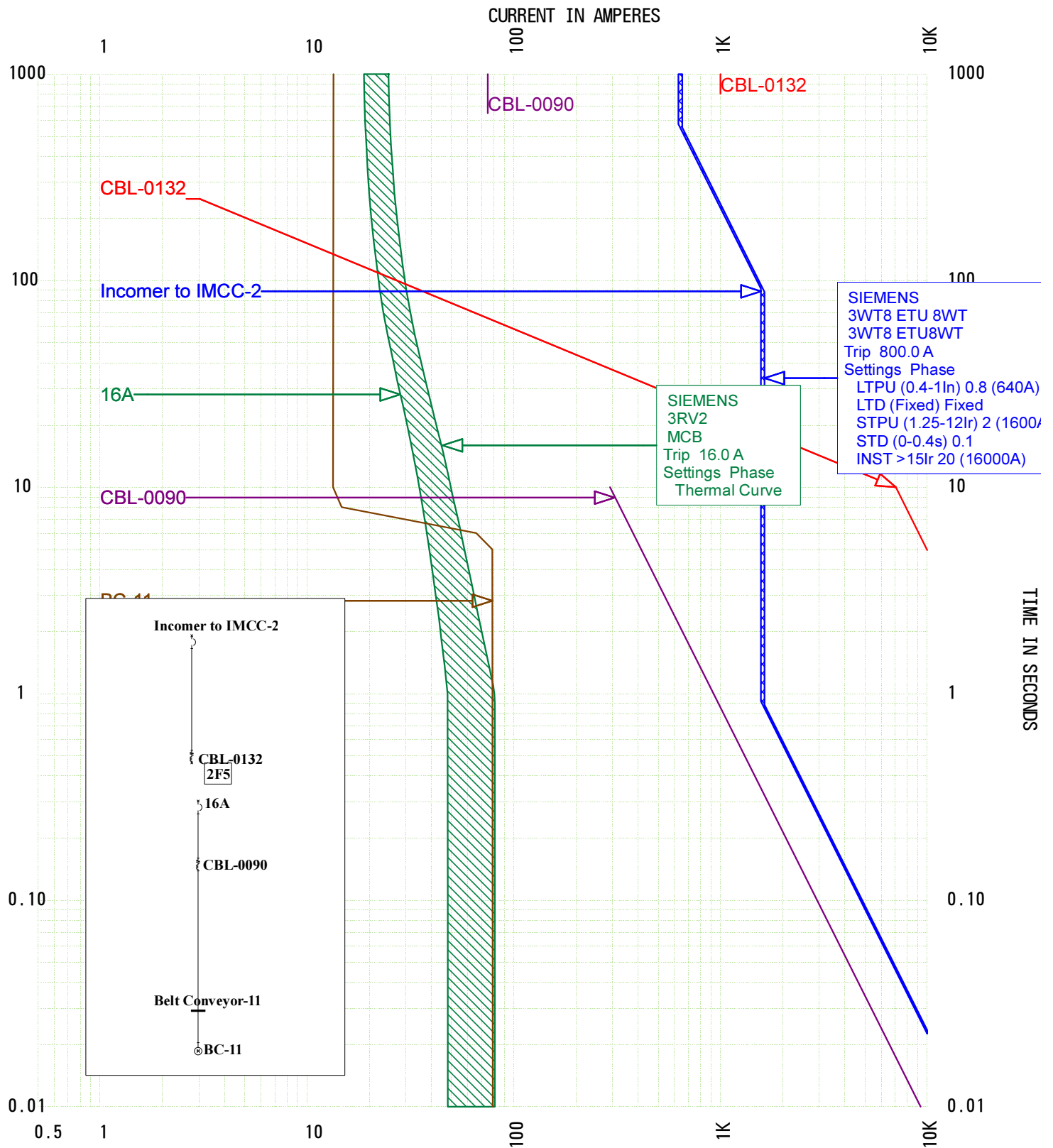
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Belt conveyor-10
 Online: Belt conveyor-10
 July 23, 2014 2:04 PM

Current Scale x 1

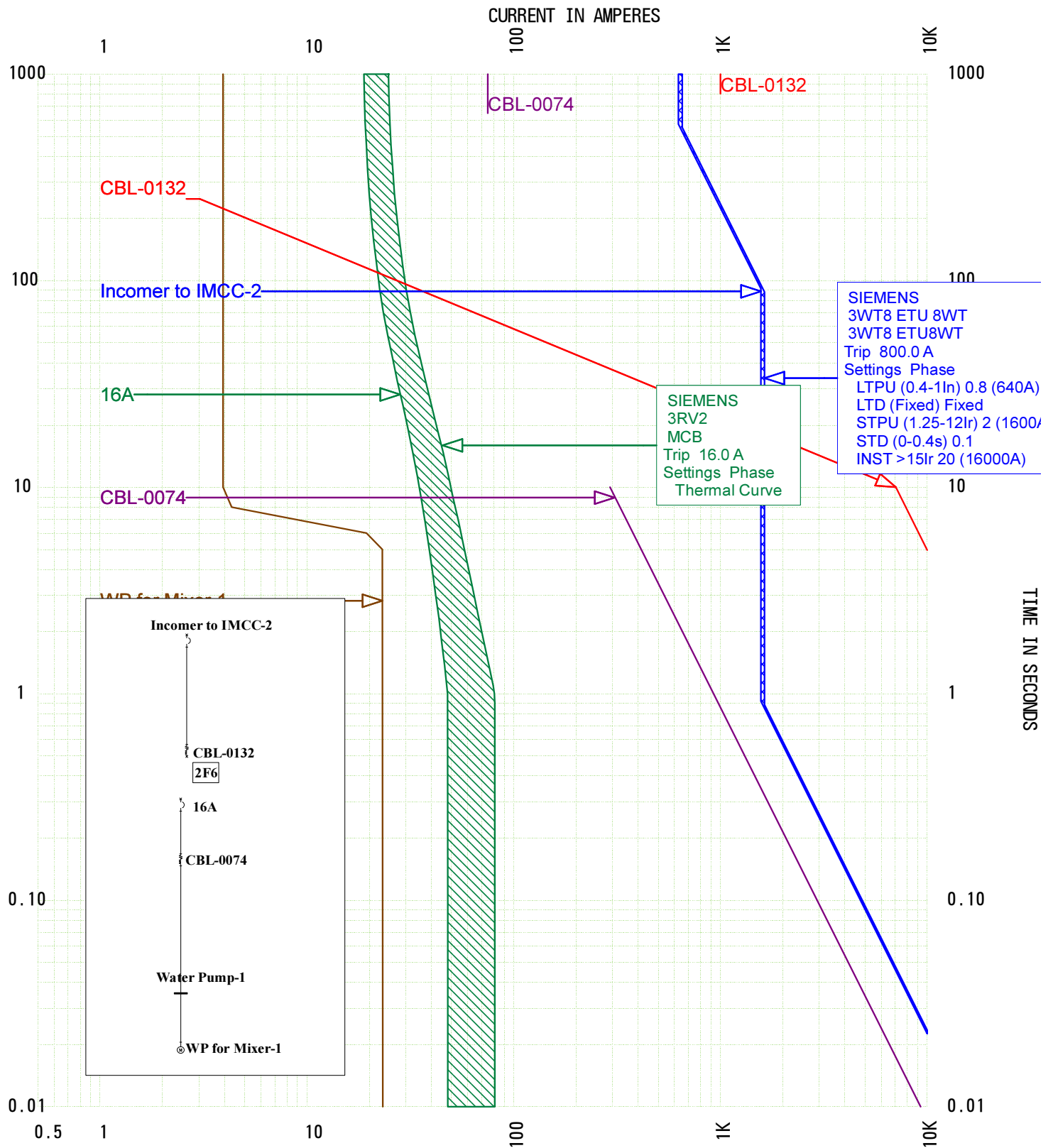
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Belt conveyor-11
 Online: Belt conveyor-11
 July 23, 2014 2:04 PM

Current Scale x 1

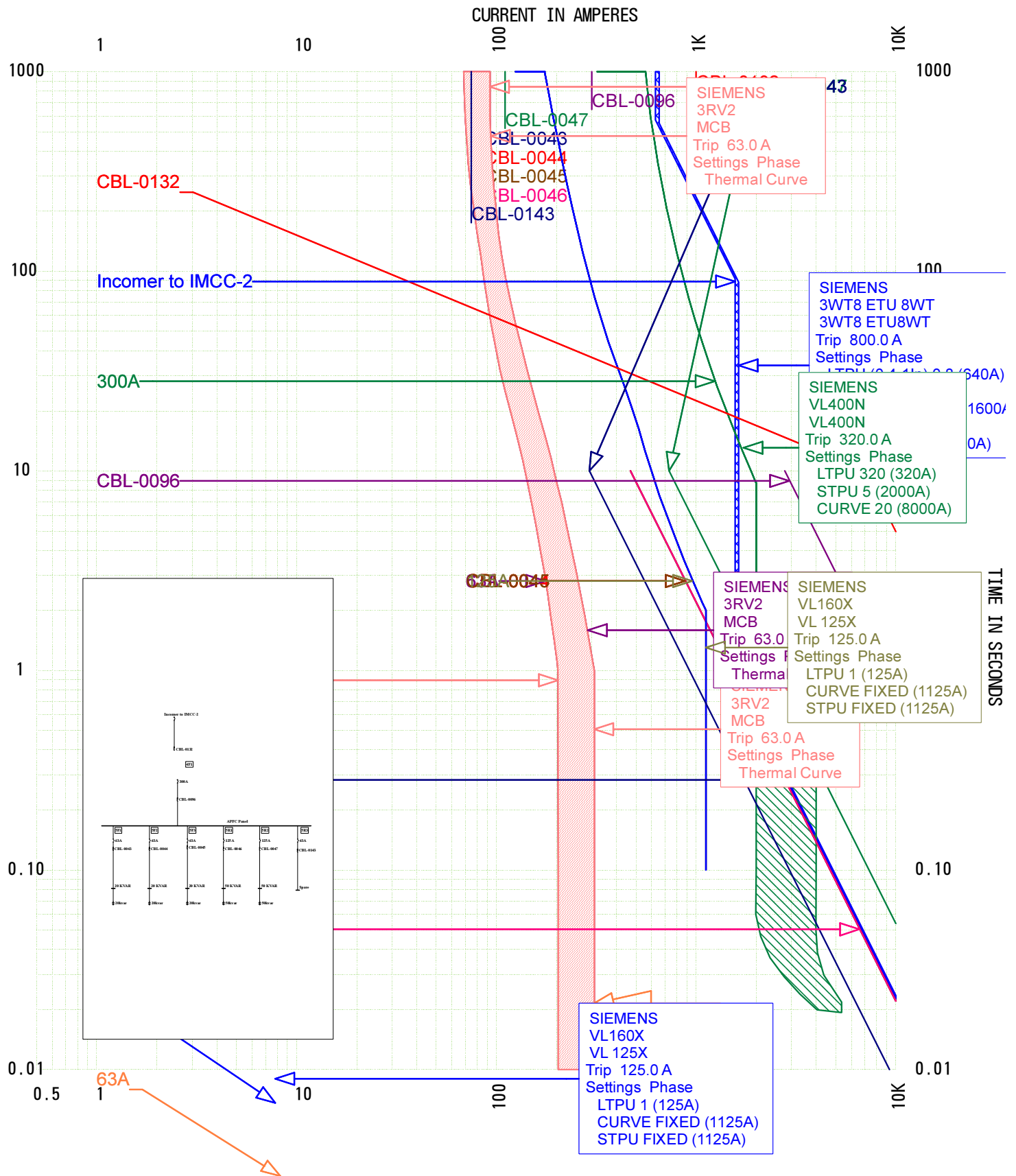
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Water pump for mixer
 Online: Water pump for mixer
 July 23, 2014 2:04 PM

Current Scale x 1

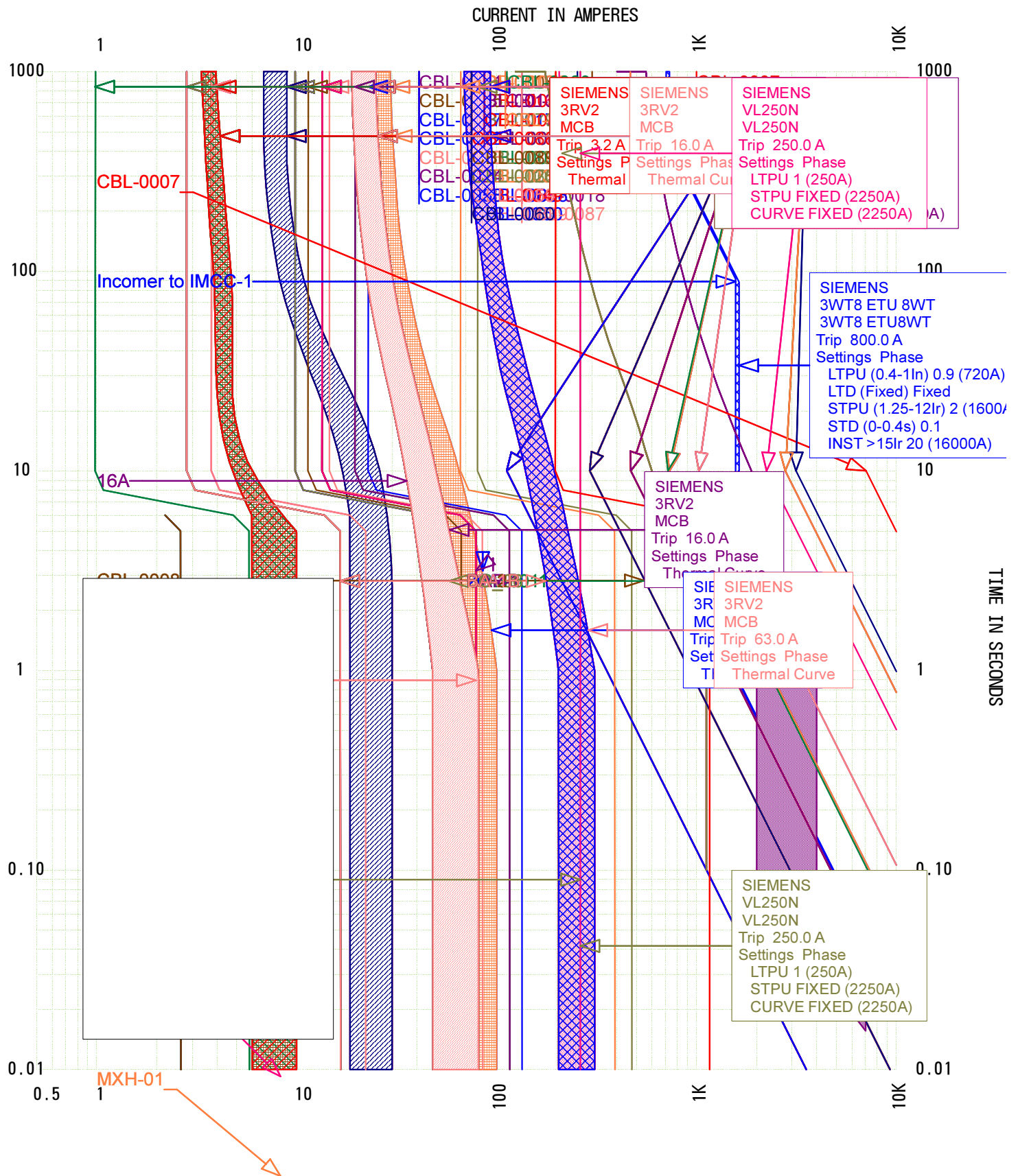
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: incoming-2 Apfc-2
 Online: incoming-2 Apfc-2
 July 23, 2014 2:04 PM

