



Table of Contents

Job #TPG9065103

Customer Calpine Corporation
 Company Calpine Corporation
 Plant Santal Rosa Energy Center

Location	Test	Equipment	Page
Main Electrical Building	4160 SWITCHGEAR	52-1A Main	1
Main Electrical Building	4160 SWITCHGEAR	52-LCI	2
Main Electrical Building	4160 SWITCHGEAR	AUX-TRN-T2 (C6B)	3
Main Electrical Building	4160 SWITCHGEAR	BFW Pump 01A	4
Main Electrical Building	4160 SWITCHGEAR	BFW Pump 01B	5
Main Electrical Building	4160 SWITCHGEAR	Circ Water Pump 01A	6
Main Electrical Building	4160 SWITCHGEAR	Circ Water Pump 01B	7
Main Electrical Building	4160 SWITCHGEAR	Condensate Forwarding Pump 02A	8
Main Electrical Building	4160 SWITCHGEAR	Condensate Forwarding Pump 02B	9
Main Electrical Building	4160 SWITCHGEAR	Condensate Pump 01A	10
Main Electrical Building	4160 SWITCHGEAR	Condensate Pump 01B	11
Main Electrical Building	4160 SWITCHGEAR	SUS XFMR AUX-TRN-T2	12
Main Electrical Building	480v Breaker	CTG-MCC-1	13
Main Electrical Building	480v Breaker	CTG-MCC-2	14
Main Electrical Building	480v Breaker	Emergency Generator Breaker	15
Main Electrical Building	480v Breaker	Main Breaker	16
Main Electrical Building	480v Breaker	MCC-BOP-1	17
Main Electrical Building	480v Breaker	MCC-BOP-2	18
Main Electrical Building	480v Breaker	MCC-CT	19
Main Electrical Building	480v Breaker	MCC-WT-1	20
Main Electrical Building	480v Breaker	MCC-WT-2	21
Main Electrical Building	Transformer	5kv to 480v XFMR PI	22
Plant	Bus-Duct	CTG ISO-Phase	23
Plant	Bus-Duct	STG Non-Seg	24
Switchyard	Breaker	52-G1 CTG PF	25
Switchyard	Breaker	52-G1 CTG Timing	26
Switchyard	Breaker	52-G1 CTG X-135	28
Switchyard	Breaker	52-G1 CTG X-246	32
Switchyard	Breaker	52-G1 CTG Y-135	36
Switchyard	Breaker	52-G1 CTG Y-246	40
Switchyard	Breaker	52-G1 CTG Z-135	44
Switchyard	Breaker	52-G1 CTG Z-246	48
Switchyard	Breaker	52-G1 STG PF	52
Switchyard	Breaker	52-G1 STG Timing	53
Switchyard	Breaker	52-G1 STG X-135	55
Switchyard	Breaker	52-G1 STG X-246	59
Switchyard	Breaker	52-G1 STG Y-135	63
Switchyard	Breaker	52-G1 STG Y-246	67



Table of Contents

Job #TPG9065103

Location	Test	Equipment	Page
Switchyard	Breaker	52-G1 STG Z-135	71
Switchyard	Breaker	52-G1 STG Z-246	75
Switchyard	Breaker	52-L1 PF	79
Switchyard	Breaker	52-L1 Timing	80
Switchyard	Breaker	52-L1 X-135	82
Switchyard	Breaker	52-L1 X-246	86
Switchyard	Breaker	52-L1 Y-135	90
Switchyard	Breaker	52-L1 Y-246	94
Switchyard	Breaker	52-L1 Z-135	98
Switchyard	Transformers	CTG GSU CT_H0	102
Switchyard	Transformers	CTG GSU CT_X-123	106
Switchyard	Transformers	CTG GSU CT_X2S1-S2	110
Switchyard	Transformers	CTG GSU PF	114
Switchyard	Transformers	CTG GSU PI	116
Switchyard	Transformers	CTG GSU TTR/Winding Resistance	117
Switchyard	Transformers	STG GSU CT_H0	118
Switchyard	Transformers	STG GSU CT_X-123	122
Switchyard	Transformers	STG GSU CT_X2S1-S2	126
Switchyard	Transformers	STG GSU PF	130
Switchyard	Transformers	STG GSU PI	132
Switchyard	Transformers	STG GSU TTR/Winding Resistance	133



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 1 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/26/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4160kv DEVICE ID 52-1A Main Breaker

MANUFACTURER Siemens SERIAL NUMBER MV-100206200-002
 TYPE 5GMI-350-2000-78 MODEL NO. NA DATE MANUFACTURED 01
 MAXIMUM VOLTAGE 15 KV AMPACITY 1200 OPERATING VOLTAGE 4.76 KV
 INTERRUPTING CAPACITY NA KA @ NA KV TO NA KV = NA MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE	DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good		CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good		VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good		CONTACT EROSION INDICATOR	<input type="checkbox"/>	N/A	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good		OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good		CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input checked="" type="checkbox"/>	Good		GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
SHUTTER	<input checked="" type="checkbox"/>	Good		AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13
 EQUIPMENT TEMPERATURE 75 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.000	10000	130,000	10000	130,000	10000	130,000
POLE TO FRAME	1.000	13.000	10000	130,000	10000	130,000	10000	130,000
LINE TO FRAME	1.000	13.000	10000	130,000	10000	130,000	10000	130,000
LOAD TO FRAME	1.000	13.000	10000	130,000	10000	130,000	10000	130,000
LINE TO LOAD	1.000	13.000	10000	130,000	10000	130,000	10000	130,000

TIMING TEST	TOLERANCE	MEASURED	PASS/FAIL
OPENING SPEED	10-35 Milliseconds	30.30	PASS
CLOSING SPEED	35-75 Milliseconds	43.85	PASS

CONTROL WIRING - MEGOHMS			
READING	1,000	20 °C	13,000

CONTACT MEASUREMENTS

TOLERANCE	1200A 30-60 MicroOhms	POLE 1	POLE 2	POLE 3
		13	8	10
CONTACT RESISTANCE MICRO-OHMS	RDG.	10.6898	6.5784	8.2229
	20 °C	PASS	PASS	PASS

VACUUM INTEGRITY	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HIGH POTENTIAL TEST	4.8	4.8	4.8
VACUUM BOTTLE	.08	.08	.05
POLE TO POLE	4.8	4.8	4.8
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. 332 END 337

COMMENTS: Breaker indication light broken on door
 DEFICIENCIES:

EQPT. INVENTORY NO. Megger,HiPot,Ductor TESTED BY: D.Edwards



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 2 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/26/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4160kv DEVICE ID LCI Starting XFMR CTG-TRN-LCI

MANUFACTURER Siemens SERIAL NUMBER MV-100206200-001
 TYPE 5GMI-350-2000-78 MODEL NO. NA DATE MANUFACTURED 01
 MAXIMUM VOLTAGE 15 KV AMPACITY 1200 OPERATING VOLTAGE 4.76 KV
 INTERRUPTING CAPACITY NA KA @ NA KV TO NA KV = NA MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE	DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good		CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good		VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good		CONTACT EROSION INDICATOR	<input type="checkbox"/>	N/A	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good		OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good		CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input checked="" type="checkbox"/>	Good		GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
SHUTTER	<input checked="" type="checkbox"/>	Good		AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13
 EQUIPMENT TEMPERATURE 75 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.000	10000	130,000	10000	130,000	10000	130,000
POLE TO FRAME	1.000	13.000	10000	130,000	10000	130,000	10000	130,000
LINE TO FRAME	1.000	13.000	10000	130,000	10000	130,000	10000	130,000
LOAD TO FRAME	1.000	13.000	10000	130,000	10000	130,000	10000	130,000
LINE TO LOAD	1.000	13.000	10000	130,000	10000	130,000	10000	130,000

TIMING TEST	TOLERANCE	MEASURED	PASS/FAIL
OPENING SPEED	10-35 Milliseconds	30.30	PASS
CLOSING SPEED	35-75 Milliseconds	43.85	PASS

CONTROL WIRING - MEGOHMS			
READING	1,000	20 °C	13,000

CONTACT MEASUREMENTS

TOLERANCE	1200A 30-60 MicroOhms	POLE 1	POLE 2	POLE 3
		13	8	10
CONTACT RESISTANCE MICRO-OHMS	RDG.	10.6898	6.5784	8.2229
	20 °C	PASS	PASS	PASS

VACUUM INTEGRITY	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HIGH POTENTIAL TEST	4.8	4.8	4.8
VACUUM BOTTLE	.08	.08	.05
POLE TO POLE	4.8	4.8	4.8
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. 332 END 337

COMMENTS: Racked breaker in and out multiple times to verify truck switch. Everything worked correctly

DEFICIENCIES:

EQPT. INVENTORY NO. Megger,HiPot,Ductor TESTED BY: D.Edwards



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 3 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID Aux Transformer T2 (C6B)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-6C
 TYPE 97H35 MODEL NO. 97H3533414A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Very poor	
RACKING DEVICES	<input type="checkbox"/>	N/T	
SHUTTER			

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
CONTACT EROSION INDICATOR	<input type="checkbox"/>		
OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
POLE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LOAD TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO LOAD	1.000	13.600	10000	136,000	10000	136,000	10000	136,000

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	125.0	114.0	112.0
	FUSES	1,990.00	960.000	1,290.00
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	400E
CAT #	A055F1DORO-400E

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY

	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.6	5.2	5.2
VACUUM BOTTLE (GAR)	.04	.06	.04
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS: Rats nest found in cubicle, cleaned
 DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot TESTED BY: J.WAGENER



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 4 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID Boiler Feed Water Pump 01A (C2A)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-2B
 TYPE 97H35 MODEL NO. 97H3533244A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input type="checkbox"/>	N/T	
SHUTTER			

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
CONTACT EROSION INDICATOR	<input type="checkbox"/>		
OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
POLE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LOAD TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO LOAD	1.000	13.600	10000	136,000	10000	136,000	10000	136,000

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	117.0	125.0	142.0
	FUSES	167.000	85.000	264.000
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	24R
CAT #	48FM24R

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY

	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.4	4.8	4.8
VACUUM BOTTLE (GAR)	.04	.04	.02
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS:

DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot

TESTED BY: J.WAGENER



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 5 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID Boiler Feed Water Pump 01B (C3A)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-3B
 TYPE 97H35 MODEL NO. 97H3533244A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input type="checkbox"/>	N/T	
SHUTTER			

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
CONTACT EROSION INDICATOR	<input type="checkbox"/>		
OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
POLE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LOAD TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO LOAD	1.000	13.600	10000	136,000	10000	136,000	10000	136,000

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	145.0	166.0	148.0
	FUSES	1,050.00	1,510.00	1,100.00
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	24R
CAT #	48FM24R-5G

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY

	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.5	4.5	4.5
VACUUM BOTTLE (GAR)	.04	.04	.04
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS:

DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot

TESTED BY: J.WAGENER



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 6 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID Circ Water Pump 01A (C2B)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-2C
 TYPE 97H35 MODEL NO. 97H3533064A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input type="checkbox"/>	N/T	
SHUTTER			

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
CONTACT EROSION INDICATOR	<input type="checkbox"/>		
OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
POLE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LOAD TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO LOAD	1.000	13.600	10000	136,000	10000	136,000	10000	136,000

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	138.0	128.0	145.0
	FUSES	2,930.00	2,930.00	2,900.00
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	6R
CAT #	48FM6R-4G

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY

	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.8	4.8	4.8
VACUUM BOTTLE (GAR)	.04	.04	.04
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS:

DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot

TESTED BY: J.WAGENER



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 7 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID Circ Water Pump 01B (C3B)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-3C
 TYPE 97H35 MODEL NO. 97H3533064A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE	DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good		CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good		VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good		CONTACT EROSION INDICATOR	<input type="checkbox"/>		
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good		OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good		CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input type="checkbox"/>	N/T		GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
SHUTTER				AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
POLE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LOAD TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO LOAD	1.000	13.600	10000	136,000	10000	136,000	10000	136,000

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	145.0	136.0	157.0
	FUSES	2,990.00	2,880.00	2,920.00
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	6R
CAT #	48FM6R-4G

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY

	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.44.8	4.8	4.8
VACUUM BOTTLE (GAR)	.04	.04	.04
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS:

DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot

TESTED BY: J.WAGENER



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 8 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID Condensate Forwarding Pump 02A (C5A)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-5B
 TYPE 97H35 MODEL NO. 97H3533064A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input type="checkbox"/>	N/T	
SHUTTER			

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
CONTACT EROSION INDICATOR	<input type="checkbox"/>		
OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00
POLE TO FRAME	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00
LINE TO FRAME	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00
LOAD TO FRAME	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00
LINE TO LOAD	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	122.0	129.0	133.0
	FUSES	2,900.00	4,270.00	4,930.00
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	6R
CAT #	48FM6R-4G

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY

	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.8	4.6	4.6
VACUUM BOTTLE (GAR)	.04	.08	.04
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS:

DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot

TESTED BY: J.WAGENER



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 9 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID Condensate Forwarding Pump 02B (C5B)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-5C
 TYPE 97H35 MODEL NO. 97H3533064A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input type="checkbox"/>	N/T	
SHUTTER			

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
CONTACT EROSION INDICATOR	<input type="checkbox"/>		
OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00
POLE TO FRAME	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00
LINE TO FRAME	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00
LOAD TO FRAME	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00
LINE TO LOAD	1.000	13.600	550	7,480.00	550	7,480.00	550	7,480.00

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	132.0	155.0	127.0
	FUSES	2,920.00	2,150.00	2,960.00
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	6R
CAT #	48FM6R-4G

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY

	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.8	4.4	4.4
VACUUM BOTTLE (GAR)	.04	.08	.04
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS:

DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot

TESTED BY: J.WAGENER



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 10 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID Condensate Pump 01A (C4A)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-4B
 TYPE 97H35 MODEL NO. 97H3533034A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input type="checkbox"/>	N/T	
SHUTTER			

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
CONTACT EROSION INDICATOR	<input type="checkbox"/>		
OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
POLE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LOAD TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO LOAD	1.000	13.600	10000	136,000	10000	136,000	10000	136,000

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	119.0	146.0	157.0
	FUSES	5,810.00	5,740.00	5,750.00
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	3R
CAT #	48FM3R-4G

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY

	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.4	4.4	4.4
VACUUM BOTTLE (GAR)	.04	.04	.04
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS:

DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot

TESTED BY: J.WAGENER



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 11 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID Condensate Pump 01B (C4B)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-4C
 TYPE 97H35 MODEL NO. 9743533034A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input type="checkbox"/>	N/T	
SHUTTER			

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
CONTACT EROSION INDICATOR	<input type="checkbox"/>		
OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
POLE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LOAD TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO LOAD	1.000	13.600	10000	136,000	10000	136,000	10000	136,000

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	124.0	111.0	138.0
	FUSES	5,740.00	5,750.00	5,680.00
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	3R
CAT #	48FM3R-4G

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY

	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.4	4.8	4.8
VACUUM BOTTLE (GAR)	.04	.04	.04
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS:

DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot

TESTED BY: J.WAGENER



VACUUM CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 12 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID SUS XFMR Aux Transformer T2 (C1A)

MANUFACTURER Siemens SERIAL NUMBER RAL-101895-1B
 TYPE 97H35 MODEL NO. 97H3533334A1T DATE MANUFACTURED 5/31/09
 MAXIMUM VOLTAGE 5 KV AMPACITY 360 OPERATING VOLTAGE 4.16 KV
 INTERRUPTING CAPACITY 5 KA @ 4.6 KV TO 400 MVA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	<input checked="" type="checkbox"/>	Good	
INSULATING MEMBERS	<input checked="" type="checkbox"/>	Good	
MECHANICAL CONNECTIONS	<input checked="" type="checkbox"/>	Good	
STRUCTURAL MEMBERS	<input checked="" type="checkbox"/>	Good	
CUBICLE	<input checked="" type="checkbox"/>	Good	
RACKING DEVICES	<input type="checkbox"/>	N/T	
SHUTTER			

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	
VACUUM BOTTLE	<input checked="" type="checkbox"/>	Good	
CONTACT EROSION INDICATOR	<input type="checkbox"/>		
OPERATING MECHANISM	<input checked="" type="checkbox"/>	Good	
CONTACT SEQUENCE	<input checked="" type="checkbox"/>	Good	
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	

INSULATION TEST VOLTAGE 5 KVDC TEST VOLTAGE MULTIPLIER, K1 = 1 K2 = (K1) (TCF)
 CONTROL WIRING TEST VOLTAGE 1 KVDC TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 13.6
 EQUIPMENT TEMPERATURE 76 °C HIGH POTENTIAL TEST VOLTAGE 14 KVAC

INSULATION RESISTANCE	RANGE MULTIPLIER	K2	POLE 1 MEGOHMS (P1-P2)		POLE 2 MEGOHMS (P2-P3)		POLE 3 MEGOHMS (P1-P3)	
			READING	20°C	READING	20°C	READING	20°C
POLE TO POLE	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
POLE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LOAD TO FRAME	1.000	13.600	10000	136,000	10000	136,000	10000	136,000
LINE TO LOAD	1.000	13.600	10000	136,000	10000	136,000	10000	136,000

CONTROL WIRING - MEGOHMS			
READING	1,000	20°C	13,600

CONTACT MEASUREMENTS

HEADER	TESTED ITEM	POLE 1	POLE 2	POLE 3
MICRO-OHMS	VACUUM BOTTLE	220.0	123.0	310.0
	FUSES	2,170.00	2,790.00	2,320.00
	RACK CONTACTS			
	PASS/FAIL	PASS	PASS	PASS

FUSES

SIZE	150E
CAT #	A055F1DORO-150E

CONTROL POWER XFMR - MEGOHMS	
H-G	1,000
L-G	1,000
H-L	1,000

VACUUM INTEGRITY	POLE 1 (1-2)	POLE 2 (2-3)	POLE 3 (3-1)
HI POTENTIAL (GND)	4.8	4.8	4.8
VACUUM BOTTLE (GAR)	.04	.04	.04
PASS/FAIL	PASS	PASS	PASS

COUNTER READING: BEG. NA END NA

COMMENTS: Contact Resistance higher than normal no visual signs of heating

DEFICIENCIES:

EQPT. INVENTORY NO. Megger, Ductor, Hipot TESTED BY: J.WAGENER



LOW VOLTAGE POWER CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 13 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/6/2010 TEMPERATURE _____ °F HUMIDITY _____ % LOCATION Main Electrical Building
 SYSTEM 480v Switchgear DEVICE ID _____ MCC CT _____

MANUFACTURER Siemens SN / SO NO. R-LV100372500-001 FRAME RATING 1600
 BREAKER TYPE RLE-1600 SENSOR TAPS 800 MOUNTING B.I. D.O.
 FUSE CAT. NO. NA CUBICLE ID 2B THERMAL MEMORY ON OFF
 TRIP UNIT TYPE Static Trip III MODEL NO. RLAE1MAHXXA27X-A1 ZONE INTLK TARGETS

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CUBICLE AND RACKING DEVICES	<input checked="" type="checkbox"/>	Good	
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	NA
LOADING AND ARCING CONTACTS	<input checked="" type="checkbox"/>	Good	NA
OVERCURRENT DEV. BATTERY	<input checked="" type="checkbox"/>	N/A	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARC CHUTES	<input checked="" type="checkbox"/>	Good	NA
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	NA
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	NA
LOAD CONDUCTOR NO. <u>0</u> Size _____ CU <input type="radio"/> AL <input type="radio"/>			

SETTINGS AS FOUND LONG TIME PU 1 x 1200 A = 1200 A DELAY 3.5
 RATING PLUG(R) 1200 SHORT TIME PU 3 = 3600 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 1,200 INST. PU 15 = 18000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .4 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

SETTINGS AS LEFT LONG TIME PU 1 x 1200 A = 1200 A DELAY 3.5
 RATING PLUG(R) 1200 SHORT TIME PU 3 = 3600 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 1,200 INST. PU 15 = 18000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .4 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

FUNCTION	TEST AMPERES	CURRENT MULTIPLE	TIME BAND		POLE 1		POLE 2		POLE 3	
			MINIMUM	MAXIMUM	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
LONG TIME	<i>Long Time Pickup (Amps)</i>				1,425	1,425	1,550	1,550	1,600	1,600
	2400	2	27	41	38	38	39	39	38	38
SHORT TIME	<i>Short Time Pickup (Amps)</i>				4,000	4,000	4,050	4,050	4,050	4,050
	5400	1.5	.08	.25	0.6	0.6	0.8	0.8	0.6	0.6
GROUND	<i>Ground Pickup (Amps)</i>				500	500				
	720	1.5	.1	.8	0.8	0.8				
INSTANTANEOUS	<i>Instantaneous Pickup</i>				12,000	12,000	12,000	12,000	11,500	11,500

EQUIPMENT TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20 °C, TCF 0.788

INSULATION RESISTANCE	POLE 1 MΩ (P1-P2)		POLE 2 MΩ (P2-P3)		POLE 3 MΩ (P3-P1)		POLE RESISTANCE - MICRO-OHMS		
	READING	20 °C	READING	20 °C	READING	20 °C	READING		
							POLE 1	POLE 2	POLE 3
POLE TO POLE	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00			
POLE TO FRAME	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00	AS FOUND 22.5	24.9	34.6
LINE TO LOAD	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00	AS LEFT 22.5	24.9	34.6
CONTROL WIRING			COUNTER READING BEG/END						
READING	1,000	20 °C	788	NA	NA				

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. EIL BTS-1000 SN 182024 TESTED BY: James Wagener



LOW VOLTAGE POWER CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 14 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/6/2010 TEMPERATURE _____ °F HUMIDITY _____ % LOCATION Main Electrical Building
 SYSTEM 480v Switchgear DEVICE ID _____ MCC CTG-2

MANUFACTURER Siemens SN / SO NO. R-LV1003725-004 FRAME RATING 1600
 BREAKER TYPE RLE-1600 SENSOR TAPS 800 MOUNTING B.I. D.O.
 FUSE CAT. NO. NA CUBICLE ID 3C THERMAL MEMORY ON OFF
 TRIP UNIT TYPE Static Trip III MODEL NO. RLAE1MAGXA27X-A1 ZONE INTLK TARGETS