Current Scale x 1

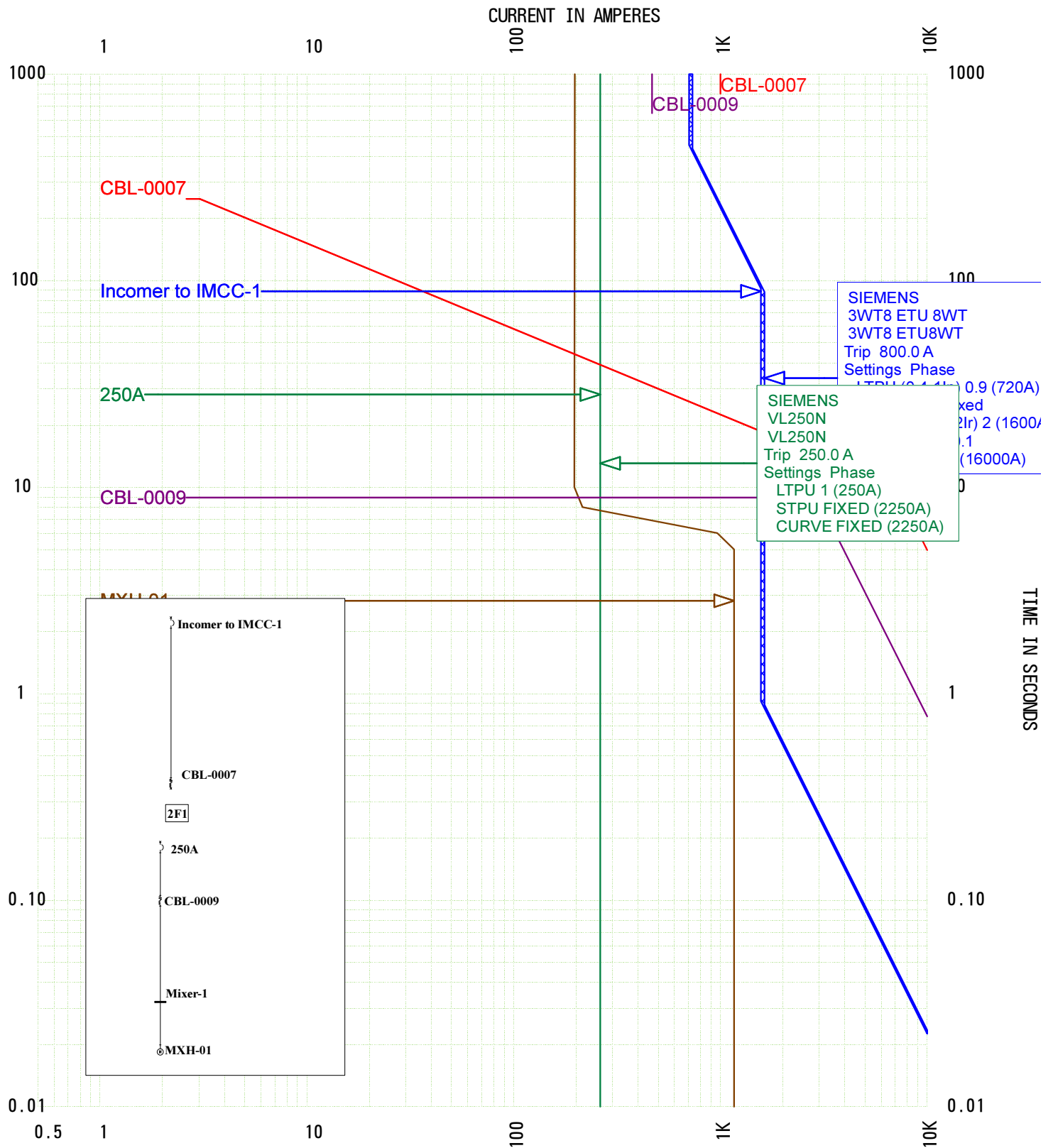
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Incomer-1
Online: Incomer-1
July 23, 2014 2:04 PM

Current Scale x 1

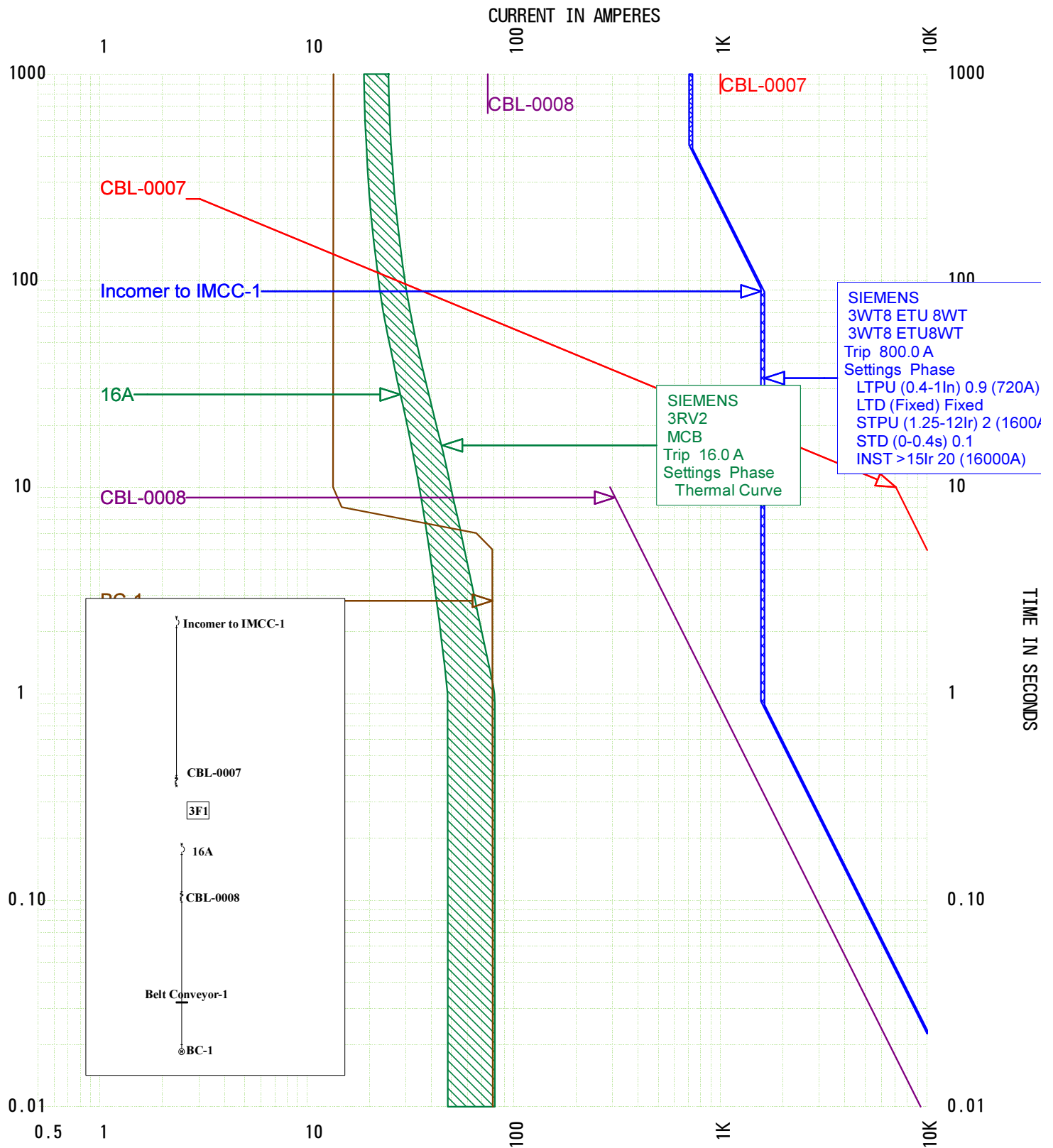
Reference Voltage: 415
SKM Systems Analysis, Inc.



TCC Name: Mixer-1
 Online: Mixer-1
 July 23, 2014 2:05 PM

Current Scale x 1

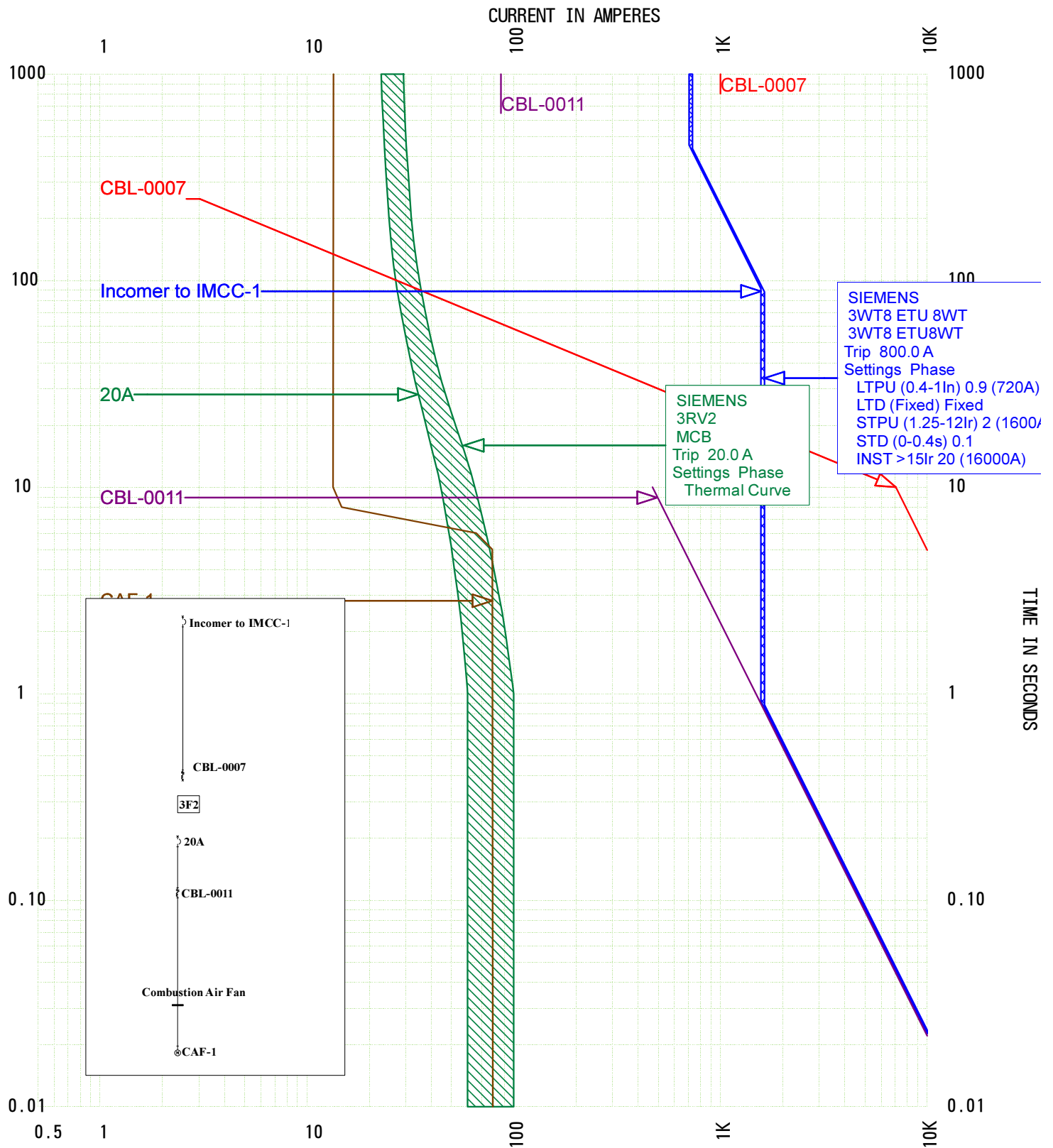
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Belt conveyor-1
 Online: Belt conveyor-1
 July 23, 2014 2:05 PM

Current Scale x 1

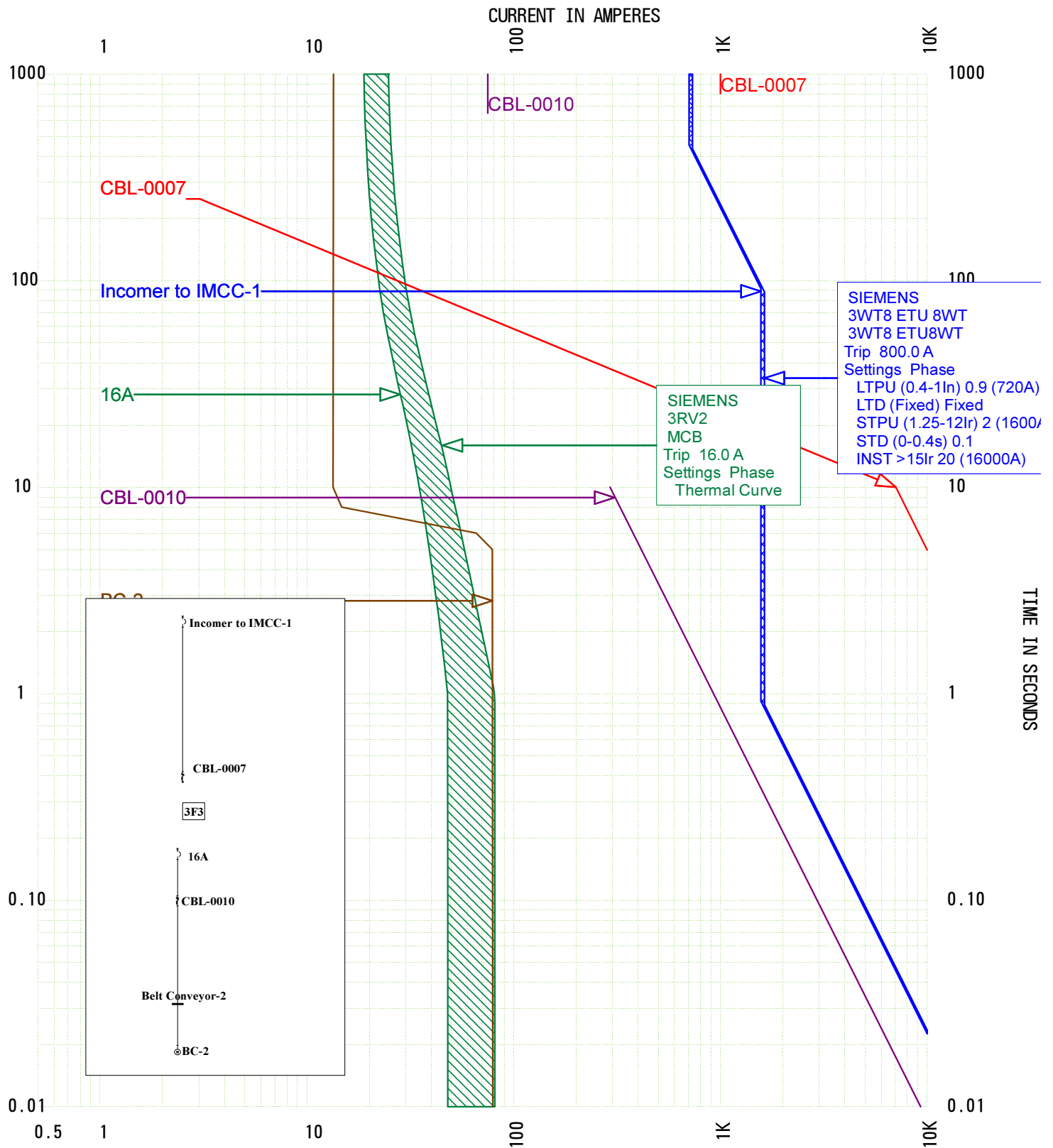
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Combustion Air Fan
 Online: Combustion Air Fan
 July 23, 2014 2:05 PM