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CUBICLE AND RACKING DEVICES	<input checked="" type="checkbox"/>	Good	
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	NA
LOADING AND ARCING CONTACTS	<input checked="" type="checkbox"/>	Good	NA
OVERCURRENT DEV. BATTERY	<input checked="" type="checkbox"/>	N/A	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARC CHUTES	<input checked="" type="checkbox"/>	Good	NA
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	NA
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	NA
LOAD CONDUCTOR NO. <u>0</u> Size _____ CU <input type="radio"/> AL <input type="radio"/>			

SETTINGS AS FOUND LONG TIME PU .75 x 800 A = 600 A DELAY 3.5
 RATING PLUG(R) 800 SHORT TIME PU 3 = 1800 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 800 INST. PU 15 = 12000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 480 A ON OFF DELAY .6 I²T IN OUT N/A

SETTINGS AS LEFT LONG TIME PU .75 x 800 A = 600 A DELAY 3.5
 RATING PLUG(R) 800 SHORT TIME PU 3 = 1800 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 800 INST. PU 15 = 12000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 480 A ON OFF DELAY .6 I²T IN OUT N/A

FUNCTION	TEST AMPERES	CURRENT MULTIPLE	TIME BAND		POLE 1		POLE 2		POLE 3	
			MINIMUM	MAXIMUM	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
LONG TIME	<i>Long Time Pickup (Amps)</i>				740	740	760	760	740	740
	1500	2.5	16	24	23	23	24	24	23	23
SHORT TIME	<i>Short Time Pickup (Amps)</i>				2,000	2,000	2,020	2,020	2,000	2,000
	2700	1.5	.08	.2	0.6	0.6	0.6	0.6	0.6	0.6
GROUND	<i>Ground Pickup (Amps)</i>				470	470				
	720	1.5	.1	.9	0.6	0.6				
INSTANTANEOUS	<i>Instantaneous Pickup</i>				11,500	11,500	11,000	11,000	11,500	11,500

EQUIPMENT TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20 °C, TCF 0.788

INSULATION RESISTANCE	POLE 1 MΩ (P1-P2)		POLE 2 MΩ (P2-P3)		POLE 3 MΩ (P3-P1)	
	READING	20 °C	READING	20 °C	READING	20 °C
POLE TO POLE	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
POLE TO FRAME	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
LINE TO LOAD	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
CONTROL WIRING			COUNTER READING BEG/END			
READING	1,000	20 °C	788	NA	NA	

	POLE RESISTANCE - MICRO-OHMS		
	POLE 1	POLE 2	POLE 3
AS FOUND	22.4	23.9	18.3
AS LEFT	22.4	23.9	18.3

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. EIL BTS-1000 SN 182024 TESTED BY: James Wagener



LOW VOLTAGE POWER CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 15 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/6/2010 TEMPERATURE 74 °F HUMIDITY 45 % LOCATION Main Electrical Building
 SYSTEM 480v Switchgear DEVICE ID Emergency Generator Breaker

MANUFACTURER Siemens SN / SO NO. R-LV100372600-003 FRAME RATING 1600
 BREAKER TYPE RLE-1600 SENSOR TAPS 1200 MOUNTING B.I. D.O.
 FUSE CAT. NO. NA CUBICLE ID 3B THERMAL MEMORY ON OFF
 TRIP UNIT TYPE Static Trip III MODEL NO. RLAE1MAHXXA27X-A1q ZONE INTLK TARGETS

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CUBICLE AND RACKING DEVICES	<input checked="" type="checkbox"/>	Good	C/L
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	NA
LOADING AND ARCING CONTACTS	<input checked="" type="checkbox"/>	Good	NA
OVERCURRENT DEV. BATTERY	<input checked="" type="checkbox"/>	N/A	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARC CHUTES	<input checked="" type="checkbox"/>	Good	NA
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	NA
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	NA
LOAD CONDUCTOR NO. <u>0</u> Size <u>CU</u> <input type="radio"/> AL <input type="radio"/>			

SETTINGS AS FOUND LONG TIME PU 1 x 1200 A = 1200 A DELAY 30
 RATING PLUG(R) 1200 SHORT TIME PU 12 = 14400 A DELAY .4 I²T IN OUT N/A
 SENSOR TAP 1,200 INST. PU 15 = 18000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 720 A ON OFF DELAY .4 I²T IN OUT N/A

SETTINGS AS LEFT LONG TIME PU .5 x 1200 A = 600 A DELAY 3.5
 RATING PLUG(R) 1200 SHORT TIME PU 3 = 1800 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 1,200 INST. PU 2 = 2400 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 720 A ON OFF DELAY .1 I²T IN OUT N/A

FUNCTION	TEST AMPERES	CURRENT MULTIPLE	TIME BAND		POLE 1		POLE 2		POLE 3	
			MINIMUM	MAXIMUM	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
LONG TIME	<i>Long Time Pickup (Amps)</i>				1,400	1,400	1,400	1,400	1,400	1,400
	6000	5	36	53	47	47	46	46	47	47
SHORT TIME	<i>Short Time Pickup (Amps)</i>				16,800	16,800	12,000	12,000	12,500	12,500
	21600	1.5	.35	.45	0.46	0.46	0.48	0.48	0.48	0.48
GROUND	<i>Ground Pickup (Amps)</i>				750	750				
	1080	1.5	.35	.45	0.46	0.46				
INSTANTANEOUS	<i>Instantaneous Pickup</i>				19,500	19,500	19,000	19,000	19,500	19,500

EQUIPMENT TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20 °C, TCF 0.788

INSULATION RESISTANCE	POLE 1 MΩ (P1-P2)		POLE 2 MΩ (P2-P3)		POLE 3 MΩ (P3-P1)	
	READING	20 °C	READING	20 °C	READING	20 °C
POLE TO POLE	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
POLE TO FRAME	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
LINE TO LOAD	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
CONTROL WIRING			COUNTER READING BEG/END			
READING	1,000	20 °C	788	NA	NA	

	POLE RESISTANCE - MICRO-OHMS		
	POLE 1	POLE 2	POLE 3
AS FOUND	17.7	18.3	22
AS LEFT	17.7	18.3	22

COMMENTS: Settings were changed after breaker was tested, per Dean. There were no settings provided in coordination study.

DEFICIENCIES:

EQPT. INVENTORY NO. EIL BTS-1000 SN 182024 TESTED BY: James Wagener



LOW VOLTAGE POWER CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 16 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/6/2010 TEMPERATURE _____ °F HUMIDITY _____ % LOCATION Main Electrical Building
 SYSTEM 480v Switchgear DEVICE ID _____ Main Breaker

MANUFACTURER Siemens SN / SO NO. R-LV100372400-001 FRAME RATING 1600
 BREAKER TYPE RLE-3200 SENSOR TAPS 800 MOUNTING B.I. D.O.
 FUSE CAT. NO. NA CUBICLE ID 1B THERMAL MEMORY ON OFF
 TRIP UNIT TYPE Static Trip III MODEL NO. RLA53EAQXCB26X-A1U4 ZONE INTLK TARGETS

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CUBICLE AND RACKING DEVICES	<input checked="" type="checkbox"/>	Good	
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	NA
LOADING AND ARCING CONTACTS	<input checked="" type="checkbox"/>	Good	NA
OVERCURRENT DEV. BATTERY	<input checked="" type="checkbox"/>	N/A	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARC CHUTES	<input checked="" type="checkbox"/>	Good	NA
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	NA
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	NA
LOAD CONDUCTOR NO. <u>0</u> Size _____ CU <input type="radio"/> AL <input type="radio"/>			

SETTINGS AS FOUND LONG TIME PU 1 x 3200 A = 3200 A DELAY 3.5
 RATING PLUG(R) 3200 SHORT TIME PU 2 = 6400 A DELAY .22 I²T IN OUT N/A
 SENSOR TAP 3,200 INST. PU NA = NA A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .3 = 600 A ON OFF DELAY .25 I²T IN OUT N/A

SETTINGS AS LEFT LONG TIME PU 1 x 3200 A = 1200 A DELAY 3.5
 RATING PLUG(R) 3200 SHORT TIME PU 2 = 6400 A DELAY .22 I²T IN OUT N/A
 SENSOR TAP 3,200 INST. PU NA = NA A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .3 = 600 A ON OFF DELAY .25 I²T IN OUT N/A

FUNCTION	TEST AMPERES	CURRENT MULTIPLE	TIME BAND		POLE 1		POLE 2		POLE 3	
			MINIMUM	MAXIMUM	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
LONG TIME	<i>Long Time Pickup (Amps)</i>				3,550	3,550	3,650	3,600	3,600	3,600
	<i>Short Time Pickup (Amps)</i>				6,600	6,600	6,400	6,400	6,650	6,650
SHORT TIME	9600	1.5	.22	.35	0.4	0.4	0.3	0.3	0.3	0.3
	<i>Ground Pickup (Amps)</i>				600	600				
GROUND	900	1.5	.25	.9	0.8	0.8				
	<i>Instantaneous Pickup</i>				12,000	12,000	12,000	12,000	11,500	11,500

EQUIPMENT TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20 °C, TCF 0.788

INSULATION RESISTANCE	POLE 1 MΩ (P1-P2)		POLE 2 MΩ (P2-P3)		POLE 3 MΩ (P3-P1)	
	READING	20 °C	READING	20 °C	READING	20 °C
POLE TO POLE	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
POLE TO FRAME	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
LINE TO LOAD	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00

CONTROL WIRING	READING		COUNTER READING BEG/END
	1,000	20 °C	
	1,000	788	NA NA

	POLE RESISTANCE - MICRO-OHMS		
	POLE 1	POLE 2	POLE 3
AS FOUND	11.2	9.2	10.5
AS LEFT	11.2	9.2	10.5

COMMENTS: Did not test long time delay because our stab connections were getting to hot
Ground rating plug is 2000

DEFICIENCIES:

EQPT. INVENTORY NO. EIL BTS-1000 SN 182024 TESTED BY: James Wagener



LOW VOLTAGE POWER CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 17 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/6/2010 TEMPERATURE _____ °F HUMIDITY _____ % LOCATION Main Electrical Building
 SYSTEM 480v Switchgear DEVICE ID _____ MCC-BOP-1

MANUFACTURER Siemens SN / SO NO. R-LV100372600-002 FRAME RATING 1600
 BREAKER TYPE RLE-1600 SENSOR TAPS 800 MOUNTING B.I. D.O.
 FUSE CAT. NO. NA CUBICLE ID 2D THERMAL MEMORY ON OFF
 TRIP UNIT TYPE Static Trip III MODEL NO. RLAE1MAHXXA27X-A1 ZONE INTLK TARGETS

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CUBICLE AND RACKING DEVICES	<input checked="" type="checkbox"/>	Good	
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	NA
LOADING AND ARCING CONTACTS	<input checked="" type="checkbox"/>	Good	NA
OVERCURRENT DEV. BATTERY	<input checked="" type="checkbox"/>	N/A	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARC CHUTES	<input checked="" type="checkbox"/>	Good	NA
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	NA
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	NA
LOAD CONDUCTOR NO. <u>0</u> Size _____ CU <input type="radio"/> AL <input type="radio"/>			

SETTINGS AS FOUND LONG TIME PU 1 x 1200 A = 1200 A DELAY 3.5
 RATING PLUG(R) 1200 SHORT TIME PU 3 = 3600 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 1,200 INST. PU 15 = 18000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .4 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

SETTINGS AS LEFT LONG TIME PU 1 x 1200 A = 1200 A DELAY 3.5
 RATING PLUG(R) 1200 SHORT TIME PU 3 = 3600 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 1,200 INST. PU 15 = 18000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .4 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