Current Scale x 1

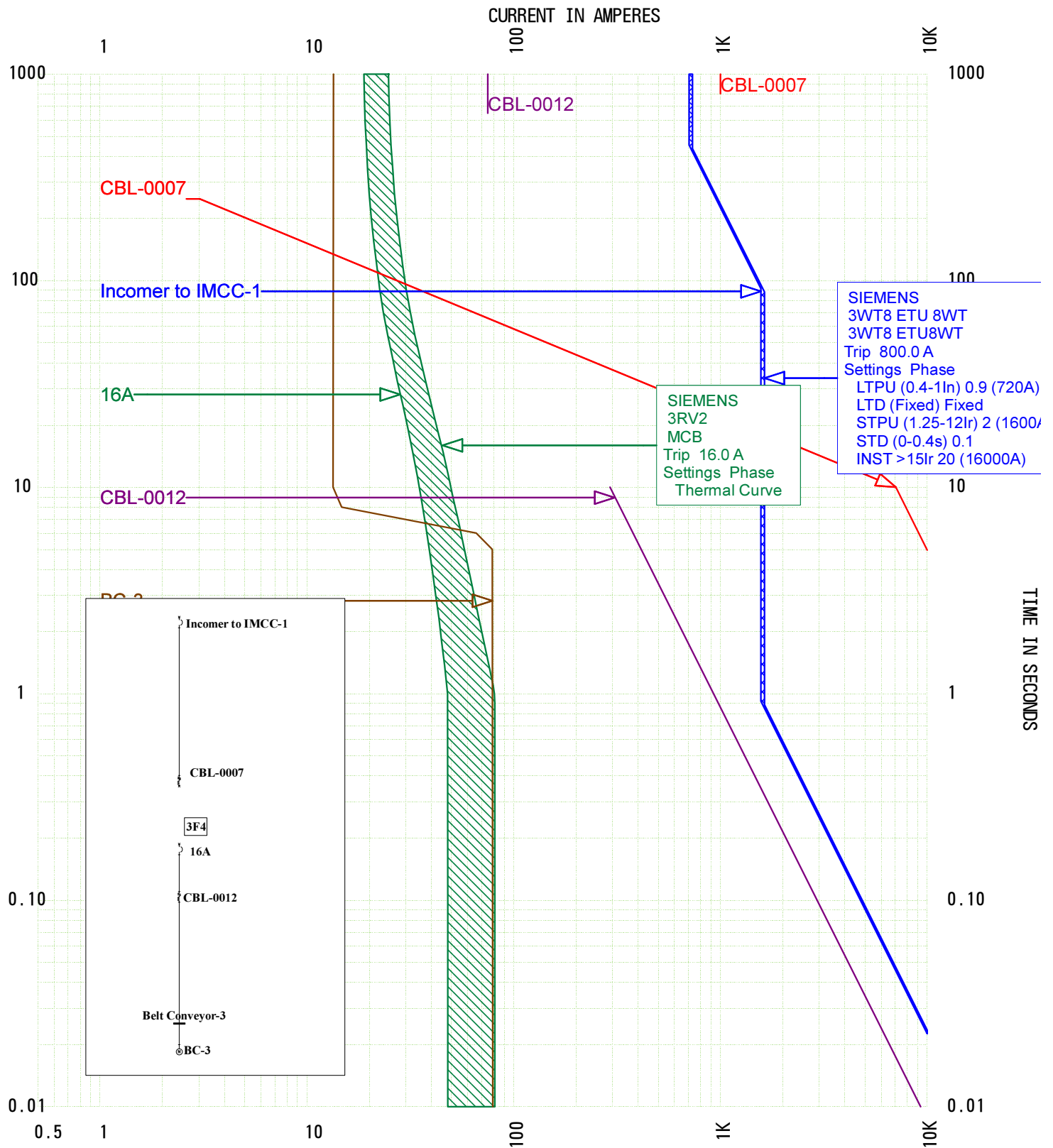
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Belt conveyor-2
 Online: Belt conveyor-2
 July 23, 2014 2:05 PM

Current Scale x 1

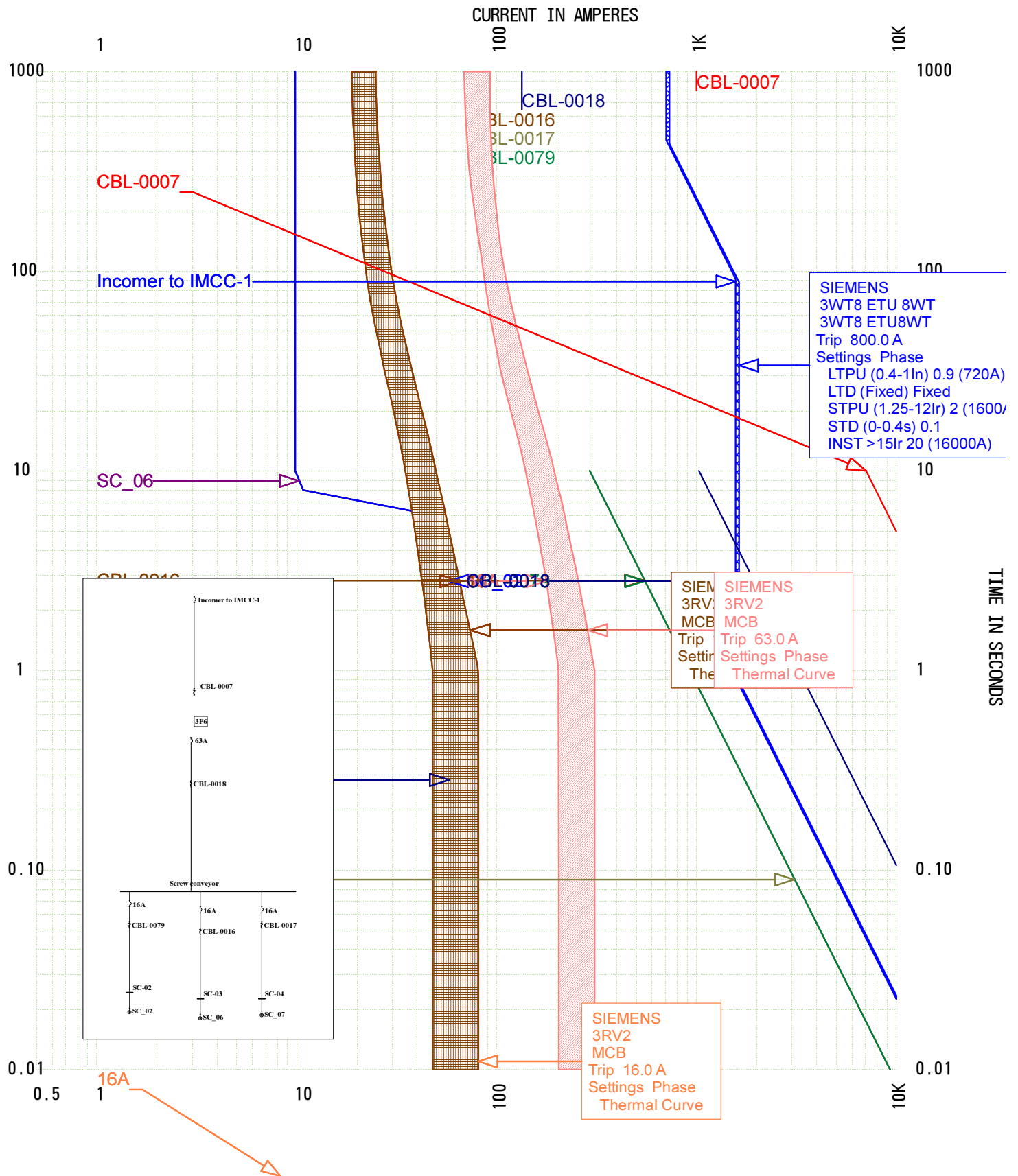
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Belt conveyor-3
 Online: Belt conveyor-3
 July 23, 2014 2:05 PM

Current Scale x 1

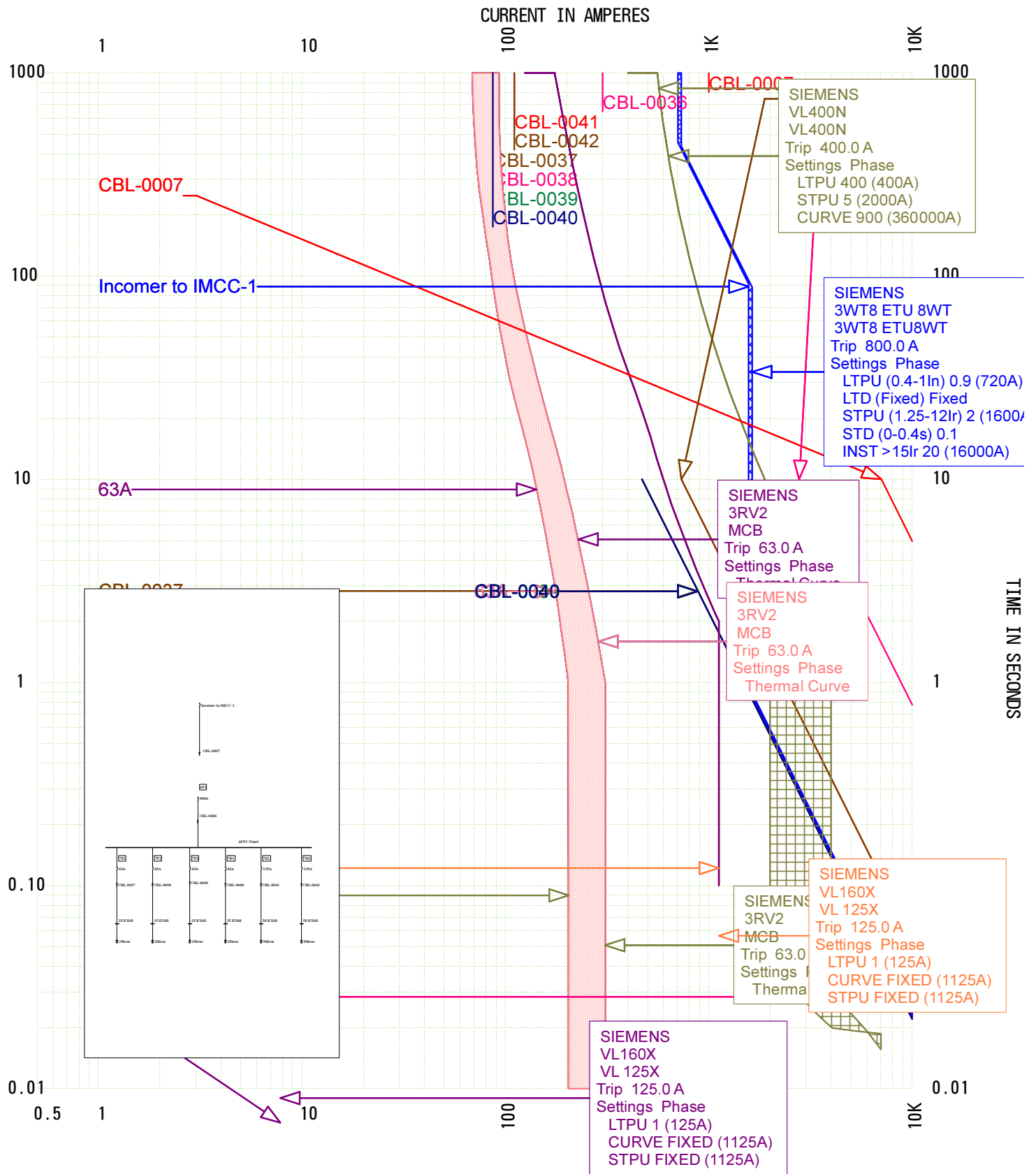
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Screw Conveyor
 Online: Screw Conveyor
 July 23, 2014 2:05 PM

Current Scale x 1

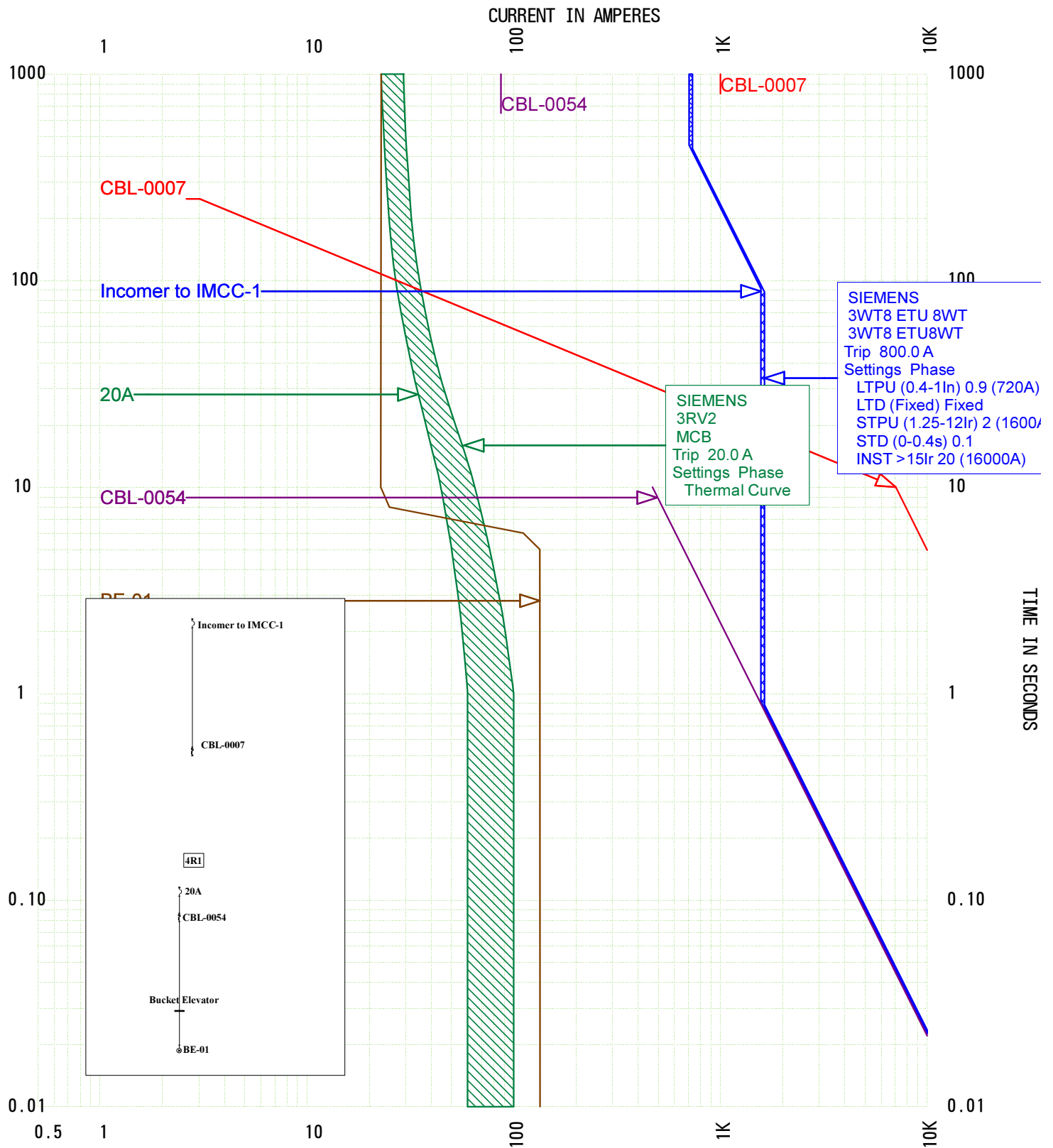
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Incoming-1 Apfc-1
 Oneline: Incoming-1 Apfc-1
 July 23, 2014 2:05 PM

Current Scale x 1

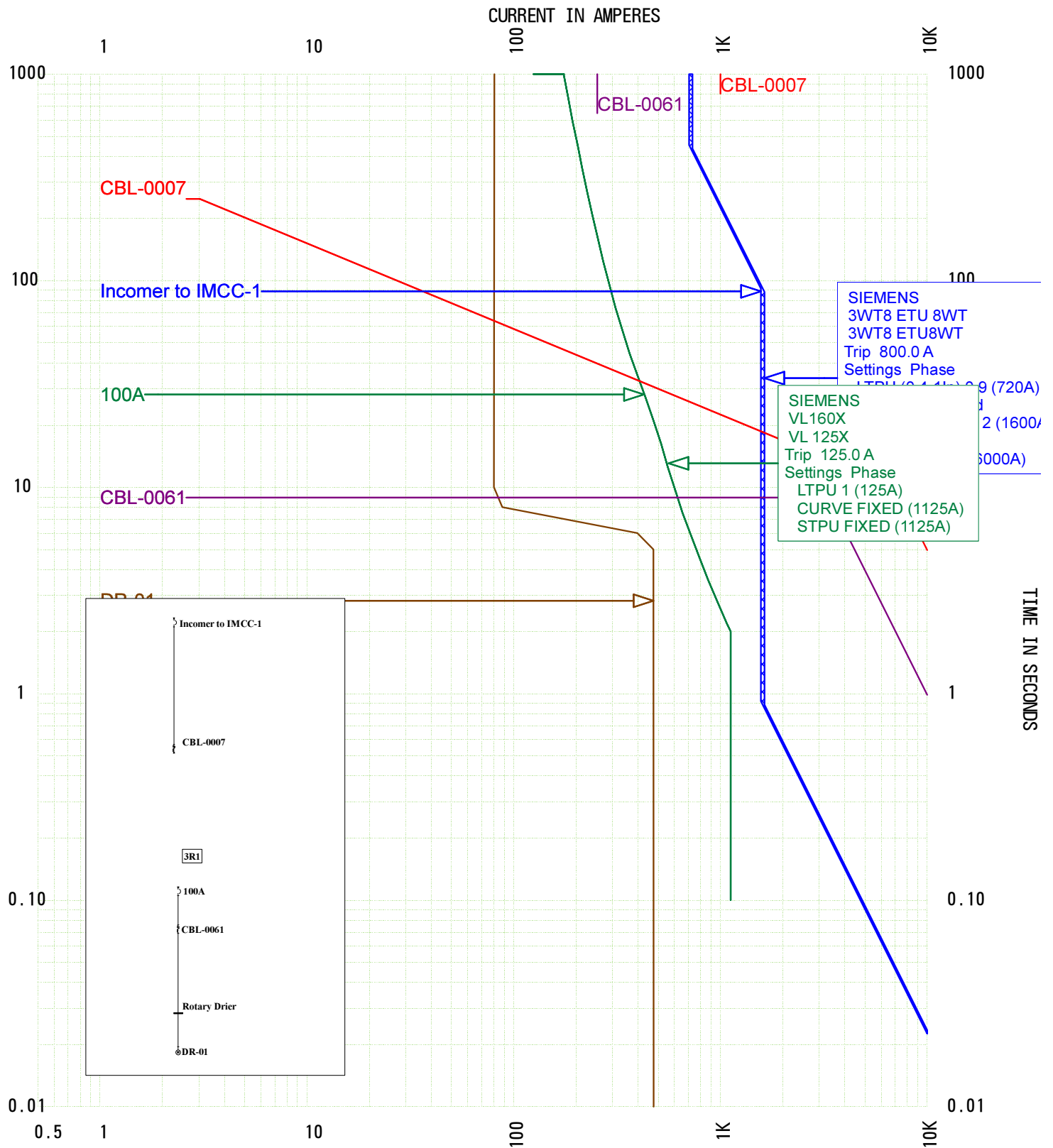
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Buck Elevator
 Online: Buck Elevator
 July 23, 2014 2:05 PM