FUNCTION	TEST AMPERES	CURRENT MULTIPLE	TIME BAND		POLE 1		POLE 2		POLE 3	
			MINIMUM	MAXIMUM	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
LONG TIME	<i>Long Time Pickup (Amps)</i>				1,500	1,500	1,400	1,400	1,450	1,450
	3000	2.5	16	25	23.79	23.79	23.91	23.91	24.24	24.24
SHORT TIME	<i>Short Time Pickup (Amps)</i>				4,000	4,000	4,000	4,000	4,060	4,060
	6000	1.5	.08	.25	0.7	0.7	0.7	0.7	0.65	0.65
GROUND	<i>Ground Pickup (Amps)</i>				490	490				
	720	1.5	.1	.9	0.5	0.5				
INSTANTANEOUS	<i>Instantaneous Pickup</i>				17,500	17,500	17,000	17,000	17,500	17,500

EQUIPMENT TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20°C, TCF 0.788

INSULATION RESISTANCE	POLE 1 MΩ (P1-P2)		POLE 2 MΩ (P2-P3)		POLE 3 MΩ (P3-P1)	
	READING	20 °C	READING	20 °C	READING	20 °C
POLE TO POLE	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
POLE TO FRAME	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
LINE TO LOAD	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
CONTROL WIRING			COUNTER READING BEG/END			
READING	1,000	20 °C	788	NA	NA	NA

	POLE RESISTANCE - MICRO-OHMS		
	POLE 1	POLE 2	POLE 3
AS FOUND	21.6	19.6	21.5
AS LEFT	21.6	19.6	21.5

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. EIL BTS-1000 SN 182024 TESTED BY: James Wagener



LOW VOLTAGE POWER CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 18 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/6/2010 TEMPERATURE _____ °F HUMIDITY _____ % LOCATION Main Electrical Building
 SYSTEM 480v Switchgear DEVICE ID _____ MCC-BOP-2

MANUFACTURER Siemens SN / SO NO. R-LV100372600-004 FRAME RATING 1600
 BREAKER TYPE RLE-1600 SENSOR TAPS 800 MOUNTING B.I. D.O.
 FUSE CAT. NO. NA CUBICLE ID 3D THERMAL MEMORY ON OFF
 TRIP UNIT TYPE Static Trip III MODEL NO. RLAE1MAHXXA27X-A1 ZONE INTLK TARGETS

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CUBICLE AND RACKING DEVICES	<input checked="" type="checkbox"/>	Good	
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	NA
LOADING AND ARCING CONTACTS	<input checked="" type="checkbox"/>	Good	NA
OVERCURRENT DEV. BATTERY	<input checked="" type="checkbox"/>	N/A	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARC CHUTES	<input checked="" type="checkbox"/>	Good	NA
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	NA
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	NA
LOAD CONDUCTOR NO. <u>0</u> Size _____ CU <input type="radio"/> AL <input type="radio"/>			

SETTINGS AS FOUND LONG TIME PU 1 x 1200 A = 1200 A DELAY 3.5
 RATING PLUG(R) 1200 SHORT TIME PU 3 = 3600 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 1,200 INST. PU 15 = 18000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .4 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

SETTINGS AS LEFT LONG TIME PU 1 x 1200 A = 1200 A DELAY 3.5
 RATING PLUG(R) 1200 SHORT TIME PU 3 = 3600 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 1,200 INST. PU 15 = 18000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .4 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

FUNCTION	TEST AMPERES	CURRENT MULTIPLE	TIME BAND		POLE 1		POLE 2		POLE 3	
			MINIMUM	MAXIMUM	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
LONG TIME	<i>Long Time Pickup (Amps)</i>				1,400	1,400	1,400	1,400	1,430	1,430
	3000	2.5	16	25	24.1	24.1	24.2	24.2	24.3	24.3
SHORT TIME	<i>Short Time Pickup (Amps)</i>				4,000	4,000	4,000	4,000	4,000	4,000
	6000	1.5	.08	.25	0.6	0.6	0.6	0.6	0.6	0.6
GROUND	<i>Ground Pickup (Amps)</i>				500	500				
	720	1.5	.1	.9	0.6	0.6				
INSTANTANEOUS	<i>Instantaneous Pickup</i>				17,510	17,510	18,000	18,000	18,030	18,030

EQUIPMENT TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20 °C, TCF 0.788

INSULATION RESISTANCE	POLE 1 MΩ (P1-P2)		POLE 2 MΩ (P2-P3)		POLE 3 MΩ (P3-P1)	
	READING	20 °C	READING	20 °C	READING	20 °C
POLE TO POLE	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
POLE TO FRAME	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
LINE TO LOAD	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
CONTROL WIRING			COUNTER READING BEG/END			
READING	1,000	20 °C	788	NA	NA	

	POLE RESISTANCE - MICRO-OHMS		
	POLE 1	POLE 2	POLE 3
AS FOUND	19.1	15.8	18.2
AS LEFT	19.1	15.8	18.2

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. EIL BTS-1000 SN 182024 TESTED BY: James Wagener



LOW VOLTAGE POWER CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 19 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/6/2010 TEMPERATURE _____ °F HUMIDITY _____ % LOCATION Main Electrical Building
 SYSTEM 480v Switchgear DEVICE ID _____ CTG-MCC-1

MANUFACTURER Siemens SN / SO NO. R-LV100372500-001 FRAME RATING 1600
 BREAKER TYPE RLE-1600 SENSOR TAPS 800 MOUNTING B.I. D.O.
 FUSE CAT. NO. NA CUBICLE ID 2C THERMAL MEMORY ON OFF
 TRIP UNIT TYPE Static Trip III MODEL NO. RLAE1MAHXXA27X-A1 ZONE INTLK TARGETS

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CUBICLE AND RACKING DEVICES	<input checked="" type="checkbox"/>	Good	
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	NA
LOADING AND ARCING CONTACTS	<input checked="" type="checkbox"/>	Good	NA
OVERCURRENT DEV. BATTERY	<input checked="" type="checkbox"/>	N/A	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARC CHUTES	<input checked="" type="checkbox"/>	Good	NA
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	NA
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	NA
LOAD CONDUCTOR NO. <u>0</u> Size _____ CU <input type="radio"/> AL <input type="radio"/>			

SETTINGS AS FOUND LONG TIME PU .75 x 800 A = 600 A DELAY 3.5
 RATING PLUG(R) 800 SHORT TIME PU 3 = 1800 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 800 INST. PU 15 = 12000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 360 A ON OFF DELAY .1 I²T IN OUT N/A

SETTINGS AS LEFT LONG TIME PU .75 x 800 A = 600 A DELAY 3.5
 RATING PLUG(R) 1200 SHORT TIME PU 3 = 1800 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 1,200 INST. PU 15 = 12000 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 360 A ON OFF DELAY .1 I²T IN OUT N/A

FUNCTION	TEST AMPERES	CURRENT MULTIPLE	TIME BAND		POLE 1		POLE 2		POLE 3	
			MINIMUM	MAXIMUM	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
LONG TIME	<i>Long Time Pickup (Amps)</i>				700	700	700	700	700	700
	1500	2.5	16	25	23.5	23.5	23.21	23.21	23	23
SHORT TIME	<i>Short Time Pickup (Amps)</i>				2,000	2,000	2,000	2,000	2,000	2,000
	5400	1.5	.08	.25	0.4	0.4	0.5	0.5	0.5	0.5
GROUND	<i>Ground Pickup (Amps)</i>				370	370				
	540	1.5	.1	.8	0.3	0.3				
INSTANTANEOUS	<i>Instantaneous Pickup</i>				9,980	9,980	1,050	1,050	1,050	1,050

EQUIPMENT TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20 °C, TCF 0.788

INSULATION RESISTANCE	POLE 1 MΩ (P1-P2)		POLE 2 MΩ (P2-P3)		POLE 3 MΩ (P3-P1)	
	READING	20 °C	READING	20 °C	READING	20 °C
POLE TO POLE	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
POLE TO FRAME	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
LINE TO LOAD	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
CONTROL WIRING			COUNTER READING BEG/END			
READING	1,000	20 °C	788	NA	NA	NA

	POLE RESISTANCE - MICRO-OHMS		
	POLE 1	POLE 2	POLE 3
AS FOUND	20	25.3	29.1
AS LEFT	20	25.3	29.1

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. EIL BTS-1000 SN 182024 TESTED BY: James Wagener



LOW VOLTAGE POWER CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 20 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/6/2010 TEMPERATURE _____ °F HUMIDITY _____ % LOCATION Main Electrical Building
 SYSTEM 480v Switchgear DEVICE ID MCC Water Treatment 1

MANUFACTURER Siemens SN / SO NO. R-W100372500-001 FRAME RATING 1600
 BREAKER TYPE RLE-1600 SENSOR TAPS 800 MOUNTING B.I. D.O.
 FUSE CAT. NO. NA CUBICLE ID 2A THERMAL MEMORY ON OFF
 TRIP UNIT TYPE Static Trip III MODEL NO. RLAE1MAGXXA27X-A1 ZONE INTLK TARGETS

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CUBICLE AND RACKING DEVICES	<input checked="" type="checkbox"/>	Good	
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	NA
LOADING AND ARCING CONTACTS	<input checked="" type="checkbox"/>	Good	NA
OVERCURRENT DEV. BATTERY	<input checked="" type="checkbox"/>	N/A	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARC CHUTES	<input checked="" type="checkbox"/>	Good	NA
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	NA
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	NA
LOAD CONDUCTOR NO. <u>0</u> Size _____ CU <input type="radio"/> AL <input type="radio"/>			

SETTINGS AS FOUND LONG TIME PU .5 x 800 A = 400 A DELAY 3.5
 RATING PLUG(R) 800 SHORT TIME PU 3 = 1200 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 800 INST. PU 6 = 2400 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

SETTINGS AS LEFT LONG TIME PU .5 x 800 A = 400 A DELAY 3.5
 RATING PLUG(R) 800 SHORT TIME PU 3 = 1200 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 800 INST. PU 6 = 2400 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

FUNCTION	TEST AMPERES	CURRENT MULTIPLE	TIME BAND		POLE 1		POLE 2		POLE 3	
			MINIMUM	MAXIMUM	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
LONG TIME	<i>Long Time Pickup (Amps)</i>				500	500	500	500	495	495
	1000	2.5	18	25	23.7	23.7	23	23	23	23
SHORT TIME	<i>Short Time Pickup (Amps)</i>				1,350	1,350	1,315	1,315	1,313	1,313
	1800	1.5	.08	.25	0.4	0.4	0.6	0.6	0.62	0.62
GROUND	<i>Ground Pickup (Amps)</i>				480	480				
	720	1.5	.1	.9	1.4	1.4				
INSTANTANEOUS	<i>Instantaneous Pickup</i>				3,100	3,100	3,100	3,100	3,000	3,000

EQUIPMENT TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20 °C, TCF 0.788

INSULATION RESISTANCE	POLE 1 MΩ (P1-P2)		POLE 2 MΩ (P2-P3)		POLE 3 MΩ (P3-P1)	
	READING	20 °C	READING	20 °C	READING	20 °C
POLE TO POLE	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
POLE TO FRAME	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
LINE TO LOAD	10,000	7,880.00	10,000	7,880.00	10,000	7,880.00
CONTROL WIRING			COUNTER READING BEG/END			
READING	1,000	20 °C	788	NA	NA	