Current Scale x 1

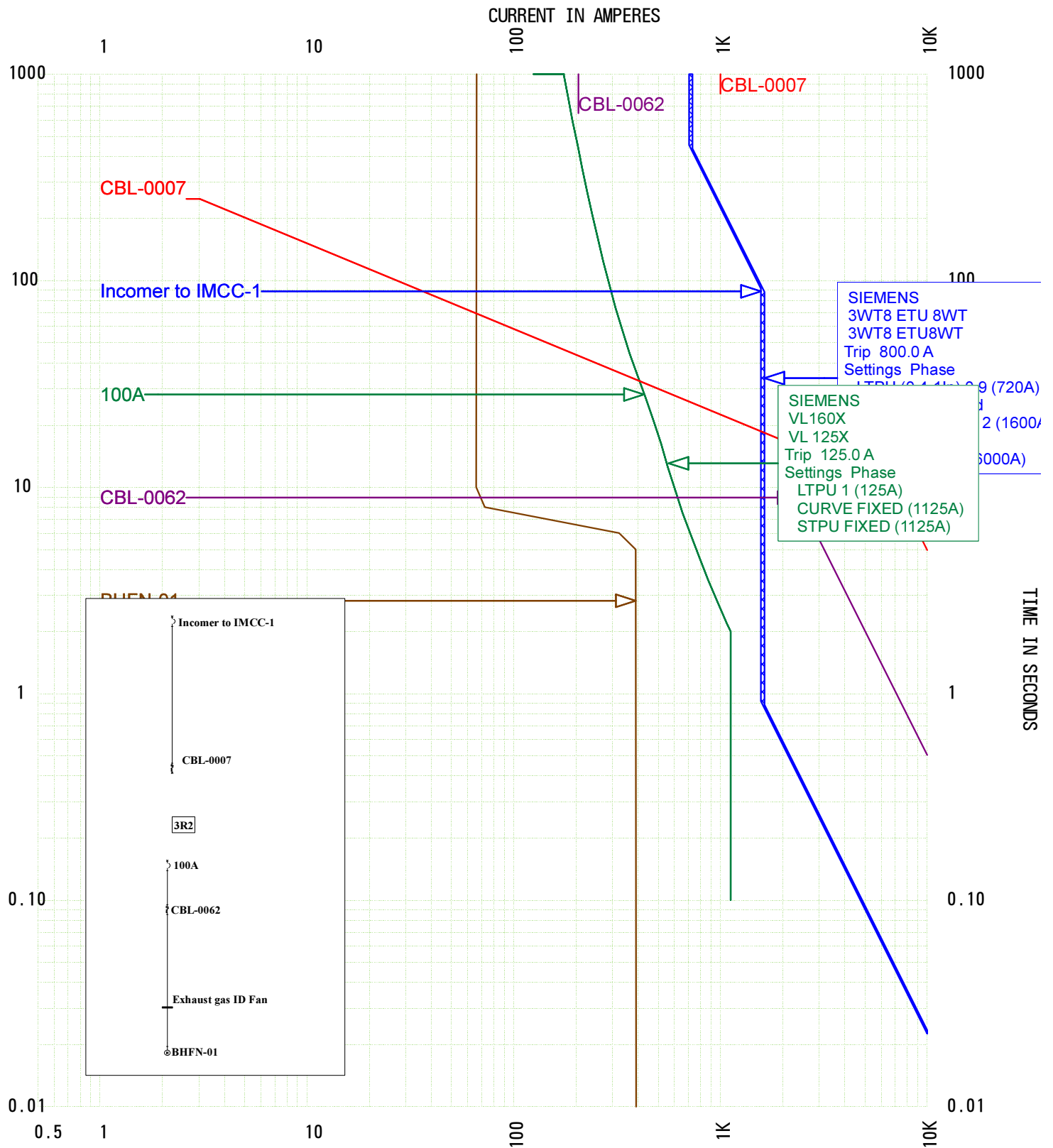
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Rotary Drier
 Online: Rotary Drier
 July 23, 2014 2:05 PM

Current Scale x 1

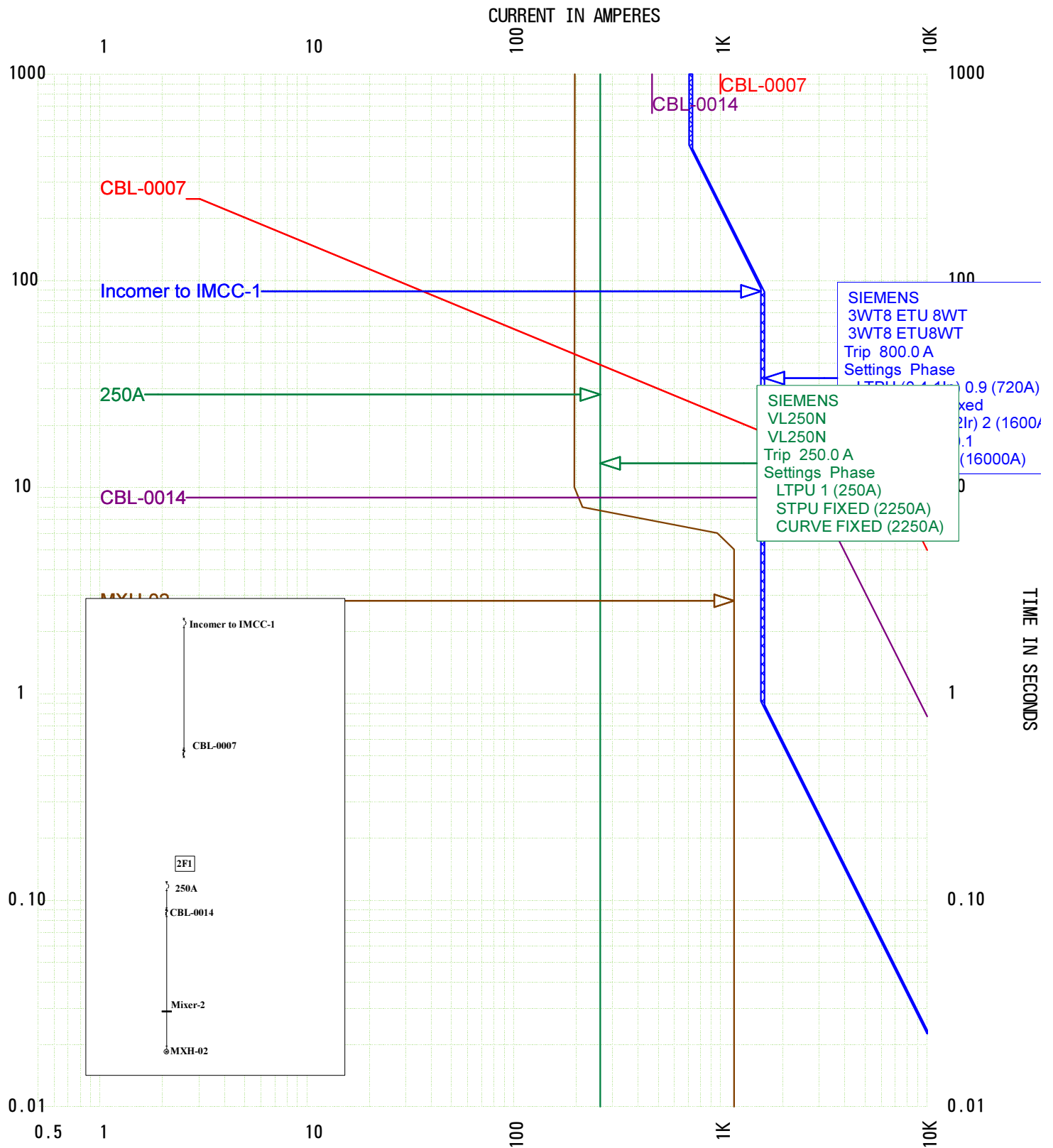
Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Exhaust id fan
 Oneline: Exhaust id fan
 July 23, 2014 2:05 PM

Current Scale x 1

Reference Voltage: 415
 SKM Systems Analysis, Inc.



TCC Name: Mixer-2
 Online: Mixer-2
 July 23, 2014 2:05 PM

Current Scale x 1

Reference Voltage: 415
 SKM Systems Analysis, Inc.

Project: XXXXX

4.3.5 Protection Device Settings

Protective Device Setting Report

Prot Dev	Manufacturer	Type	Description	Frame	Sensor
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
250A	SIEMENS	VL250N	250A	250.0	250.0
20A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	20.0	20.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
400A	SIEMENS	VL400N	400A	400.0	400.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
125A	SIEMENS	VL160X	160A	125.0	125.0
5A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	6.0	6.0
5A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	6.0	6.0
5A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	6.0	6.0
20A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	20.0	20.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
100A	SIEMENS	VL160X	160A	125.0	125.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
300A	SIEMENS	VL400N	400A	400.0	400.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0

Prot Dev	Manufacturer	Type	Description	Frame	Sensor
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
125A	SIEMENS	VL160X	160A	125.0	125.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
100A	SIEMENS	VL160X	160A	125.0	125.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
250A	SIEMENS	VL250N	250A	250.0	250.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
125A	SIEMENS	VL160X	160A	125.0	125.0
125A	SIEMENS	VL160X	160A	125.0	125.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
400A	SIEMENS	VL400N	400A	400.0	400.0
8A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	8.0	8.0
8A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	8.0	8.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0

Prot Dev	Manufacturer	Type	Description	Frame	Sensor
8A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	8.0	8.0
8A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	8.0	8.0
8A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	8.0	8.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
250A	SIEMENS	VL250N	250A	250.0	250.0
600A	SIEMENS	VL630N	630A	630.0	630.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
125A	SIEMENS	VL160X	160A	125.0	125.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
125A	SIEMENS	VL160X	160A	125.0	125.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
125A	SIEMENS	VL160X	160A	125.0	125.0
125A	SIEMENS	VL160X	160A	125.0	125.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
250A	SIEMENS	VL250N	250A	250.0	250.0
250A	SIEMENS	VL250N	250A	250.0	250.0
250A	SIEMENS	VL250N	250A	250.0	250.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
125A	SIEMENS	VL160X	160A	125.0	125.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
3.2A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	3.2	3.2

Prot Dev	Manufacturer	Type	Description	Frame	Sensor
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
32A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	32.0	32.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
63A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	63.0	63.0
16A	SIEMENS	3RV2	1-63A, 2-3 Pole, IEC	16.0	16.0
250A	SIEMENS	VL250N	250A	250.0	250.0
Incomer to IMCC-1	SIEMENS	3WT8 ETU 8WT	LSI 630-3200A	800.0	800.0
Incomer to IMCC-2	SIEMENS	3WT8 ETU 8WT	LSI 630-3200A	800.0	800.0
Incomer to IMCC-3	SIEMENS	3WT8 ETU 8WT	LSI 630-3200A	630.0	630.0

4.4 ARC FLASH HAZARD ANALYSIS:

4.4.1 General Procedure

Arc Flash Analysis is required to determine the incident energy and arc flash boundary for various locations throughout the power system. Once the incident energy and arc flash boundaries are known, the required PPE is determined and the appropriate arc flash warning labels are generated. The owner can then attach these warning labels to electrical equipment that would require servicing while energized. These labels will indicate to personnel what the arc flash boundary is and what the correct personal protective equipment (PPE) is that they are required to wear.

Personal Protective Equipment (PPE) for the arc flash hazard is the last line-of defense. It is not intended nor will it prevent all injuries. It is intended to reduce the impact of an arc flash should one occur. NFPA 70E states that the incident energy exposure shall be based on the working distance of the employee's face and head. Fire Rated (FR) clothing and PPE shall be used based upon the incident energy exposure. This means injuries to hands and arms are expected if an arc at the level calculated and protected against occurs. It is impossible to design PPE to prevent all injuries since it would be very restrictive and difficult to work in.

Over the past 2 decades, the electrical industrial has begun to recognize arc flash as safety hazard for personal working near the exposed, energized conductors. Ralph Lee is credited with rising the awareness of this hazard in a technical paper entitled "The Other Electrical Hazard: Electric Arc Blast Burns." IEEE Transactions on Industry Applications. Vol. 1A-18, No.3, May-June 1982. Lee's paper presented a theoretical model for calculating the distance-energy relationship for electrical arc exposure. The hazard was later further quantified through control testing on 600V systems which included the effect of an enclosure in reflecting heat from the arc toward to the opening of the enclosure. Curve fitting was applied to the test data and resulting algorithms were published in the technical paper by R. L. Doughty, T. E. Neal, and H. L. Floyd II, entitled "Predicting Incident Energy to Better Manage the Electric Arc Hazard on 600V Power Distribution Systems," proceeding of the IEEE Petroleum and Chemical Industry Conference, Paper No. 98-36, 1998. These models provide the basis for performing flash hazard analysis per NFPA 70E-2015, Standard for Electrical Safety Requirements for Employee Workplaces.

More recently, IEEE Std. 1584-2002, IEEE Guide for Performing Arc Flash Hazard Calculations, presented a more comprehensive methodology for arc flash analysis. This standard, based on extensive testing carried out on low voltage and medium voltage system (to 15kV), is applicable to a wider range of systems than the previous calculation method. For systems above 15kV, where sufficient test data is not yet available, IEEE-1584 relies on the Ralph Lee method for calculation of arcing energy levels. The results presented in this report are based solely on the IEEE-1584 calculation procedures.

Note that IEEE-1584 is still applicable only to three-phase arcing faults (though single-phase or phase-phase arcing faults are generally expected to quickly escalate to three-phase faults), and it does not consider the effects of arc blast or other by-products of an arcing fault (sound levels, molten metal droplets, toxic vapors, etc.).

Note that the arc flash hazard analysis and recommended PPE levels are no substitutes for safe work practices. As stated in NFPA 70E-2015, burn injuries can occur even when adequate PPE is employed, and the recommended PPE may provide little or no protection against arc blast and its

effects. Further, while VB Engineering believes that the analysis methods presented in IEEE 1584 represent the “state-of-the-art” in arc flash hazard analysis, the equations in IEEE1584 are based upon test results conducted in laboratory settings and it is possible that real-world arc exposure could be either greater or less than indicated by these calculations. The results of this study also assume that protective devices considered are in working order and will operate within their specified tolerances to clear faults from the system. Nonfunctioning over current protective devices can allow arcing faults to persist for much longer than normal, potentially presenting a very significant arc flash hazard. Protection from arc flash can best be provided by working only on circuits or equipment that have placed in an electrically safe work condition.

This report provides the incident energy and arc flash protection boundaries and PPE categories. Note that IEEE-1584 specifies that PPE for the Arc flash hazard is the last line of defense. The protection is not intended to prevent all injuries but to mitigate the impact of an Arc flash upon an individual, should one occur.

4.4.2 Specific Flash Hazard Analysis Procedure

PTW Arc Flash Evaluation Program

The protection engineer used the PTW (Power Tools for Windows) Arc Flash Evaluation program. SKM System Analysis, Inc. of Manhattan Beach, CA, wrote this program. It is an accepted industry standard for arc flash calculations. SKM Power Tools software includes Arc Flash Analysis study model that contains equations based on both NFPA70E and IEEE-1584. All calculations presented in this report are based on the IEEE- 1584 calculation procedure. This program calculates the incident energy and arc flash boundary based upon the three-phase short circuit duties at each bus and through each protective device.

The duration of the arc is determined from the time current characteristics of the applicable over current devices and the calculated arc fault current. Per IEEE- 1584, for less than 1000 V buses a second arcing fault current value (equal to 85% of the calculated value) and corresponding device operating time is also calculated. Once the arcing fault current and fault duration are known, equations from IEEE-1584 are used to calculate the available incident energy and flash protection boundary for each location under study. For less than 1000V buses, the incident energy and Protection boundaries are also calculated at the 85% point and the higher of the two sets of values is reported.

The calculated incident energy levels are also based on the “working distance” from the fault. A working distance of 36 inches was assumed for medium-voltage equipment, 24 inches for low-voltage switchgear and 18 inches for motor control centers and panel boards, per IEEE-1584 recommendations. In addition to the incident energy levels at the given working distance, the flash protection boundary at each location is provided. This distance corresponds to the distance from the equipment that the incident energy equals 1.2 Cal/cm^2 , which is generally accepted to be the energy level sufficient to cause a second degree burn on bare skin. When working inside the flash protection boundary, proper personal protection equipment (PPE) is required.

Users should be aware that the equations are based upon measured incident energy under a specific set of test conditions and on theoretical work. Actual arc flash exposures may be more or less severe than calculated by the PTW program. Also, the user should beware of the potentially hazardous effects of molten copper splatter, pressure impulses, toxic arc byproducts, and projectiles. These effects have not been considered in the equation.

The arcing fault current through the protective devices is then calculated from the bolted fault value and used to automatically find the time duration of the arc from the time current coordination (TCC) curves. Incident energy and arc flash boundaries are calculated based on the bus three-phase fault current and arcing duration. Clothing requirements are specified from a user defined personal protective equipment table.

The PTW Arc Flash program created the table below. Reading from left to right, the columns have the following definitions:

Bus Name	Protective Device Name	Bus KV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/Delay Time (sec.)	Breaker Opening Time (sec.)	Ground	Equip Type	Gap (mm)	Arc Flash Boundary (mm)	Working Distance (mm)	Incident Energy (cal/cm ²)	Required Protective FR Clothing Category	Label #	Cable Length From Trip Device (m)	Incident Energy at Low Marginal	Incident Energy at High Marginal
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Bus Name: Indicates the fault location.

Protective Device Name: The first protective device in each parallel branch feeding the fault.

Bus KV: Bus voltage at the fault location.

Bus Bolted Fault: Total symmetrical fault current at the fault location.

Prot Dev Bolted Fault: Symmetrical fault current passing through the referenced protective device for a bolted fault at the fault location, referenced to bus voltage at fault location.

Arcing Fault: Branch fault current passing through the referenced protective device for an arcing fault at the fault location, referenced to bus voltage at fault location.

Trip/Delay Time: Time for referenced protective device to trip (clearing curve) at arcing fault branch current value.

Breaker Opening Time: User-defined trip time for breaker used when protective device clearing curve does not include the breaker operating time. For example, published relay trip curves reflect only the trip time of the relay since they can be applied to many different breakers and therefore the breaker opening time needs to be included.

Ground: Yes indicates that the fault bus is connected solidly to ground. No indicates that the fault bus is resistance grounded or ungrounded. The empirical equations for incident energy vary for grounded and ungrounded systems.

In Box: Identifies whether the fault location is in an enclosure or in open air. In open air the arc energy will radiate in all directions whereas an enclosure will focus the energy toward the enclosure opening. The In Box / Air selection is available when the NFPA 70E study option is selected. For the IEEE 1584 study selection the In Box or In Air is determined automatically from the Equipment Type specification.

Equip Type: Used only in the IEEE 1584 method to determine In Box or In Air

condition as well as to provide a default gap between bus bars and distance factor used in the incident energy calculation.

Gap:	Gap between conductors where arc will occur.
Arc Flash Boundary:	Minimum distance from the arc within which a second degree burn could occur if no protective clothing is worn.
Working Distance:	Closest distance a workers body, excluding arms and hands, would be exposed to the arc.
Incident Energy:	Energy released at the specified working distance expressed in Cal/cm ² or J/cm ² .
Clothing Class:	Minimum clothing class designed to protect worker from second- degree burns.

4.4.3 Arc Flash Calculations based on IEEE 1584 Standard:

Arc Flash Evaluation is calculated using IEEE 1584 Standard. The Arc Flash Evaluation Program uses the following calculation procedures to determine the values shown on the Arc Flash Warning Labels and in the Arc Flash Evaluation Bus Reports. The following equations are reprinted with permission from IEEE 1584 *Copyright 2002*, by IEEE. The IEEE disclaims any responsibility or liability resulting from the placement and use in the described manner.

- 1) Arc Flash Evaluation using IEEE 1584 assumes that the following ranges are used.
 - a) Range of the model.
 - b) Bus Voltage between 208V and 15kV.
 - c) Bolted fault current at the bus between 700A and 106kA
 - d) Bus bar gap between 13mm and 153mm.
 - e) For systems outside these ranges, use the LEE equation instead.
- 2) Determine the 3 Phase Fault at each bus in the power system, calculate or determine the Bolted Fault Current at the bus (IB) and the Bolted Fault Current through each protective device (IB br).
- 3) Determine the Arcing Fault Current at the bus (Ia) and through each protective device (Iabr). For low voltage distribution systems, nominal voltage < 1 kV and 700A IB 106kA.

$$lg(Ia) = K + 0.662 lg(IB) + 0.0966 V + 0.000526 G + 0.5588 V lg(IB) 0.00304 G lg(IB)$$

lg	is log10
Ia	is arcing fault current at the bus
K	is 0.153 for open configuration and is 0.097 for box configuration
IB	is bolted fault current 3phase sym rms kA at the bus
V	is bus voltage in kV
G	is bus bar gap between conductors in mm

For medium voltage bus systems with nominal voltage > 1 kV and 700A IB 106kA

$$lg(Ia) = 0.00402 + 0.983 lg(IB)$$

Therefore, Ia = 10 lg(Ia)

$$I_{abr} = I_a * I_{B br} / I_B$$

$I_{B br}$ is the Bolted Fault Current through each protective device. I_a is the arcing fault current through each protective device.

Note: Following IEEE 1584 - 5.2, we are calculating a second arcing fault current at 85% of the Original; calculate the Trip Time and Incident Energy at both 85% and 100% arcing fault current and display the larger of the two Incident Energy values with the associated Trip Time.

4) Determine the Trip/Delay time for fuses from the Time Current Coordination Curve (TCC). Standard fuses that have both minimum melting and total clearing curves available, use the Trip time read from the total clearing time curve. For fuses with only the average melting time Curve available, the time T_r used is from the average melting curve at the arcing current level. If T_r is less than or equal to 0.03 seconds, then 15% additional delay is added to T_r . If T_r is above 0.03seconds, then 10% is added to T_r and this value is used for the total clearing time. For standard fuses, if the arcing fault current is above the total clearing time at the bottom of the curve (0.01s), then 0.01s is used to T_r . (IEEE_P1584/D10 Pg 7)

For all current limiting fuses and breakers, if the trip time read from the TCC clearing curve at The branch arcing fault current is less than $\frac{1}{2}$ cycles, and then this value is used as the trip Time. Otherwise, define the current at 0.01seconds as the IL, and I_a as the arcing fault current at The protective device:

Trip/Delay Time	Condition
Read from clearing curve	$I_a < IL$
$\frac{1}{2}$ cycles*	$IL \leq I_a \leq 2 IL$
$\frac{1}{4}$ cycles**	$I_a > 2 IL$

* - The Current limiting devices are not assumed to be current limiting for this lower value of I_a .

** - The current limiting devices are assumed to be current limiting for this higher value of I_a .

5) Determine the Trip/Delay time for relays from the TCC.

Use the TCC curve and read the Read Trip/Delay time. Use 16 ms for relays that operate instantaneously and add the circuit breaker opening time.

Breaker Opening Time For relays:

Breaker Opening Time	Breaker Rating and Type
1.5 cycle	< 1000 V molded case
3.0 cycle	< 1000 V power circuit
5.0 cycle	1 - 35 kV
8.0 cycle	> 35 kV

For low voltage circuit breakers that can be tripped by relays, use a breaker opening time of 3 cycles. For all other device categories, set tie Breaker Opening Time to 0.0s since the Trip/Delay Time reading from the TCC include breaker opening time already

6) Determine the Arcing duration by adding the Trip/Delay time and Breaker Opening time.

7) Determine the Equipment Type and Bus Bar Gap.

IEEE1584 lists four Equipment Types. They are Switchgear, Panel, Cable, and Open Air. The

following defaults are used according to the voltage level.

Equip Category contains	Gap (mm)	Equip Type	kV
Switchgear	32	Panel	<1
Cable	13	Cable	<1
Air	32	Open Air	<1
* all others	25	Panel	<1
Cable	13	Cable	1-5
Air	102	Open Air	1-5
* all others	25	Switchgear	1-5
Cable	13	Cable	> 5
Air	153	Open Air	> 5
* all others	53	Switchgear	> 5

8) Determine the Working Distance

The working distance based on the voltage level and equipment type using the table below.

Working Distance	Equipment Type	KV
24 inches (610mm)	Switchgear	< 1
18 inches (455mm)	Panel	< 1
36 inches (910mm)	Switchgear	> 1 & < 35
72 inches (1829mm)	Switchgear	> 35
18 inches (455mm)	All others	

9) Determine whether the equipment is grounded or not.

10) Calculate the Incident Energy.

$$lg(En) = K1 + K2 + 1.081 lg(Ia) + 0.0011 G$$

En is incident energy (J/cm²) normalized for an arcing duration of 0.2s and working distance of 610mm

K1 = 0.792 for open configuration and is
= 0.555 for box configuration (switchgear, panel, cable)

K2 = 0 for ungrounded and high resistance grounded systems and
= 0.113 for grounded systems

G is the gap between bus bar conductors in mm

Solve $E_n = 10 \lg E_n$ Incident Energy is converted from normalized:

$$E = 4.184 C_f E_n (t/0.2)^{610^x / D^x}$$

E is incident energy (J/cm²)
 C_f is 1.0 for voltage above 1 kV and is 1.5 for voltage at or below 1 kV
 t is arcing duration in seconds
 D is the working distance
 x is the distance exponent

The distance exponent x based on the voltage level and equipment type shown in the table Below:-

X	Equipment Type	KV
1.473	Switchgear	<1
1.641	Panel	<1
0.973	Switchgear	> 1
2	all others	

11) Calculate the Arc Flash Boundary DB

$$DB = [4.184 C_f E_n (t/0.2)^{610^x / EB}]^{1/X}$$

DB is the arc flash boundary in mm at incident energy of EB
 EB is the limit for a second-degree bare skin burn. EB = 5.0 (J/cm²)

For all current limiting fuses and breakers with the manufacturer's incident energy and flash boundary equations available, the manufacturer's current limiting equations are used instead of the above equations. The current limiting equations can be entered and are stored in the protective device library.

IE = A * I_{bf} + B - Incident Energy
 Db = D * I_{bf} + D - Flash Boundary

Constants A, B, C and D are different for different manufacturers, frames/cartridges and current ratings. If the equation is available for Incident Energy, but NOT for Flash Boundary Db, calculate IE from the current limiting equation and Db using the standard IEEE1584 equation.

If a bus has multiple contributions, calculate the incident energy from each current limiting devices using the current limiting equations. Subtract these contributions from current limiting devices out of the total bolted bus fault current. Use the remaining arcing fault current and the standard IEEE1584 incident energy equations to calculate the incident energy. Add the incident energy from current limiting and non-current limiting devices together. Always calculate the Flash Boundary using the standard IEEE1584 equation when multiple contributions exist at the bus.

*Note: Following IEEE 1584 - 5.2, the program calculates a second arcing fault current at 85% of the original. Then the Trip Time and Incident Energy at both 85% and 100% arcing fault current is compared and the larger of the two Incident Energy values with the associated Trip Time are displayed.

12) Determine the PPE Clothing Class.

The PPE clothing class is determined based upon the incident energy and voltage class. This table is shown below.

	Incident Energy From (cal/cm ²)	Incident Energy To (cal/cm ²)	IE Low Marginal (cal/cm ²)	IE High Marginal (cal/cm ²)	Hazard Risk Category	Clothing Description	Clothing Layers	Required Minimum Arc Rating of PPE (cal/cm ²)	Notes	Category Background Color
1	0.0	1.2	0.000	1.190	0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd	1	N/A		
2	1.2	4.0	1.210	3.900	1	Arc-rated FR Shirt & Pants	1	4		
3	4.0	8.0	4.100	7.800	2	Arc-rated FR Shirt & Pants	1 or 2	8		
4	8.0	25.0	8.200	24.000	3	Arc-rated FR Shirt & Pants & Arc Flash Suit	2 or 3	25		
5	25.0	40.0	26.000	38.000	4	Arc-rated FR Shirt & Pants & Arc Flash Suit	3 or more	40		

Table 4 - Personal Protective Equipment (PPE)

13) Determine the Glove Rating Class.

The Glove Rating class is determined based upon the voltage class.

14) Determine the Limited Approach Boundary

This is the distance from an exposed live part within which a shock hazard exists. This value is determined by NFPA 70E 51 Table 2-1.3.4.

15) Determine the Prohibited Approach Boundary.

This is the distance from an exposed live part within which work is considered the same As making contact with the live part, this value is determined by NFPA 70E 51 Table 2-1.3.4.

16) Determine the Restricted Approach Boundary

This is the distance from an exposed live part within which there is an increased risk of Shock, due to electrical arc over combined with inadvertent movement, for personnel working In close proximity to the live part, this value is determined by NFPA 70E 51 Table 2-1.3.4.