	POLE RESISTANCE - MICRO-OHMS		
	POLE 1	POLE 2	POLE 3
AS FOUND	17	23.6	18.4
AS LEFT	17	23.6	18.4

COMMENTS:
 DEFICIENCIES:
 EQPT. INVENTORY NO. EIL BTS-1000 SN 182024 TESTED BY: James Wagener



LOW VOLTAGE POWER CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 21 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/6/2010 TEMPERATURE 75 °F HUMIDITY 55 % LOCATION Main Electrical Building
 SYSTEM 480v Switchgear DEVICE ID MCC Water Treatment 2

MANUFACTURER Siemens SN / SO NO. R-LV100372500-003 FRAME RATING 1600
 BREAKER TYPE RLE-1600 SENSOR TAPS 800 MOUNTING B.I. D.O.
 FUSE CAT. NO. NA CUBICLE ID 3A THERMAL MEMORY ON OFF
 TRIP UNIT TYPE Static Trip III MODEL NO. RLAE1MAGXA27X-A1 ZONE INTLK TARGETS

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
CUBICLE AND RACKING DEVICES	<input checked="" type="checkbox"/>	Good	
CONTACT FINGERS	<input checked="" type="checkbox"/>	Good	NA
LOADING AND ARCING CONTACTS	<input checked="" type="checkbox"/>	Good	NA
OVERCURRENT DEV. BATTERY	<input checked="" type="checkbox"/>	N/A	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARC CHUTES	<input checked="" type="checkbox"/>	Good	NA
AUXILIARY DEVICES	<input checked="" type="checkbox"/>	Good	NA
GROUND CONNECTION	<input checked="" type="checkbox"/>	Good	NA
LOAD CONDUCTOR NO. <u>0</u> Size <u>CU</u> <input type="radio"/> AL <input type="radio"/>			

SETTINGS AS FOUND LONG TIME PU .5 x 800 A = 400 A DELAY 3.5
 RATING PLUG(R) 800 SHORT TIME PU 3 = 1200 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 800 INST. PU 6 = 2400 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

SETTINGS AS LEFT LONG TIME PU .5 x 800 A = 400 A DELAY 3.5
 RATING PLUG(R) 800 SHORT TIME PU 3 = 1200 A DELAY .08 I²T IN OUT N/A
 SENSOR TAP 800 INST. PU 6 = 2400 A ON OFF
 GRD. FLT. 3W 4W GRD. FLT. PU .6 = 480 A ON OFF DELAY .1 I²T IN OUT N/A

FUNCTION	TEST AMPERES	CURRENT MULTIPLE	TIME BAND		POLE 1		POLE 2		POLE 3	
			MINIMUM	MAXIMUM	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
LONG TIME	<i>Long Time Pickup (Amps)</i>				475	475	500	500	500	500
	1000	2.5	18	25	23	23	23	23	23	23
SHORT TIME	<i>Short Time Pickup (Amps)</i>				1,350	1,350	1,325	1,325	1,325	1,325
	1800	1.5	.08	.25	0.61	0.61	0.54	0.54	0.66	0.66
GROUND	<i>Ground Pickup (Amps)</i>				485	485				
	720	1.5	.1	.9	0.77	0.77				
INSTANTANEOUS	<i>Instantaneous Pickup</i>				3,100	3,100	3,000	3,000	3,000	3,000

EQUIPMENT TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20 °C, TCF 0.788

INSULATION RESISTANCE	POLE 1 MΩ (P1-P2)		POLE 2 MΩ (P2-P3)		POLE 3 MΩ (P3-P1)	
	READING	20 °C	READING	20 °C	READING	20 °C
POLE TO POLE	460	362.48	555	437.34	555	437.34
POLE TO FRAME	460	362.48	555	437.34	555	437.34
LINE TO LOAD	460	362.48	555	437.34	555	437.34
CONTROL WIRING			COUNTER READING BEG/END			
READING	1,000	20 °C	788	NA	NA	

	POLE RESISTANCE - MICRO-OHMS		
	POLE 1	POLE 2	POLE 3
AS FOUND	17.2	18.5	17.9
AS LEFT	17.2	18.5	17.9

COMMENTS:
 DEFICIENCIES:

EQPT. INVENTORY NO. EIL BTS-1000 SN 182024 TESTED BY: James Wagener



TRANSFORMER DIELECTRIC ABSORPTION TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 22 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/29/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Main Electrical Building
 SYSTEM 4.16KV DEVICE ID 5kv to 480v Transformer

NAMEPLATE DATA

MANUFACTURER Siemens SERIAL NO. 54920
 SPECIFICATION NO. _____ KVA 2,000 / 2,666 / TYPE NA CLASS AA/FA
 PHASE 3 TEMPERATURE RISE 150 °C IMPEDANCE 5.47 % B.I.L. RATING 30 KV PRI. 10 KV SEC.
 COOLANT AIR CAPACITY NA GALLONS _____ TOTAL WEIGHT 9250
 WINDING POLARITY SUBTRACTIVE WINDING MATERIAL Copper K FACTOR NA
 PRIMARY VOLTAGE 4,160 DELTA WYE RATED CURRENT 278 / 370 / AMPERES
 SECONDARY VOLTAGE 480 / 277 DELTA WYE RATED CURRENT 2,406 / 3,207 / AMPERES
 TAP VOLTAGES 4,368 4,264 4,160 4,056 3,952
 TAP CONNECTIONS 2-3 3-4 4-5 5-6 6-7
 TAP SETTING _____ VOLTS # FANS _____ TAP CHANGER: INTERNAL EXTERNAL DRY TYPE

TEST VOLTAGE: PRIMARY TO SECONDARY 5 KVDC TEST VOLTAGE MULTIPLIER, K1 1 K2=(TCF) (K1)
 PRIMARY TO GROUND 5 KVDC TEST VOLTAGE MULTIPLIER, K1 1
 SECONDARY TO GROUND 1 KVDC TEST VOLTAGE MULTIPLIER, K1 1

CORE/COIL TEMPERATURE 18 °C TEMPERATURE CORRECTION FACTOR TO 20°C, TCF DRY 1 LIQUID 0.900

MINUTES	PRIMARY TO GROUND SECONDARY GROUNDED				SECONDARY TO GROUND PRIMARY GROUNDED				CORE GROUND PRIMARY/SECONDARY GROUNDED			
	RDG.	MULT.	K2	20°C	RDG.	MULT.	K2	20°C	RDG.	MULT.	K2	20°C
0.30	4.48	1.00			1.65	1.00						
1.00	5.30	1.00	1	5.3	1.75	1.00	1	1.8				
2.00	5.90	1.00	1	5.9	1.80	1.00	1	1.8				
3.00	6.15	1.00	1	6.2	1.83	1.00	1	1.8				
4.00	6.35	1.00	1	6.3	1.85	1.00	1	1.9				
5.00	6.50	1.00	1	6.5	1.90	1.00	1	1.9				
6.00	6.60	1.00	1	6.6	1.94	1.00	1	1.9				
7.00	6.65	1.00	1	6.7	1.99	1.00	1	2.0				
8.00	6.70	1.00	1	6.7	2.40	1.00	1	2.4				
9.00	6.80	1.00	1	6.8	2.60	1.00	1	2.6				
10.00	6.85	1.00	1	6.8	2.85	1.00	1	2.9				
POLARIZATION INDEX	1.29				1.63							

POLARIZATION INDEX = 10 MINUTE RDG. / 1 MINUTE RDG.

COMMENTS: Primary to ground readings in Giga Ohms
Secondary to ground readings in Mega Ohms

DEFICIENCIES: _____

EQPT. INVENTORY NO. Megger TESTED BY: D.Edwards



ISO PHASE INSULATION TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 23 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/26/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Plant
 SYSTEM 18kv DEVICE ID _____ CTG Iso Phase _____

MANUFACTURER _____ TYPE _____ VOLTAGE CLASS NA
 VERTICAL RATING 10K A HORIZONTAL RATING 10K A NEUTRAL RATING _____ A GROUND RATING _____ A
 CONFIGURATION 3 WIRE 4 WIRE 5 WIRE CONDUCTOR COPPER ALUMINUM DATE MANUFACTURED _____
 CATALOG NO. _____ SERIAL NO. _____ SHORT CKT RATING _____ KA

INSULATION INTEGRITY TEST VOLTAGE 5 KVDC

IDENTIFICATION	FROM	PHASE IN GIGA OHMS					
	TO	A - GND	B - GND	C - GND	A - B	A - C	B - C
Secondary Transformer to Generator Terminals		10	10	10	10	10	10

DIGITAL LOW RESISTANCE TEST CURRENT 200 AMP

Secondary Transformer to Generator Terminals	PHASE A (Micro Ohms)	PHASE B (Micro Ohms)	PHASE C (Micro Ohms)
	117	98	114

HI POTENTIAL TEST VOLTAGE 50 KVDC

Secondary Transformer to Generator Terminals	PHASE A B C IN MILLI AMPS TO GROUND (OTHER TWO PHASES GROUNDED)		
	7.400	3.700	7.400

ACTUAL READING / SHADING INDICATES TEMPERATURE CORRECTED VALUES

COMMENTS:

--

DEFICIENCIES:

--

EQPT. INVENTORY NO. Megger, Ductor, Hipot TESTED BY: J.Schnurpel



BUS DUCT INSULATION TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 24 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/26/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Plant
 SYSTEM 13.8kv DEVICE ID STG Non-Seg Bus Duct

MANUFACTURER _____ TYPE _____ VOLTAGE CLASS 15kv
 VERTICAL RATING 8k A HORIZONTAL RATING 8k A NEUTRAL RATING _____ A GROUND RATING _____ A
 CONFIGURATION 3 WIRE 4 WIRE 5 WIRE CONDUCTOR COPPER ALUMINUM DATE MANUFACTURED _____
 CATALOG NO. _____ SERIAL NO. _____ SHORT CKT RATING _____ KA

INSULATION INTEGRITY TEST VOLTAGE 5 KVDC

IDENTIFICATION	FROM	PHASE IN GIGA OHMS					
	TO	A - GND	B - GND	C - GND	A - B	A - C	B - C
Secondary GSU to Generator Terminals		10	10	10	10	10	10

DIGITAL LOW RESISTANCE TEST CURRENT 200 AMP

Secondary GSU to Generator Terminals	PHASE A (Micro Ohms)	PHASE B (Micro Ohms)	PHASE C (Micro Ohms)
	117	98	114

HI POTENTIAL TEST VOLTAGE 50 KVDC

Secondary GSU to Generator Terminals	PHASE A B C IN MILLI AMPS TO GROUND (OTHER TWO PHASES GROUNDED)		
	7.400	3.700	7.400

ACTUAL READING / SHADING INDICATES TEMPERATURE CORRECTED VALUES

COMMENTS:
 DEFICIENCIES:

EQPT. INVENTORY NO. Megger,ductor,Hipot TESTED BY: J.Schnurpel



SF6 DEAD TANK CIRCUIT BREAKERS CAPACITANCE AND POWER FACTOR TESTS

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 25 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/8/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Switchyard
 SYSTEM 230kv DEVICE ID 52-G1-CTG