(1). Nominal System Voltage	(2). Limited Approach Boundary	(3). Approach Boundary	(4). Limited Approach Boundary	(5). Prohibited Approach Boundary	(6). Restricted Approach Boundary	(7). Clearance Distance	(8). Clearance Distance	(9). Clearance Distance
Phase To Phase	Exposed Conductor	Movable	Exposed Circuit Path	Fixed	Includes Movement Adder	Inadvertent	Boundary	1
Less than 50 V	Not specified		Not specified		Not specified		Not specified	
50 V to 300 V	10 ft 0 in	3.00 m	3 ft 6 in	1.07 m	Avoid Contact		Avoid Contact	
301 V to 750 V	10 ft 0 in	3.00 m	3 ft 6 in	1.07 m	1 ft 0 in	304.8 mm	0 ft 1 in	25.4 mm
751V to 15 kV	10 ft 0 in	3.00 m	5 ft 0 in	1.53 m	2 ft 2 in	660.4 mm	0 ft 7 in	177.8mm

15.1 kV to 36 kV	10 ft 0 in	3.00 m	8 ft 0 in	2.44 m	2 ft 9 in	838.2 mm	1 ft 5 in	431.8 mm
46.1 kV to 72.5 kV	10 ft 0 in	3.00 m	8 ft 0 in	2.44 m	3 ft 3 in	965.2 mm	2 ft 1 in	635 mm
72.6 kV to 121 kV	10 ft 8 in	3.23 m	8 ft 0 in	2.44 m	3 ft 3 in	991 mm	2 ft 8 in	812.8 mm
138 kV to 145 kV	11 ft 0 in	3.36 m	10 ft 0 in	3.05 m	3 ft 7 in	1.093 m	3 ft 1 in	939.8 mm
161 kV to 169 kV	11 ft 8 in	3.56 m	11 ft 8 in	3.56m	4 ft 0 in	1.22m	3 ft 6 in	1.07 m
230 kV to 242 kV	13 ft 0 in	3.97 m	13 ft 0 in	3.97m	5 ft 3 in	1.6 m	4 ft 9 in	1.45m
345 kV to 362 kV	15 ft 4 in	4.68 m	15 ft 4 in	4.68 m	8 ft 6 in	2.59 m	8 ft 0 in	2.44 m
500 kV to 550 kV	19 ft 0 in	5.8 m	19 ft 0 in	5.8 m	11 ft 3 in	3.43 m	10 ft 9 in	3.28 m
765 kV to 800 kV	23 ft 9 in	7.24 m	23 ft 9 in	7.24 m	14 ft 11 in	4.55 m	14 ft 5 in	4.4 m

General Statement: Columns 1 through 5 of Table 2-1.3.4 all show various distances from the exposed energized electrical conductors or circuit part. They include dimensions that are added to a basic minimum air insulation distance. That basic minimum air insulation distance for voltages 72.5 kV and under are based on IEC/IEEE 4-1995, Standard Techniques for High-Voltage Testing, Appendix 2B; and for voltages over 72.5 kV, are based on IEC/IEEE 516-1995, Guide for Maintenance Methods on Energized Power Lines. These minimum air insulation distances required to avoid flashover are:

300 V and less	- 0 ft 0.03 in,
Over 300 V, not over 750 V	- 0 ft 0.07 in.
Over 750 V, not over 2 kV	- 0 ft 0.19 in.
Over 2 kV, not over 15 kV	- 0 ft 1.5 in.
Over 15 kV, not over 36 kV	- 0 ft 6.3 in.
Over 36 kV, not over 48.3 kV	- 0 ft 10.0 in.
Over 48.3 kV, not over 72.5 kV	- 1 ft 3.0 in.
Over 72.5 kV, not over 121 kV	- 2 ft 1.2 in.
Over 138 kV, not over 145 kV	- 2 ft 6.6 in.
Over 161 kV, not over 169 kV	- 3 ft 0.0 in.
Over 230 kV, not over 242 kV	- 4 ft 2.4 in.
Over 345 kV, not over 362 kV	- 7 ft 5.8 in.
Over 500 kV, not over 550 kV	- 10 ft 2.5 in.
Over 765 kV, not over 800 kV	- 13 ft 10.3 in.

Column No. 1: The voltage ranges have been selected to group voltages that require similar approach distances based on the sum of the electrical withstand distance and an inadvertent movement factor. The value of the upper limit for a range is the maximum voltage for highest nominal voltage in the range based on IEC, Electric Power Systems and Equipment Voltage Ratings (60 Hertz). For single- phase systems, select the range that is equal to the system s maximum phase-to-ground voltage times 1.732.

Column No. 2: The distances in this column are based on OSHA s rule for unqualified persons to maintain a 10 ft (3.05m) clearance for all voltages up to 50 kV (voltage-to-ground), plus 0.4 in. (102 mm) for each 1 kV over 50 kV.

Column No. 3: The distances are based on the following:

750 V and lower, use NEC Table 110-26(a) Working Clearances, Condition 2 for 151-600V range.
For over 750 V, but not over 145 kV, use NEC Table 110-34(a) Working Space, Condition 2.
Over 145 kV, use OSHA's 10 ft (3.05m) rules as used in Column No. 2.

Column No. 4: The distances are based on adding to the flashover dimensions shown above the following inadvertent movement distance:

300 V and less, avoid contact.

Based on experience and precautions for household 120/240 V systems. Over 300 V and not over 750 V, add 1 ft 0 in. inadvertent movement.

These values have been found to be adequate over years of use in IEC, National Electrical Safety Code, in the approach distances for supply workers.

Over 72.5 kV, add 1 ft 0 in. inadvertent movement.

These values have been found to be adequate over years of use in the National Electrical Safety Code in the approach distances for supply workers.

Column No. 5: The distances are based on the following:

300 V and less, avoid contact.

Over 300 but less than 750 V use NEC Table 230-51(c), Clearances. Between open conductors and surfaces, 600 V not exposed to weather.

Over 750 V but not over 2.0 kV, value selected that fits in with adjacent values.

Over 2 kV but not over 72.5 kV, use NEC Table 490-24, Minimum Clearance of Live Parts, Outdoor phase-to-ground values,

Over 72.5 kV, add 0 ft 6 in. inadvertent movement.

These values have been found to be adequate over years of use where there has been a hazard/risk analysis, either formal or informal, of a special work procedure that allows closer approach than that permitted by the restricted approach boundary distance.

17) Create the Arc Flash Hazard Warning Label

The Arc Flash Label lists important information such as Flash Hazard Boundary, Incident Energy at the given Working Distance, PPE clothing required, and the boundaries for Limited, Restricted, and Prohibited Approaches. An example of an arc flash warning label is shown below.

Figure 2 Example Arc Flash Label

Figure 3 demonstrates how the four different arc flash boundaries are related and change depending upon the type of equipment, voltage rating, and incident energy used.

Limited Approach Boundary: An approach limit at a distance from an exposed live part within

Which a shock hazard exists, this value is determined by NFPA 70E 51 Table 2-1.3.4.

Prohibited Approach Boundary: An approach limit at a distance from an exposed live part within which work is considered the same as making contact with the live part, this value is determined by NFPA 70E 51 Table 2-1.3.4.

Restricted Approach Boundary: An approach limit at a distance from an exposed live part within which there is an increased risk of shock, due to electrical arc over combined with inadvertent movement, for personnel working in close proximity to the live part. This value is determined by NFPA 70E 51 Table 2-1.3.4.

Arc Flash Boundary: Minimum distance from the arc within which a second degree burn could occur if no protective clothing is worn. This value is determined by the voltage, type of equipment, and the time that the upstream protective device to clear the fault. The procedure is discussed in detail previously in Arc Flash Calculations.

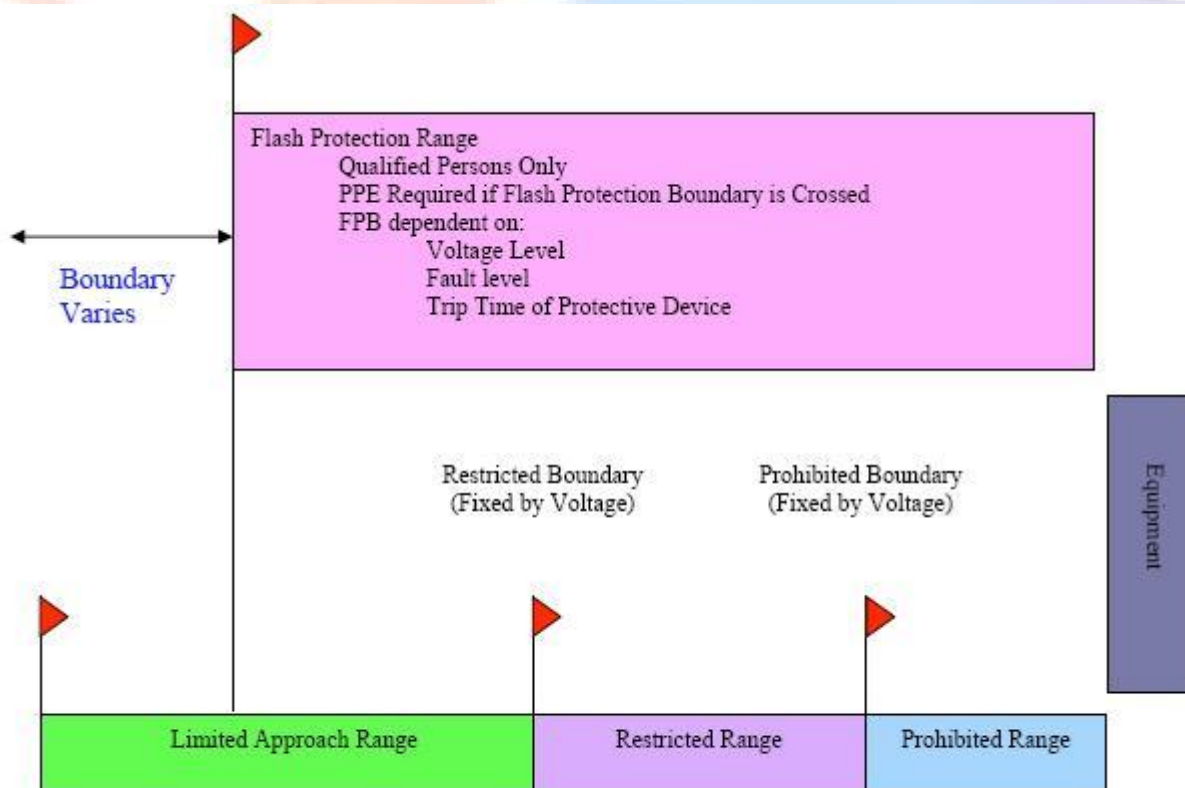


Figure 3 – Arc Flash Boundary Relationship and Determination

4.4.4 Analysis of Results

The results of the arc flash hazard analysis are presented in the “FLASH HAZARD TABLE”. The parameters that the analysis are based upon – fault current, arc duration, and working distance – are presented along with the incident energy, flash protection boundary and minimum PPE class required for each bus. In most cases, the “bus” calculation will be the most applicable. However, in certain cases, such as for switchboard as described, it is possible that the fault may occur or

propagate to the line-side of the local protective device. Another example of this would be racking a main breaker in or out of a switchboard – the fault would necessary be cleared by the next upstream

Event, since the main is not in service. In these cases, the results of the “line side” calculation are applicable.

Note that no protective classes are given for locations with energy levels exceeding 40 Cal/cm²; even through protective clothing capable of providing flash protection at incident energy levels of up to 112 cal/cm² is commercially available. While NFPA 70E-2015 does not explicitly prohibit work at locations with energy levels above 40 Cal/cm², research into the potential for non-burn injuries (internal injuries, hearing damage, etc.) indicates that these other injuries become a significant concern at such high- energy locations. VB Engineering *does not presently recommend work at locations which energy levels greater than the 40 Cal/cm² unless the equipment has been placed into an electrically safe work condition.*

After the initial breaker coordination work was performed, a review of settings affecting locations with energy levels greater than the 40 cal/cm² in the “bus” calculation was conducted to determine whether adjustment of device setting could be performed to reduce the flash hazard level. There are several locations were identified with the energy level greater than 40 cal/cm² with the normal operation.

We recommend to review the arc flash levels on each SWBDS and further discussion can be made regarding in minimizing arc flash energy levels further. To reduce the incident energy at various locations following options are available:-

All of the protective devices listed in **Protective Device Setting Table**, must be set per the recommended settings to achieve the arc flash class ratings listed in **Arc Flash Hazards Result table**.

The arc flash calculations show that PPE clothing can be worn to increase personnel protection for all the locations. Arc flash warning labels provided for these locations indicate the PPE required to be worn. The engineer recommends that the arc flash warning labels be installed on the electrical equipment to warn personnel of the potential hazard.

IEEE 1584 Annex B.1.2 stated that "If the time is longer than two seconds, consider how long a person is likely to remain in the location of the arc flash. It is likely that the person exposed to arc flash will move away quickly if it is physically possible and two seconds is a reasonable maximum time for calculations.

4.4.4.1 Status of no of Locations for AF Category before Proposal

Arc flash Classification	Max Incident Energy Levels (Cal/cm2)	No of Buses
0	1.2	122
1	4.0	02
2	8.0	02
3	25	01
4	40	0
No FR Class found	>40	0

4.4.5 Arc Flash Report:

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time (sec.)	Ground	Equip Type	Gap (mm)	Arc Flash Boundary (mm)	Working Distance (mm)	Incident Energy (cal/cm2)
1	20 KVAR	63A	0.42	1.44	1.22	1.44	1.22	0.01	0.000	Yes	PNL	25	52	457	0.03
2	20 KVAR	63A	0.42	1.44	1.22	1.44	1.22	0.01	0.000	Yes	PNL	25	52	457	0.03
3	20 KVAR	63A	0.42	1.44	1.22	1.44	1.22	0.01	0.000	Yes	PNL	25	52	457	0.03
4	25 KVAR	63A	0.42	1.70	1.40	1.70	1.40	0.01	0.000	Yes	PNL	25	57	457	0.04
5	25 KVAR	63A	0.42	1.70	1.40	1.70	1.40	0.01	0.000	Yes	PNL	25	57	457	0.04
6	25 KVAR	63A	0.42	1.70	1.40	1.70	1.40	0.01	0.000	Yes	PNL	25	57	457	0.04
7	25 KVAR	63A	0.42	1.70	1.40	1.70	1.40	0.01	0.000	Yes	PNL	25	57	457	0.04
8	25 KVAR	63A	0.42	1.54	1.29	1.54	1.29	0.01	0.000	Yes	PNL	25	54	457	0.04
9	25 KVAR	63A	0.42	1.54	1.29	1.54	1.29	0.01	0.000	Yes	PNL	25	54	457	0.04
10	25 KVAR	63A	0.42	1.54	1.29	1.54	1.29	0.01	0.000	Yes	PNL	25	54	457	0.04
11	25 KVAR	63A	0.42	1.54	1.29	1.54	1.29	0.01	0.000	Yes	PNL	25	54	457	0.04
12	50 KVAR	125A	0.42	1.70	1.40	1.70	1.40	0.1	0.000	Yes	PNL	25	233	457	0.39
13	50 KVAR	125A	0.42	1.70	1.40	1.70	1.40	0.1	0.000	Yes	PNL	25	233	457	0.39
14	50 KVAR	125A	0.42	1.70	1.40	1.70	1.40	0.1	0.000	Yes	PNL	25	233	457	0.39
15	50 KVAR	125A	0.42	1.70	1.40	1.70	1.40	0.1	0.000	Yes	PNL	25	233	457	0.39
16	50 KVAR	125A	0.42	2.14	1.68	2.14	1.68	0.1	0.000	Yes	PNL	25	264	457	0.48
17	50 KVAR	125A	0.42	1.95	1.56	1.95	1.56	0.01	0.000	Yes	PNL	25	62	457	0.04
18	50 KVAR	125A	0.42	2.14	1.68	2.14	1.68	0.1	0.000	Yes	PNL	25	264	457	0.48
19	50 KVAR	125A	0.42	1.44	1.22	1.44	1.22	0.1	0.000	Yes	PNL	25	213	457	0.34

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time (sec.)	Ground	Equip Type	Gap (mm)	Arc Flash Boundary (mm)	Working Distance (mm)	Incident Energy (cal/cm2)
20	AC Power	63A	0.42	1.96	1.57	1.96	1.57	0.01	0.000	Yes	PNL	25	62	457	0.04
21	Air Dryer-1	32A	0.42	0.52	0.52	0.50	0.50	0.01	0.000	Yes	PNL	25	30	457	0.01
22	Air Dryer-2	32A	0.42	0.55	0.55	0.53	0.53	0.01	0.000	Yes	PNL	25	31	457	0.01
23	APFC Panel -2	300A	0.42	4.39	3.03	4.39	3.03	0.001	0.000	Yes	PNL	25	23	457	0.01
24	APFC Panel-1	400A	0.42	5.53	3.66	5.53	3.66	0.001	0.000	Yes	PNL	25	27	457	0.01
25	APFC Panel-3	600A	0.42	8.64	5.28	8.64	5.28	0.001	0.000	Yes	PNL	25	34	457	0.02
26	Bag house fan_DE2	250A	0.42	5.31	3.54	4.55	3.03	0.001	0.000	Yes	PNL	25	26	457	0.01
27	Bag house fan_DE3	250A	0.42	7.05	4.46	6.16	3.90	0.001	0.000	Yes	PNL	25	30	457	0.01
28	Belt Conveyor-1	16A	0.42	0.30	0.30	0.28	0.28	0.01	0.000	Yes	PNL	25	23	457	0.00
29	Belt Conveyor-10	16A	0.42	0.62	0.62	0.60	0.60	0.01	0.000	Yes	PNL	25	33	457	0.01
30	Belt Conveyor-11	16A	0.42	1.10	0.98	1.07	0.96	0.01	0.000	Yes	PNL	25	45	457	0.03
31	Belt Conveyor-12	16A	0.42	0.71	0.69	0.69	0.67	0.01	0.000	Yes	PNL	25	36	457	0.02
32	Belt Conveyor-2	16A	0.42	0.33	0.33	0.30	0.30	0.01	0.000	Yes	PNL	25	24	457	0.00
33	Belt Conveyor-3	16A	0.42	0.40	0.40	0.38	0.38	0.01	0.000	Yes	PNL	25	27	457	0.00
34	Belt Conveyor-4	16A	0.42	0.47	0.47	0.45	0.45	0.01	0.000	Yes	PNL	25	29	457	0.00
35	Belt Conveyor-7	16A	0.42	0.54	0.54	0.53	0.53	0.01	0.000	Yes	PNL	25	31	457	0.01
36	Belt Conveyor-9	16A	0.42	0.74	0.71	0.72	0.69	0.01	0.000	Yes	PNL	25	37	457	0.02
37	Belt coveyor-5	16A	0.42	0.58	0.58	0.56	0.56	0.01	0.000	Yes	PNL	25	32	457	0.01
38	Belt coveyor-6	16A	0.42	0.66	0.66	0.64	0.64	0.01	0.000	Yes	PNL	25	34	457	0.01