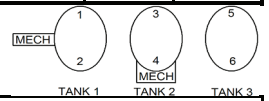
SERIAL NO. <u>B002302-01</u>	SPECIAL ID <u>NA</u>	BUSHING NAMEPLATE						
CIRCUIT <u>CTG</u>	AMPS. <u>1200</u>	DSG	SERIAL NUM	MFR.	TYPE/CLASS	KV	AMPS	YEAR
MFR <u>ABBTS</u>	KV <u>242</u>	1						
MFR YEAR <u>2001</u>	BIL <u>900kv</u>	3						
TYPE <u>OTHER</u>	INT. RATING <u>900 MVA</u>	5						
MEC. TYPE <u>NA</u>	WEIGHT <u>NA lbs</u>	2						
MEC. DESIGN <u>NA</u>	WEATHER <u>CLOUDY</u>	4						
REASON <u>Routine</u>	TANK TEMP <u>°C</u>	6						
TANKS <u>3</u>	CONTROL VOLTS <u>125</u>	PHASE NAMES <u>ABC</u>		SF6 VOLUME _____				

CIRCUIT BREAKER OVERALL TESTS															
CB	TEST NO	CONNECTIONS	Ph.	TEST CONNECTIONS BUSHING				TEST KV	CAPACITANCE C (PF)	% POWER FACTOR			EQUIV		IR
				ENG	GND	GAR	UST			MEASURED	20° C	CORR FACTOR	mA	WATTS	
	1	OPEN GND 1	1	1				10.01	165.24	1.11	1.11	1.000	0.623	0.0690	G
	2	OPEN GND 2	1	2				10.00	177.30	0.84	0.84	1.000	0.668	0.0560	G
	3	OPEN GND 3	2	3				10.00	162.97	1.12	1.12	1.000	0.614	0.0690	G
	4	OPEN GND 4	2	4				10.00	177.88	0.86	0.86	1.000	0.671	0.0580	G
	5	OPEN GND 5	3	5				10.00	164.32	1.11	1.11	1.000	0.620	0.0690	G
	6	OPEN GND 6	3	6				10.00	178.41	0.61	0.61	1.000	0.673	0.0410	G
	7	OPEN UST 1	1	1			2	10.01	5.23	1.00	1.00	1.000	0.020	0.0020	G
	8	OPEN UST 3	2	3			4	10.00	5.18	0.50	0.50	1.000	0.020	0.0010	G
	9	OPEN UST 5	3	5			6	10.00	5.43	0.50	0.50	1.000	0.020	0.0010	G
	10	CLS GND 1+2	1	1&2				10.00	326.63	0.91	0.91	1.000	1.231	0.1120	G
	11	CLS GND 3+4	2	3&4				10.00	325.55	0.77	0.77	1.000	1.226	0.0915	G
	12	CLS GND 5+6	3	5&6				10.00	324.50	0.68	0.68	1.000	1.223	0.0830	G

BUSHING TESTS															
TEST NO.	NO.	BUSHING SERIAL #	Ph.	TEST CONNECTIONS BUSHING				TEST KV	CAPACITANCE C (PF)	MEASURED	20° C	CORR FACTOR	mA	WATTS	IR
				ENG	GND	GAR	UST								
13	1			UST	1			TAP							
14	2			UST	2			TAP							
15	3			UST	3			TAP							
16	4			UST	4			TAP							
17	5			UST	5			TAP							
18	6			UST	6			TAP							

DIAGNOSTIC TESTS															
TEST NO	SPECIMEN AND CONNECTION							KV	CAPACITANCE	MEASURED	20° C	CORR FACTOR	mA	WATTS	IR
19															
20															
21															
22															
23															
24															
25															
26															
27															

INSULATION TESTED: 1-6 = BUSHING TERMINALS, G=GROUND
 INSULATION RATING: G=GOOD, D=DETERIORATED, I=INVESTIGATE, B=BAD, Q=QUESTIONABLE
 Note: Circuit breaker open: bushing tests (Test No. 1, 2, 3, 4, 5, 6).
 Note: No. in ENG column is bushing energized, in Tests 1 through 6, 10, 11 and 12. All other bushings must be floating.
 Circuit breaker closed: tank tests (Test No. 7, 8, and 9).



COMMENTS:
 DEFICIENCIES:

EQPT. INVENTORY NO. Doble M4000 TESTED BY: J.Schnurpel



SF6 TANK CIRCUIT BREAKER TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 26 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/7/2010 TEMPERATURE _____ °F HUMIDITY _____ % LOCATION Switchyard
 SYSTEM 230KV DEVICE ID 52-G2 CTG Generator Breaker

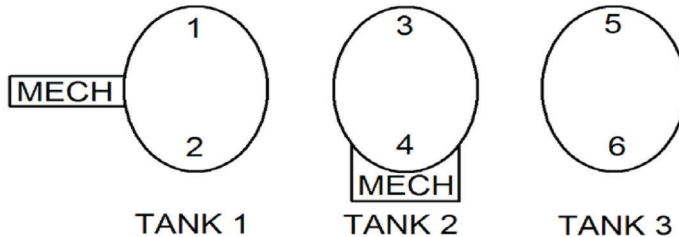
SERIAL NO.	<u>B002302-01</u>	CIRCUIT	<u>CTG</u>	INT. RATING	<u>900KV</u>
MFR	<u>ABB</u>	REASON	<u>Routine</u>	WEATHER	<u>Clear</u>
MFR YEAR	<u>2001</u>	AMPS.	<u>1200</u>	AS FOUND COUNTER	_____
TYPE	<u>242</u>	KV	<u>242</u>	AS LEFT COUNTER	_____
MEC. TYPE	<u>PMR40-12</u>	IB	<u>33-230A</u>		
CONTROL VOLTS	<u>125</u>	SF6 VOLUME	<u>95</u>		

CONTACT RESISTANCE (MICRO OHMS)

PHASE A			PHASE B			PHASE C		
MEASURED	TOLERANCE	PASS/FAIL	MEASURED	TOLERANCE	PASS/FAIL	MEASURED	TOLERANCE	PASS/FAIL
114	100-160	Pass	108	100-160	Pass	105	100-160	Pass

BREAKER TIMING TEST

	UNITS	MEASURED	TOLERANCE	PASS/FAIL	MEASURED	TOLERANCE	PASS/FAIL	MEASURED	TOLERANCE	PASS/FAIL
OPENING TIME	ms	31.45	27-31	Pass	30.95	27-31	Pass	31.31	27-31	Pass
CLOSING TIME	ms	60.15	50-66	Pass	59.7	50-66	Pass	59	50-66	Pass
OPEN/CLOSE TIME	ms	169.77	<300	Pass	169.68	<300	Pass	170.09	<300	Pass
CLOSE/OPEN TIME	ms	114.5	<150	Pass	113.3	<150	Pass	113.9	<150	Pass



BREAKER INTEGRITY

	MEASURED	TOLERANCE	PASS/FAIL	MEASURED	TOLERANCE	PASS/FAIL	MEASURED	TOLERANCE	PASS/FAIL
HIGHT POT	24	0-50MA	Pass	24	0-50MA	Pass	23	0-50MA	Pass

SF6 GAS ANALYSIS

	MEASURED	EXPECTED	TESTED
ALARM	77	76	Pass
BLOCK CLOSE/TRIP	70	72	Pass

COMMENTS: we subtracted 10ms to the close time for the X relay per manual breaker opened at 70 psig SF6 pressure actual temperature 65F

DEFICIENCIES: _____

EQPT. INVENTORY NO. Vanguard CT6500 TESTED BY: D. Edwrads, J. Schnurpel



SF6 DEAD TANK CIRCUIT BREAKERS CAPACITANCE AND POWER FACTOR TESTS

Electrical Testing
Engineering and
Controls

CUSTOMER	<u>Calpine Corporation</u>			PAGE	<u>27 of 133</u>
ADDRESS	<u>5001 Sterling Way; Pace FL 32571</u>			JOB #	<u>TPG9065103</u>
PLANT	<u>Calpine Corporation; Santa Rosa Energy Center; Pace FL</u>				
OWNER REPRESENTATIVE	<u>Cade Hay</u>	TELEPHONE	<u>850-995-2132</u>		
DATE	<u>04/29/10</u>	TEMPERATURE	<u> </u> °F	HUMIDITY	<u> </u> %
				LOCATION	<u>Switchyard</u>
SYSTEM	<u>Santal Rosa Energy Center</u>	DEVICE ID	<u>52-G2 CTG Generator Breaker</u>		

title1

title2



CURRENT TRANSFORMER RATIO SATURATION TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 28 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Switchyard
 SYSTEM 230kv DEVICE ID 52-G1 CTG X-135

NAMEPLATE DATA

MANUFACTURER ITI TYPE NA STYLE / MODEL NO. NA
 VOLTAGE CLASS NA FREQUENCY 60 HERTZ PART NO. NA
 BURDEN RATING NA NAMEPLATE RATIO 1,200 : 5 SERIAL NO. NA
 ACCURACY CLASS NA CURRENT TRANSFORMER TYPE: BAR TYPE
 BASIC IMPULSE LEVEL NA KV WINDOW: SOLID SPLIT CORE
 OTHER _____ STYLE: ROUND RECTANGULAR

POSITION 52-G1 CTG X-135

PHASE X Y Z N
 LINE SIDE LOAD SIDE

CT SET ID EZCT-2000

NAMEPLATE RATIO 1,200 : 5
 MEASURED RATIO 240.097 : 1
 ERROR -0.04 %
 POLARITY IN PHASE OUT OF PHASE
 PHASE ANGLE 0.1 °
 EXCITATION VOLTAGE 99.1
 EXCITATION CURRENT 0.0460
 KNEE POINT TYPE IEEE 45 Vkp[Volts]
 KNEE VOLTAGE 501.3
 KNEE CURRENT 0.1530

GROUND CT

NAMEPLATE RATIO _____ : 5
 MEASURED RATIO _____ : 1
 ERROR _____ %
 POLARITY IN PHASE OUT OF PHASE
 PHASE ANGLE _____ °

CT DATA POINT	CURRENT IN AMPERES	VOLTAGE IN VOLTS	IMPEDANCE IN OHMS
1	0.0000	0.0	
2	0.0000	0.0	
3	0.0000	0.0	
4	0.0064	7.9	1,237.5
5	0.0076	9.8	1,294.7
6	0.0094	13.4	1,421.3
7	0.0114	17.2	1,512.3
8	0.0148	24.2	1,632.4
9	0.0172	28.2	1,637.2
10	0.0202	35.2	1,742.6
11	0.0250	45.6	1,822.4
12	0.0314	61.9	1,972.0
13	0.0374	76.7	2,051.3
14	0.0456	99.0	2,171.9
15	0.0556	128.9	2,318.7
16	0.0682	170.6	2,502.1
17	0.0844	229.8	2,723.2
18	0.1032	303.6	2,941.9
19	0.1262	397.8	3,152.1
20	0.1550	507.1	3,271.5
21	0.1920	607.2	3,162.5
22	0.2360	674.0	2,855.8
23	0.2882	715.9	2,484.1
24	0.3534	747.2	2,114.2
25	0.4332	773.0	1,784.4
26	0.5302	795.6	1,500.6
27	0.6628	819.3	1,236.1
28	0.8036	836.5	1,041.0
29	0.9896	851.0	860.0
30	1.2184	863.4	708.7

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. EZCT TESTED BY: J.BLANKENSHIP



CURRENT TRANSFORMER RATIO SATURATION TEST

POSITION 52-G1 CTG X-135

PHASE X Y Z N

LINE SIDE LOAD SIDE

CT SET ID EZCT-2000

NAMEPLATE RATIO 1,200 : 5

MEASURED RATIO 239.963 : 1

ERROR 0.02 %

POLARITY IN PHASE OUT OF PHASE

PHASE ANGLE 0.08 °

EXCITATION VOLTAGE 99.2

EXCITATION CURRENT 0.0480

KNEE POINT TYPE IEEE 45 Vkp[Volts]

KNEE VOLTAGE 501.7

KNEE CURRENT 0.1560

CT DATA POINT	CURRENT IN AMPERES	VOLTAGE IN VOLTS	IMPEDANCE IN OHMS
1	0.0000	0.0	
2	0.0000	0.0	
3	0.0000	0.0	
4	0.0000	0.0	
5	0.0064	7.0	1,100.0
6	0.0076	8.8	1,157.9
7	0.0108	14.6	1,348.1
8	0.0146	21.4	1,468.5
9	0.0174	27.2	1,563.2
10	0.0216	35.3	1,635.2
11	0.0254	44.2	1,740.2
12	0.0300	54.2	1,805.3
13	0.0374	72.7	1,943.3
14	0.0462	97.3	2,105.6
15	0.0556	125.3	2,253.2
16	0.0686	167.7	2,444.3
17	0.0848	226.6	2,672.6
18	0.1034	299.8	2,899.8
19	0.1270	394.0	3,102.7
20	0.1560	501.7	3,215.9
21	0.1900	595.9	3,136.2
22	0.2366	669.6	2,830.3
23	0.2866	713.2	2,488.6
24	0.3542	749.8	2,117.0
25	0.4364	777.3	1,781.2
26	0.5456	802.6	1,471.0
27	0.6540	820.9	1,255.2
28	0.7986	837.0	1,048.1
29	0.9862	850.0	861.9
30	1.2150	862.4	709.8



CURRENT TRANSFORMER RATIO SATURATION TEST

POSITION 52-G1 CTG X-135

PHASE X Y Z N

LINE SIDE LOAD SIDE

CT SET ID EZCT-2000

NAMEPLATE RATIO 1,200 : 5

MEASURED RATIO 240.154 : 1

ERROR -0.06 %

POLARITY IN PHASE OUT OF PHASE

PHASE ANGLE 0 °

EXCITATION VOLTAGE 99.0

EXCITATION CURRENT 0.0000

KNEE POINT TYPE IEEE 45 V_{kp}[Volts]

KNEE VOLTAGE 512.9

KNEE CURRENT 0.1550

CT DATA POINT	CURRENT IN AMPERES	VOLTAGE IN VOLTS	IMPEDANCE IN OHMS
1		0.0	
2		0.0	
3		0.0	
4	0.0000	0.0	
5	0.0066	7.8	1,187.9
6	0.0074	9.0	1,216.2
7	0.0108	15.6	1,448.1
8	0.0144	22.6	1,566.7
9	0.0172	27.7	1,611.6
10	0.0210	35.7	1,699.0
11	0.0250	44.6	1,784.0
12	0.0308	58.8	1,907.8
13	0.0368	73.2	1,989.1
14	0.0458	98.1	2,142.4
15	0.0562	129.7	2,308.2
16	0.0688	172.8	2,511.6
17	0.0850	232.6	2,736.0
18	0.1036	309.0	2,982.6
19	0.1268	404.3	3,188.3
20	0.1558	514.6	3,303.0
21	0.1908	613.7	3,216.4
22	0.2368	684.7	2,891.6
23	0.2898	728.3	2,513.2
24	0.3520	758.5	2,154.8
25	0.4390	784.3	1,786.6
26	0.5416	804.8	1,485.9
27	0.6604	821.4	1,243.9
28	0.8068	835.4	1,035.5
29	0.9806	848.4	865.1
30	1.2054	858.6	712.3



CURRENT TRANSFORMER RATIO SATURATION TEST

Electrical Testing
Engineering and
Controls

PAGE 31 of 133

SUBSTATION Switchyard

POSITION 52-G1 CTG X-135

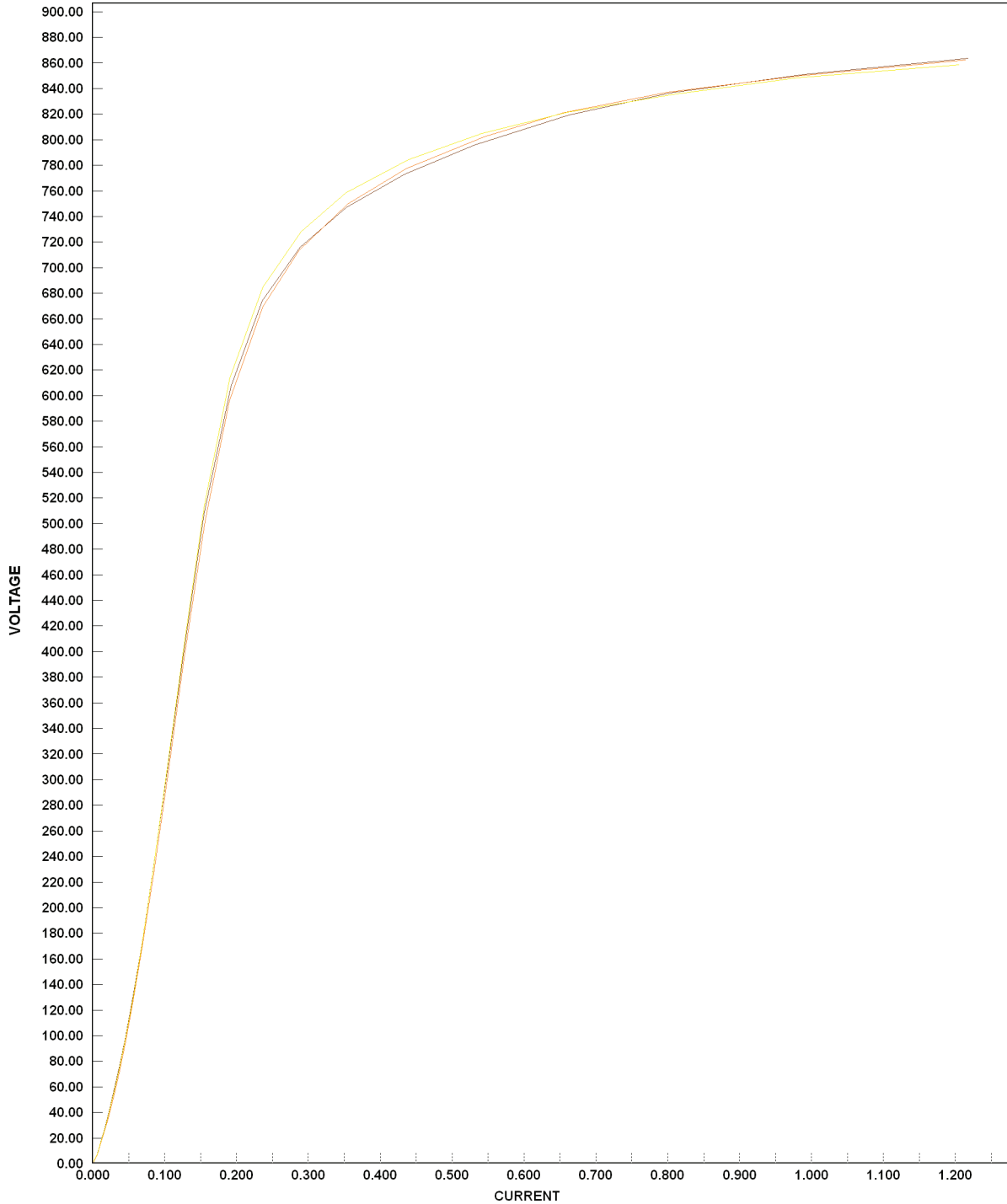
JOB # TPG9065103

SERIAL NO. NA

CT SET ID EZCT-2000

LINE SIDE LOAD SIDE

NAMEPLATE RATIO 1,200 : 5





CURRENT TRANSFORMER RATIO SATURATION TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 32 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Switchyard
 SYSTEM 230kv DEVICE ID 52-G1 CTG X-246

NAMEPLATE DATA

MANUFACTURER ITI TYPE NA STYLE / MODEL NO. NA
 VOLTAGE CLASS NA FREQUENCY 60 HERTZ PART NO. NA
 BURDEN RATING NA NAMEPLATE RATIO 1,200 : 5 SERIAL NO. NA
 ACCURACY CLASS NA CURRENT TRANSFORMER TYPE: BAR TYPE
 BASIC IMPULSE LEVEL NA KV WINDOW: SOLID SPLIT CORE
 OTHER _____ STYLE: ROUND RECTANGULAR

POSITION 52-G1 CTG X-246

PHASE X Y Z N
 LINE SIDE LOAD SIDE

CT SET ID EZCT-2000

NAMEPLATE RATIO 1,200 : 5
 MEASURED RATIO 239.921 : 1
 ERROR 0.03 %
 POLARITY IN PHASE OUT OF PHASE
 PHASE ANGLE 0.06 °
 EXCITATION VOLTAGE 99.0
 EXCITATION CURRENT 0.0490
 KNEE POINT TYPE IEEE 45 Vkp[Volts]
 KNEE VOLTAGE 491.8
 KNEE CURRENT 0.1570

GROUND CT

NAMEPLATE RATIO _____ : 5
 MEASURED RATIO _____ : 1
 ERROR _____ %
 POLARITY IN PHASE OUT OF PHASE
 PHASE ANGLE _____ °

CT DATA POINT	CURRENT IN AMPERES	VOLTAGE IN VOLTS	IMPEDANCE IN OHMS
1	0.0000	0.0	
2	0.0000	0.0	
3	0.0000	0.0	
4	0.0064	7.7	1,200.0
5	0.0072	8.6	1,200.0
6	0.0096	13.1	1,362.5
7	0.0118	17.0	1,437.3
8	0.0134	19.6	1,465.7
9	0.0180	28.2	1,568.9
10	0.0212	35.0	1,650.9
11	0.0250	43.6	1,744.0
12	0.0300	54.1	1,802.7
13	0.0370	71.4	1,930.8
14	0.0454	93.7	2,063.4
15	0.0566	125.0	2,209.2
16	0.0692	165.2	2,387.9
17	0.0840	215.6	2,566.7
18	0.1030	288.5	2,801.2
19	0.1270	383.3	3,018.0
20	0.1548	485.0	3,133.1
21	0.1902	583.0	3,065.0
22	0.2342	653.0	2,788.0
23	0.2912	702.0	2,410.6
24	0.3546	734.2	2,070.6
25	0.4316	759.6	1,759.9
26	0.5294	783.8	1,480.5
27	0.6572	806.4	1,227.0
28	0.7986	825.2	1,033.3
29	0.9790	841.9	860.0
30	1.2158	856.4	704.4

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. EZCT TESTED BY: J.BLANKENSHIP



CURRENT TRANSFORMER RATIO SATURATION TEST

POSITION 52-G1 CTG X-246

PHASE X Y Z N

LINE SIDE LOAD SIDE

CT SET ID EZCT-2000

NAMEPLATE RATIO 1,200 : 5

MEASURED RATIO 239.983 : 1

ERROR 0.01 %

POLARITY IN PHASE OUT OF PHASE

PHASE ANGLE 0.08 °

EXCITATION VOLTAGE 99.1

EXCITATION CURRENT 0.0440

KNEE POINT TYPE IEEE 45 Vkp[Volts]