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time (sec.)	Ground	Equip Type	Gap (mm)	Arc Flash Boundary (mm)	Working Distance (mm)	Incident Energy (cal/cm2)
39	Belt coveyor-8	16A	0.42	0.61	0.61	0.59	0.59	0.01	0.000	Yes	PNL	25	33	457	0.01
40	Belt Feeder-1&2	63A	0.42	4.13	2.88	3.97	2.77	0.01	0.000	Yes	PNL	25	92	457	0.09
41	Belt Feeder-3	16A	0.42	0.56	0.56	0.54	0.54	0.01	0.000	Yes	PNL	25	32	457	0.01
42	Belt Feeder-4	16A	0.42	0.60	0.60	0.58	0.58	0.01	0.000	Yes	PNL	25	33	457	0.01
43	BF-01	16A	0.42	0.40	0.40	0.36	0.36	0.01	0.000	Yes	PNL	25	27	457	0.00
44	BF-02	16A	0.42	0.54	0.54	0.51	0.51	0.01	0.000	Yes	PNL	25	31	457	0.01
45	BP Hydraulic Powerpack	32A	0.42	0.20	0.20	0.19	0.19	0.01	0.000	Yes	PNL	25	19	457	0.00
46	Briquetting Press	400A	0.42	3.89	2.75	2.36	1.67	0.9	0.000	Yes	PNL	25	954	457	4.0
47	Bucket Elevator	20A	0.42	0.61	0.61	0.55	0.55	0.01	0.000	Yes	PNL	25	33	457	0.01
48	Changeover Switch	16A	0.42	3.68	2.62	3.68	2.62	0.01	0.000	Yes	PNL	25	87	457	0.08
49	Combustion Air Fan	20A	0.42	0.32	0.32	0.29	0.29	0.01	0.000	Yes	PNL	25	24	457	0.00
50	CRM Pickling Bin Activator	5A	0.42	0.42	0.42	0.41	0.41	0.01	0.000	Yes	PNL	25	27	457	0.00
51	Discharge dust screw outside	16A	0.42	0.44	0.44	0.43	0.43	0.01	0.000	Yes	PNL	25	28	457	0.00
52	Diverter Gate-1	3.2A	0.42	0.21	0.21	0.21	0.21	0.01	0.000	Yes	PNL	25	19	457	0.00
53	Diverter Gate-2	3.2A	0.42	0.21	0.21	0.21	0.21	0.01	0.000	Yes	PNL	25	19	457	0.00
54	Dryer Panel	32A	0.42	0.70	0.68	0.70	0.68	0.01	0.000	Yes	PNL	25	36	457	0.02
55	Duty Compress-1	400A	0.42	5.81	3.82	4.82	3.16	1.6	0.000	Yes	PNL	25	1689	457	10

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time (sec.)	Ground	Equip Type	Gap (mm)	Arc Flash Boundary (mm)	Working Distance (mm)	Incident Energy (cal/cm2)
56	Duty Compress-2	400A	0.42	5.81	3.82	4.82	3.16	1.6	0.000	Yes	PNL	25	1689	457	10
57	Duty Compress-3	250A	0.42	5.45	3.62	4.97	3.30	0.001	0.000	Yes	PNL	25	26	457	0.01
58	Exhaust Gas damper	3.2A	0.42	0.16	0.16	0.11	0.11	0.01	0.000	Yes	PNL	25	40	457	0.01
59	Exhaust gas ID Fan	100A	0.42	1.96	1.57	1.76	1.41	0.1	0.000	Yes	PNL	25	251	457	0.45
60	Hoist for stock Conveyor	16A	0.42	0.53	0.53	0.51	0.51	0.01	0.000	Yes	PNL	25	31	457	0.01
61	Hydrated Lime Bin Activator	5A	0.42	0.42	0.42	0.41	0.41	0.01	0.000	Yes	PNL	25	27	457	0.00
62	IMCC-1	Incomer to IMCC-1	0.42	7.05	3.80	2.94	1.59	0.9	0.000	Yes	PNL	25	1008	457	4.4
63	IMCC-2	Incomer to IMCC-2	0.42	5.37	3.04	2.96	1.68	0.837	0.000	Yes	PNL	25	975	457	4.1
64	IMCC-3	Incomer to IMCC-3	0.42	10.18	5.13	5.24	2.64	0.338	0.000	Yes	PNL	25	766	457	2.8
65	MAIN INCOMER	Incomer to IMCC-3	0.42	12.09	6.94	4.04	2.32	0.1	0.000	Yes	PNL	25	2518	457	20
66	Metallic dust Bin Activator	5A	0.42	0.42	0.42	0.41	0.41	0.01	0.000	Yes	PNL	25	27	457	0.00
67	Mill Scale Screw	63A	0.42	0.88	0.81	0.84	0.78	0.01	0.000	Yes	PNL	25	40	457	0.02
68	Mill scaleBin Activator	5A	0.42	0.34	0.34	0.33	0.33	0.01	0.000	Yes	PNL	25	24	457	0.00
69	Mixer-1	250A	0.42	4.20	2.92	3.40	2.36	0.001	0.000	Yes	PNL	25	23	457	0.01

	Bus Name	Protective Device Name	Bus kV	Bus Bolted Fault (kA)	Bus Arcing Fault (kA)	Prot Dev Bolted Fault (kA)	Prot Dev Arcing Fault (kA)	Trip/ Delay Time (sec.)	Breaker Opening Time (sec.)	Ground	Equip Type	Gap (mm)	Arc Flash Boundary (mm)	Working Distance (mm)	Incident Energy (cal/cm2)
70	Mixer-2	250A	0.42	4.40	3.04	3.58	2.47	0.001	0.000	Yes	PNL	25	23	457	0.01
71	MLDB Power	125A	0.42	5.14	3.45	5.14	3.45	0.1	0.000	Yes	PNL	25	423	457	1.1
72	PCPMP-5	8A	0.42	0.85	0.79	0.85	0.79	0.01	0.000	Yes	PNL	25	39	457	0.02
73	PCPMP-5,6,7	63A	0.42	3.39	2.46	3.36	2.43	0.01	0.000	Yes	PNL	25	83	457	0.07
74	PCPMP-6	8A	0.42	0.85	0.79	0.85	0.79	0.01	0.000	Yes	PNL	25	39	457	0.02
75	PCPMP-7	8A	0.42	0.85	0.79	0.85	0.79	0.01	0.000	Yes	PNL	25	39	457	0.02
76	PDB for power outlets	63A	0.42	1.03	0.93	1.03	0.93	0.01	0.000	Yes	PNL	25	44	457	0.03
77	Product Stock Coveyor	16A	0.42	0.53	0.53	0.51	0.51	0.01	0.000	Yes	PNL	25	31	457	0.01
78	Progressive Cavity Pump-1	32A	0.42	0.51	0.51	0.49	0.49	0.01	0.000	Yes	PNL	25	30	457	0.01
79	Progressive Cavity Pump-2	32A	0.42	0.50	0.50	0.49	0.49	0.01	0.000	Yes	PNL	25	30	457	0.01
80	Progressive Cavity Pump-3	63A	0.42	0.54	0.54	0.52	0.52	0.01	0.000	Yes	PNL	25	31	457	0.01
81	Progressive Cavity Pump-4	63A	0.42	0.53	0.53	0.52	0.52	0.01	0.000	Yes	PNL	25	31	457	0.01
82	Raw power supply	32A	0.42	0.53	0.53	0.53	0.53	0.01	0.000	Yes	PNL	25	31	457	0.01
83	Rolling Shutter-1	3.2A	0.42	0.25	0.25	0.25	0.25	0.01	0.000	Yes	PNL	25	21	457	0.00
84	Rolling Shutter-2	3.2A	0.42	0.17	0.17	0.17	0.17	0.01	0.000	Yes	PNL	25	17	457	0.00
85	Rolling Shutter-3	3.2A	0.42	0.20	0.20	0.19	0.19	0.01	0.000	Yes	PNL	25	19	457	0.00

5. RECOMMENDATIONS:

Scope to minimize the Arc Flash Energy at XXXXXX:-

The arc flash calculations show that PPE clothing can be worn to increase personnel protection for all of the locations. Arc flash warning labels provided for these locations indicate the PPE required to be worn. The engineer recommends that the arc flash warning labels be installed on the electrical equipment to warn personnel of the potential hazard.

Practically possible ways to reduce the Arc Flash hazards at XXXXXX:-

- **Personal protective Equipment's:**

As per the calculated Incident energy at various locations in various categories of Personal protective equipment (PPE) are suggested as per NFPA – 70E standards. The operator shall ensure appropriate PPE while working on the live electrical panels.

- **Marking of Flash protection Boundary:**

Arc Flash Protection Boundaries needs to be marked near panels with proper distances. These boundaries include, Limited Approach, Restricted Approach & Prohibited Approach. The operating person must have knowledge of these boundaries.

- **Arc Flash Training to operating personal:**

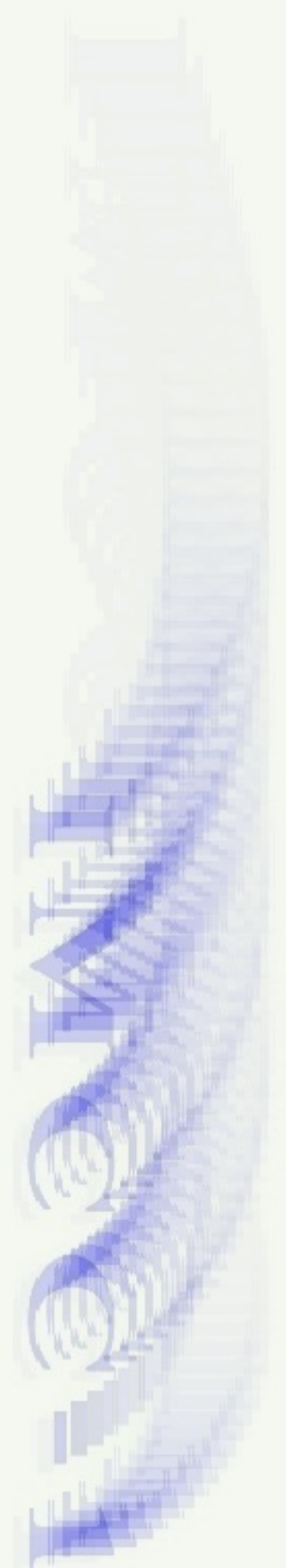
Training must provide people the knowledge and understanding of the existence, nature, causes and methods to prevent electrical hazards. The training should also include the selection and use of appropriate PPE.

- **Revise Arc Flash Study periodically:**

Revise the Arc Flash Study periodically with calculation of incident Energy & flash protection boundary. These calculations needs to be revised with modification in System arrangement & changes in protective devices.

Observed Points during the Analysis of XXXXX:-

As most of the buses in the plant are in Category-0 only two buses are in Category-1, Category-2 and the remaining bus is in Dangerous which is related to the utility and it is in the outside the plant. To decrease this to low category a protective device is recommended to the primary side of transformer.

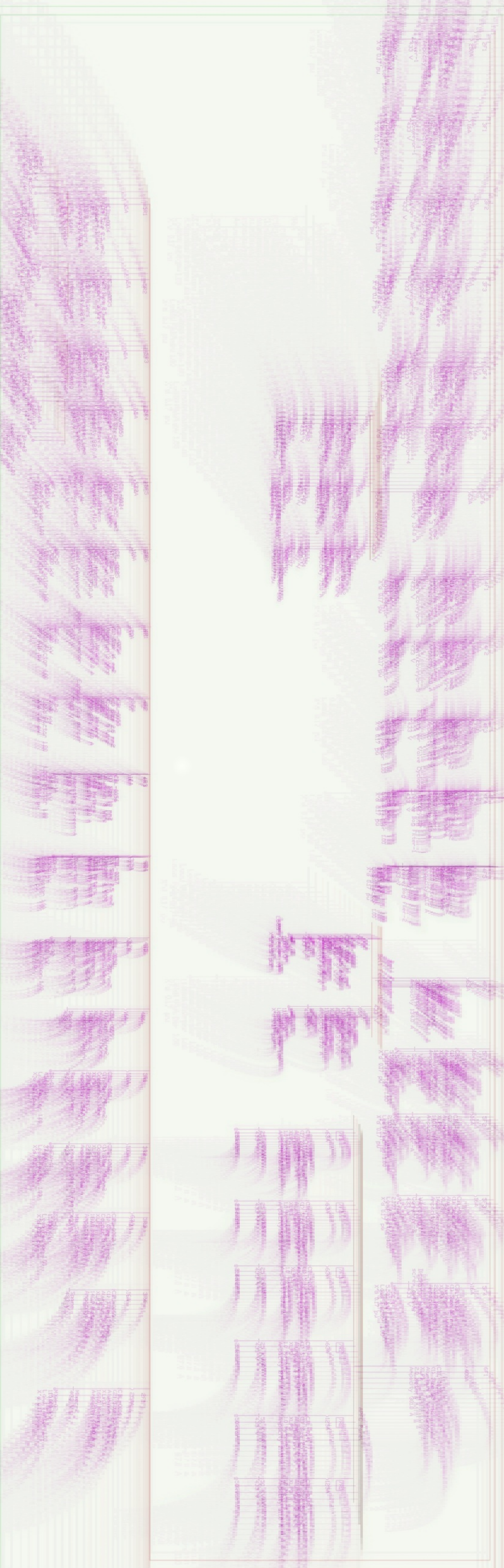


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WARNING

Arc Flash & Shock Risk - PPE Required

6 in	Arc Flash Boundary
18 in	Working Distance
0.17 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: 25 KVAR 1 Prot: 63 A

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

6 in	Arc Flash Boundary
18 in	Working Distance
0.17 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: 25 KVAR 3 Prot: PD-0165

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

6 in	Arc Flash Boundary
18 in	Working Distance
0.17 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: 25 KVAR 2 Prot: PD-0166

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

6 in	Arc Flash Boundary
18 in	Working Distance
0.17 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: 25 KVAR 4 Prot: PD-0164

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

6 in	Arc Flash Boundary
18 in	Working Distance
0.17 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: 25 KVAR 5 Prot: PD-0163

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

6 in	Arc Flash Boundary
18 in	Working Distance
0.17 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: 25 KVAR 7 Prot: PD-0161

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

6 in	Arc Flash Boundary
18 in	Working Distance
0.17 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: 25 KVAR 6 Prot: PD-0162

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

6 in	Arc Flash Boundary
18 in	Working Distance
0.17 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: 25 KVAR 8 Prot: PD-0160

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

22 in Arc Flash Boundary
18 in Working Distance
1.7 cal/cm² Incident Energy
PPE Arc-rated shirt & pants + arc-rated
coverall + arc-rated arc flash suit
415 VAC Shock Risk when cover is removed
00 Glove Class
42 in Limited Approach
12 in Restricted Approach
12 cal/cm² Minimum Arc Rating

Bus: 50 KVAR 1 Prot: 125 A

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration
may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

22 in Arc Flash Boundary
18 in Working Distance
1.7 cal/cm² Incident Energy
PPE Arc-rated shirt & pants + arc-rated
coverall + arc-rated arc flash suit
415 VAC Shock Risk when cover is removed
00 Glove Class
42 in Limited Approach
12 in Restricted Approach
12 cal/cm² Minimum Arc Rating

Bus: 50 KVAR 3 Prot: PD-0199

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration
may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

22 in Arc Flash Boundary
18 in Working Distance
1.7 cal/cm² Incident Energy
PPE Arc-rated shirt & pants + arc-rated
coverall + arc-rated arc flash suit
415 VAC Shock Risk when cover is removed
00 Glove Class
42 in Limited Approach
12 in Restricted Approach
12 cal/cm² Minimum Arc Rating

Bus: 50 KVAR 2 Prot: PD-0200

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration
may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in Arc Flash Boundary
18 in Working Distance
0.02 cal/cm² Incident Energy
PPE Shirt & pants or coverall, Nonmelting
(ASTM F1506) or Untreated Fiber
415 VAC Shock Risk when cover is removed
00 Glove Class
42 in Limited Approach
12 in Restricted Approach
N/A Minimum Arc Rating

Bus: Belt Conveyor-1 Prot: PD-0178

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration
may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.04 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-10 Prot: PD-0186

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00')



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-2 Prot: 20A

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00')



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.02 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-11 Prot: PD-0187

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00')



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-3 Prot: 16A

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00')



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.02 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-4 Prot: PD-0159

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00')



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-6 Prot: PD-0157

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00')



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-5 Prot: PD-0158

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00')



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-7 Prot: PD-0156

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00')



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.04 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-8 Prot: PD-0155

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

3 in	Arc Flash Boundary
18 in	Working Distance
0.07 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0068 Prot: PD-0176

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.04 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Belt Conveyor-9 Prot: PD-0154

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

3 in	Arc Flash Boundary
18 in	Working Distance
0.07 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0069 Prot: PD-0175

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

5 in	Arc Flash Boundary
18 in	Working Distance
0.16 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0070 Prot: 25A

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0094 Prot: PD-0145

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.00 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0093 Prot: PD-0144

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0095 Prot: PD-0146

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0096 Prot: PD-0147

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.00 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0098 Prot: PD-0150

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0097 Prot: PD-0148

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.00 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0099 Prot: PD-0151

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.00 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0100 Prot: PD-0152

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.00 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0102 Prot: PD-0167

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.00 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0101 Prot: PD-0153

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0103 Prot: PD-0168

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0104 Prot: PD-0169

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.02 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0106 Prot: PD-0171

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.04 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0105 Prot: PD-0170

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.04 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0107 Prot: PD-0172

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.02 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0108 Prot: PD-0173

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0110 Prot: PD-0183

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.02 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0109 Prot: PD-0181

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0111 Prot: PD-0184

******BUS SIDE FAULT******

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0112 Prot: PD-0185

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

27 in	Arc Flash Boundary
18 in	Working Distance
2.3 cal/cm ²	Incident Energy
PPE	Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
12 cal/cm ²	Minimum Arc Rating

Bus: Capacitor Bank Feeder Prot: 4F1 ACB

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: BUS-0113 Prot: 10A

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

12 in	Arc Flash Boundary
18 in	Working Distance
0.54 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: CCLP Prot: PD-0202

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.00 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: CCLP-1 Prot: 32 A

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

90 in	Arc Flash Boundary
18 in	Working Distance
17 cal/cm ²	Incident Energy
PPE	Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
40 cal/cm ²	Minimum Arc Rating

Bus: Cone Crusher Prot: 630A

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: CCLP-2 Prot: PD-0174

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Cone Crusher-1 Prot: PD-0180

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Cone Crusher-2 Prot: PD-0179

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

12 in	Arc Flash Boundary
18 in	Working Distance
0.65 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Crushing Prot: 2F1 ACB

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

3 in	Arc Flash Boundary
18 in	Working Distance
0.06 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Conveyor BC10 Prot: PD-0201

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.02 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: CV-1 Prot: PD-0189

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

3 in	Arc Flash Boundary
18 in	Working Distance
0.05 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: DHJ-1 Prot: PD-0192

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

46 in	Arc Flash Boundary
18 in	Working Distance
5.6 cal/cm ²	Incident Energy
PPE	Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
12 cal/cm ²	Minimum Arc Rating

Bus: First Floor Prot: Jigging Incomer

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: FB Prot: PD-0188

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

53 in	Arc Flash Boundary
18 in	Working Distance
7.0 cal/cm ²	Incident Energy
PPE	Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
12 cal/cm ²	Minimum Arc Rating

Bus: Ground Floor Prot: Jigging Incomer

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00:)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.00 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Heater-1 Prot: PD-0149

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Jaw Crusher Prot: 250A

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Heater-2 Prot: PD-0143

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

56 in	Arc Flash Boundary
18 in	Working Distance
7.8 cal/cm ²	Incident Energy
PPE	Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
12 cal/cm ²	Minimum Arc Rating

Bus: Jigging Prot: Jigging Incomer

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

55 in	Arc Flash Boundary
18 in	Working Distance
7.5 cal/cm ²	Incident Energy
PPE	Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
12 cal/cm ²	Minimum Arc Rating

Bus: KJS Panel Prot: KJS Panel MCCB

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.03 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Lube Oil Feeder Prot: PD-0177

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

15 in	Arc Flash Boundary
18 in	Working Distance
0.87 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Lighting & Admin Prot: 3F3 MCCB

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

9 in	Arc Flash Boundary
18 in	Working Distance
0.37 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Magnetic Conveyor Panel Prot: 3F2 MCCB

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

111 in	Arc Flash Boundary
18 in	Working Distance
24 cal/cm ²	Incident Energy
PPE	Arc-rated shirt & pants + arc-rated coverall + arc-rated arc flash suit
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
40 cal/cm ²	Minimum Arc Rating

Bus: Main I/C Prot: 1F1 ACB Incomer

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.04 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pan Feeder Right Prot: PD-0191

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.04 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pan Feeder Left Prot: 10 A

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.04 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pan Feeder-3 Prot: PD-0253

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.02 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Primary Screen Prot: 40A

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

4 in	Arc Flash Boundary
18 in	Working Distance
0.11 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pump-1 Prot: PD-0197

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

8 in	Arc Flash Boundary
18 in	Working Distance
0.32 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pump Panel Prot: Pump Panel I/C

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

4 in	Arc Flash Boundary
18 in	Working Distance
0.10 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pump-2 Prot: PD-0196

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00!)



WARNING

Arc Flash & Shock Risk - PPE Required

4 in	Arc Flash Boundary
18 in	Working Distance
0.10 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pump-3 Prot: PD-0195

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.05 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pump-5 Prot: PD-0198

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.03 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pump-4 Prot: 25 A

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

3 in	Arc Flash Boundary
18 in	Working Distance
0.07 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pump-6 Prot: 80 A

*****BUS SIDE FAULT*****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

3 in	Arc Flash Boundary
18 in	Working Distance
0.08 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Pump-7 Prot: PD-0194

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.02 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Screen-1 Prot: 16 A

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.02 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: SCR2M -1 Prot: PD-0182

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

3 in	Arc Flash Boundary
18 in	Working Distance
0.05 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Screen-2 Prot: PD-0190

****BUS SIDE FAULT****

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

1 in	Arc Flash Boundary
18 in	Working Distance
0.01 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Secondary Screen Prot: 32A

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

18 in	Arc Flash Boundary
18 in	Working Distance
1.2 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Welding M/C & QA Lab Prot: 3F4 MCCB

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

9 in	Arc Flash Boundary
18 in	Working Distance
0.41 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Spare-1 Prot: 100 A

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)



WARNING

Arc Flash & Shock Risk - PPE Required

2 in	Arc Flash Boundary
18 in	Working Distance
0.04 cal/cm ²	Incident Energy
PPE	Shirt & pants or coverall, Nonmelting (ASTM F1506) or Untreated Fiber
415 VAC	Shock Risk when cover is removed
00	Glove Class
42 in	Limited Approach
12 in	Restricted Approach
N/A	Minimum Arc Rating

Bus: Welding Socket Prot: PD-0193

BUS SIDE FAULT

Warning: Changes in equipment settings or system configuration may invalidate the calculated results. (Date: Aug 2016 No:# 00)

8. WORK PERMITS

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:
20 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

Check
When

(1) Detailed job description procedure to be used in performing the above detailed work:

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	52 mm	Flash Hazard	0.03 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

20 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	52 mm	Flash Hazard	0.03 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

20 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	52 mm	Flash Hazard	0.03 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

25 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	57 mm	Flash Hazard	0.04 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

25 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	57 mm	Flash Hazard	0.04 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

25 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	57 mm	Flash Hazard	0.04 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

25 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	57 mm	Flash Hazard	0.04 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

25 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	54 mm	Flash Hazard	0.04 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

25 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	54 mm	Flash Hazard	0.04 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

25 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	54 mm	Flash Hazard	0.04 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

25 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	54 mm	Flash Hazard	0.04 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

50 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	233 mm	Flash Hazard	0.40 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

50 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	233 mm	Flash Hazard	0.40 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight $\geq$ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

50 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	233 mm	Flash Hazard	0.40 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

50 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	233 mm	Flash Hazard	0.40 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

50 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	264 mm	Flash Hazard	0.48 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

50 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	62 mm	Flash Hazard	0.04 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

50 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	264 mm	Flash Hazard	0.48 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

50 KVAR

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	213 mm	Flash Hazard	0.34 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

AC Power

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	62 mm	Flash Hazard	0.05 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Air Dryer-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	30 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Air Dryer-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

APFC Panel -2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	23 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

APFC Panel-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When
☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	27 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

APFC Panel-3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When
☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	34 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Bag house fan_DE2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	26 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Bag house fan_DE3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Conveyor-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	23 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Conveyor-10

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	33 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Conveyor-11

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	45 mm	Flash Hazard	0.03 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Conveyor-12

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	36 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Conveyor-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	24 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Conveyor-3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	27 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Conveyor-4

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	29 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Conveyor-7

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Conveyor-9

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	37 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt coveyor-5

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	32 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt coveyor-6

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	34 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt coveyor-8

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	33 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Feeder-1&2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	92 mm	Flash Hazard	0.09 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Feeder-3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	32 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Belt Feeder-4

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	33 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

BF-01

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	27 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

BF-02

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

BP Hydraulic Powerpack

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	19 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Briquetting Press

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	954 mm	Flash Hazard	4.0 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 1	Arc-rated FR Shirt & Pants			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Bucket Elevator

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When
☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	33 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Changeover Switch

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	87 mm	Flash Hazard	0.08 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Combustion Air Fan

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	24 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

CRM Pickling Bin Activator

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	27 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Discharge dust screw outside

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	28 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Diverter Gate-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	19 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Diverter Gate-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	19 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Dryer Panel

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	36 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Duty Compress-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	28 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Duty Compress-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	28 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Duty Compress-3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	27 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Exhaust Gas damper

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	40 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Exhaust gas ID Fan

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	251 mm	Flash Hazard	0.45 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Hoist for stock Conveyor

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Hydrated Lime Bin Activator

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	27 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

IMCC-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	1008 mm	Flash Hazard	4.4 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 2	Arc-rated FR Shirt & Pants			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

IMCC-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	972 mm	Flash Hazard	4.1 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 2	Arc-rated FR Shirt & Pants			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

IMCC-3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	560 mm	Flash Hazard	1.7 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 1	Arc-rated FR Shirt & Pants			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

MAIN INCOMER

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	2521 mm	Flash Hazard	20 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 3	Arc-rated FR Shirt & Pants & Arc Flash Su			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Metallic dust Bin Activator

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	27 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Mill Scale Screw

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	40 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Mill scaleBin Activator

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	24 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Mixer-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	23 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Mixer-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	23 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

MLDB Power

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	426 mm	Flash Hazard	1.1 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

PCPMP-5

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	39 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight $\geq$ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

PCPMP-5,6,7

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	83 mm	Flash Hazard	0.07 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

PCPMP-6

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	39 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

PCPMP-7

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	39 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

PDB for power outlets

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	44 mm	Flash Hazard	0.03 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Product Stock Coveyor

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Progressive Cavity Pump-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	30 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Progressive Cavity Pump-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	30 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight $\geq$ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Progressive Cavity Pump-3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Progressive Cavity Pump-4

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Raw power supply

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rolling Shutter-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	21 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rolling Shutter-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	17 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rolling Shutter-3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	19 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight $\geq$ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rolling Shutter-4

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	16 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rotary Air Lock

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	27 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rotary air lock-6

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	19 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rotary Air Valve Bag filer-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	14 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rotary Air Valve Bag filer-3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	14 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rotary Air Valve Bag Filter-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	14 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rotary Air Valve Cyclone

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	14 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Rotary Drier

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	289 mm	Flash Hazard	0.56 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

SC-02

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

- (1) Description of circuit/equipment/job location:

SC-03

- (2) Description of work to be done:

- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

- (1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

- (2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

- (3) Means employed to restrict the access of unqualified persons from the work area:

☐

- (4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

- (5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

SC-04

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Screw conveyor

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	92 mm	Flash Hazard	0.09 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Screw Conveyor

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	25 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Screw Conveyor

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Screw Conveyor

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	24 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Slewing

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

- (1) Description of circuit/equipment/job location:

Spare

- (2) Description of work to be done:

- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

- (1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

- (2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	109 mm	Flash Hazard	0.11 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

- (3) Means employed to restrict the access of unqualified persons from the work area:

☐

- (4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

- (5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

- (1) Description of circuit/equipment/job location:

Spare

- (2) Description of work to be done:

- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

- (1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

- (2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	109 mm	Flash Hazard	0.11 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

- (3) Means employed to restrict the access of unqualified persons from the work area:

☐

- (4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

- (5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Spare

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	109 mm	Flash Hazard	0.11 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Spare

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	36 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Spare

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	109 mm	Flash Hazard	0.11 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

- (1) Description of circuit/equipment/job location:

Spare

- (2) Description of work to be done:

- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

- (1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

- (2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	109 mm	Flash Hazard	0.11 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

- (3) Means employed to restrict the access of unqualified persons from the work area:

☐

- (4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

- (5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Spare

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	36 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Spare

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	109 mm	Flash Hazard	0.11 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

- (1) Description of circuit/equipment/job location:

Spare

- (2) Description of work to be done:

- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

- (1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

- (2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	109 mm	Flash Hazard	0.11 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

- (3) Means employed to restrict the access of unqualified persons from the work area:

☐

- (4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

- (5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Spare

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	32 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

- (1) Description of circuit/equipment/job location:

Spare

- (2) Description of work to be done:

- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

- (1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

- (2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	32 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

- (3) Means employed to restrict the access of unqualified persons from the work area:

☐

- (4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

- (5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Spare

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When
☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	79 mm	Flash Hazard	0.07 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

- (1) Description of circuit/equipment/job location:

Spare

- (2) Description of work to be done:

- (3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

- (1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

- (2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	13 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

- (3) Means employed to restrict the access of unqualified persons from the work area:

☐

- (4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

- (5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Spare

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	13 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Ups Supply

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	14 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Vibrating Conveyor-A

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When
☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	33 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Vibrating Conveyor-B

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	33 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Vibrating Screen-1B

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

(2) Description of the Safe Work Practices to be employed:

Flash Boundary	33 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight $\geq$ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Vibrating Screen-2A

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	32 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Vibrating Screen-2B

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	32 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Vibrating Screen-A

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	33 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight >= 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Water Pump-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	25 mm	Flash Hazard	0.00 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Water Pump-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	31 mm	Flash Hazard	0.01 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Welding Machine-1

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	36 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Welding Machine-2

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When
☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	36 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

ENERGIZED ELECTRICAL WORK PERMIT

PART I: TO BE COMPLETED BY THE REQUESTER:

Job/Work Order Number: _____

(1) Description of circuit/equipment/job location:

Welding Machine-3

(2) Description of work to be done:

(3) Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

Requester/Title

Date

PART II: TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK:

(1) Detailed job description procedure to be used in performing the above detailed work:

Check
When

☐

(2) Description of the Safe Work Practices to be employed:

☐

Flash Boundary	36 mm	Flash Hazard	0.02 cal/cm ²	Working Distance	457 mm
Shock Hazard	415 VAC	Limited Approach	1067 mm	Glove Class	00
		Restricted Approach	305 mm		
		Prohibited Approach	25 mm		
Required PPE	Category 0	Nonmelting, Flammable Materials with Weight ≥ 4.5 oz/sq yd			

(3) Means employed to restrict the access of unqualified persons from the work area:

☐

(4) Evidence of completion of a Job Briefing including discussion of any job-related hazards:

☐

(5) Do you agree the above described work can be done safely? ☐ Yes ☐ No (If no, return to requester)

Electrically Qualified Person(s)

Date

Electrically Qualified Person(s)

Date

PART III: APPROVAL(S) TO PERFORM THE WORK WHILE ELECTRICALLY ENERGIZED:

Maintenance/Engineering Manager

Manufacturing Manager

Safety Manager

Electrically Knowledgeable Person

General Manager

Date

9.0 REFERENCES

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