KNEE VOLTAGE 531.8

KNEE CURRENT 0.1530

CT DATA POINT	CURRENT IN AMPERES	VOLTAGE IN VOLTS	IMPEDANCE IN OHMS
1	0.0000	0.0	
2	0.0000	0.0	
3	0.0000	0.0	
4	0.0058	7.2	1,248.3
5	0.0082	11.9	1,453.7
6	0.0104	16.2	1,557.7
7	0.0114	17.9	1,568.4
8	0.0138	23.6	1,710.1
9	0.0164	28.3	1,726.8
10	0.0200	36.5	1,824.0
11	0.0252	49.4	1,961.9
12	0.0300	61.6	2,054.7
13	0.0372	81.0	2,177.4
14	0.0454	104.3	2,296.9
15	0.0562	139.4	2,480.4
16	0.0682	181.1	2,655.7
17	0.0848	246.3	2,904.2
18	0.1032	325.1	3,150.4
19	0.1266	428.5	3,384.5
20	0.1560	544.8	3,492.1
21	0.1918	647.0	3,373.5
22	0.2338	710.6	3,039.2
23	0.2860	752.0	2,629.4
24	0.3538	781.6	2,209.2
25	0.4364	802.6	1,839.1
26	0.5302	819.3	1,545.2
27	0.6516	834.4	1,280.5
28	0.8100	847.8	1,046.7
29	0.9838	857.0	871.1
30	1.2006	866.7	721.9



CURRENT TRANSFORMER RATIO SATURATION TEST

POSITION 52-G1 CTG X-246

PHASE X Y Z N

LINE SIDE LOAD SIDE

CT SET ID EZCT-2000

NAMEPLATE RATIO 1,200 : 5

MEASURED RATIO 239.97 : 1

ERROR 0.01 %

POLARITY IN PHASE OUT OF PHASE

PHASE ANGLE 0.08 °

EXCITATION VOLTAGE 99.0

EXCITATION CURRENT 0.0440

KNEE POINT TYPE IEEE 45 V_{kp}[Volts]

KNEE VOLTAGE 525.6

KNEE CURRENT 0.1520

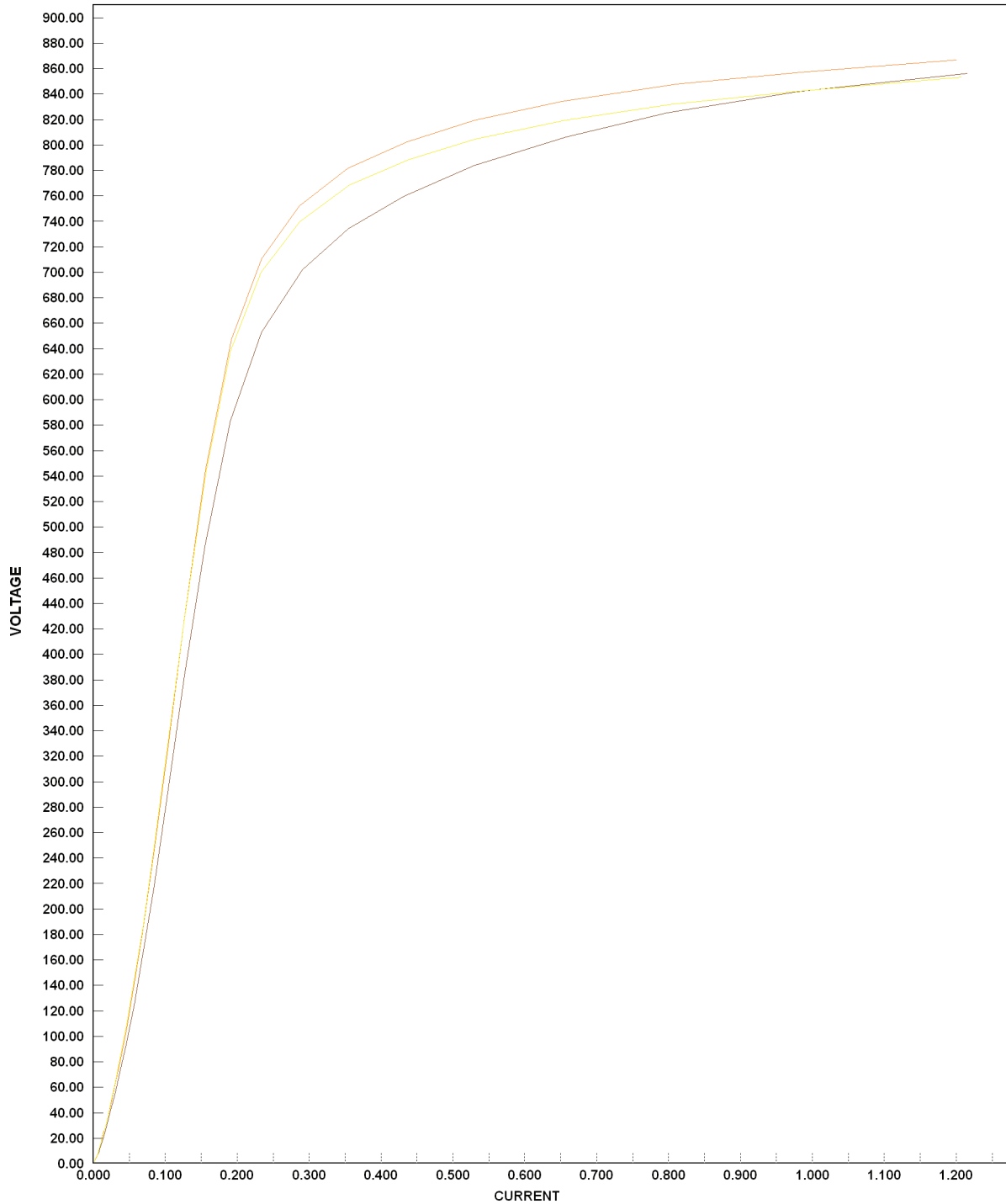
CT DATA POINT	CURRENT IN AMPERES	VOLTAGE IN VOLTS	IMPEDANCE IN OHMS
1	0.0000	0.0	
2	0.0000	0.0	
3	0.0054	6.9	1,274.1
4	0.0058	7.3	1,262.1
5	0.0084	12.0	1,433.3
6	0.0104	16.2	1,557.7
7	0.0114	17.8	1,564.9
8	0.0142	24.2	1,704.2
9	0.0164	28.4	1,731.7
10	0.0200	36.4	1,820.0
11	0.0250	49.2	1,969.6
12	0.0310	64.5	2,080.0
13	0.0370	81.6	2,204.3
14	0.0464	109.6	2,361.2
15	0.0558	139.7	2,503.2
16	0.0686	185.2	2,699.1
17	0.0842	246.0	2,921.6
18	0.1030	325.7	3,161.9
19	0.1262	425.2	3,369.6
20	0.1566	543.2	3,468.5
21	0.1904	637.9	3,350.2
22	0.2332	699.8	3,000.9
23	0.2870	739.6	2,577.1
24	0.3562	768.7	2,158.0
25	0.4382	788.6	1,799.6
26	0.5310	804.8	1,515.6
27	0.6556	819.3	1,249.7
28	0.8060	832.2	1,032.5
29	0.9814	842.4	858.4
30	1.2078	853.2	706.4



CURRENT TRANSFORMER RATIO SATURATION TEST

Electrical Testing
Engineering and
Controls

SUBSTATION Switchyard POSITION 52-G1 CTG X-246 PAGE 35 of 133
JOB # TPG9065103
SERIAL NO. NA
CT SET ID EZCT-2000 LINE SIDE LOAD SIDE NAMEPLATE RATIO 1,200 : 5





CURRENT TRANSFORMER RATIO SATURATION TEST

Electrical Testing
Engineering and
Controls

CUSTOMER Calpine Corporation PAGE 36 of 133
 ADDRESS 5001 Sterling Way; Pace FL 32571 JOB # TPG9065103
 PLANT Calpine Corporation; Santa Rosa Energy Center; Pace FL
 OWNER REPRESENTATIVE Cade Hay TELEPHONE 850-995-2132
 DATE 4/27/2010 TEMPERATURE 77.0 °F HUMIDITY 70 % LOCATION Switchyard
 SYSTEM 230kv DEVICE ID 52-G1 CTG Y-135

NAMEPLATE DATA

MANUFACTURER ITI TYPE NA STYLE / MODEL NO. NA
 VOLTAGE CLASS NA FREQUENCY 60 HERTZ PART NO. NA
 BURDEN RATING NA NAMEPLATE RATIO 1,200 : 5 SERIAL NO. NA
 ACCURACY CLASS NA CURRENT TRANSFORMER TYPE: BAR TYPE
 BASIC IMPULSE LEVEL NA KV WINDOW: SOLID SPLIT CORE
 OTHER _____ STYLE: ROUND RECTANGULAR

POSITION 52-G1 CTG Y-135

PHASE X Y Z N
 LINE SIDE LOAD SIDE

CT SET ID EZCT-2000

NAMEPLATE RATIO 1,200 : 5
 MEASURED RATIO 239.983 : 1
 ERROR 0.01 %
 POLARITY IN PHASE OUT OF PHASE
 PHASE ANGLE 0.04 °
 EXCITATION VOLTAGE 99.2
 EXCITATION CURRENT 0.0430
 KNEE POINT TYPE IEEE 45 Vkp[Volts]
 KNEE VOLTAGE 554.5
 KNEE CURRENT 0.1530

GROUND CT

NAMEPLATE RATIO _____ : 5
 MEASURED RATIO _____ : 1
 ERROR _____ %
 POLARITY IN PHASE OUT OF PHASE
 PHASE ANGLE _____ °

CT DATA POINT	CURRENT IN AMPERES	VOLTAGE IN VOLTS	IMPEDANCE IN OHMS
1	0.0000	0.0	
2	0.0000	0.0	
3	0.0000	0.0	
4	0.0000	0.0	
5	0.0060	8.0	1,333.3
6	0.0086	13.5	1,567.4
7	0.0106	17.5	1,649.1
8	0.0140	24.9	1,777.1
9	0.0188	35.7	1,900.0
10	0.0208	40.4	1,944.2
11	0.0250	51.6	2,062.4
12	0.0306	65.0	2,124.2
13	0.0382	86.9	2,275.4
14	0.0458	110.6	2,415.7
15	0.0556	142.1	2,556.1
16	0.0686	190.3	2,773.8
17	0.0838	251.9	3,006.2
18	0.1028	335.4	3,262.3
19	0.1272	448.4	3,525.2
20	0.1554	566.3	3,644.0
21	0.1902	668.0	3,512.3
22	0.2366	734.8	3,105.5
23	0.2878	770.3	2,676.6
24	0.3614	796.7	2,204.4
25	0.4348	812.3	1,868.2
26	0.5368	826.8	1,540.3
27	0.6492	839.2	1,292.7
28	0.8060	850.0	1,054.5
29	0.9846	859.7	873.1
30	1.2014	868.8	723.2

COMMENTS: _____
 DEFICIENCIES: _____

EQPT. INVENTORY NO. EZCT TESTED BY: J.BLANKENSHIP



CURRENT TRANSFORMER RATIO SATURATION TEST

POSITION 52-G1 CTG Y-135

PHASE X Y Z N

LINE SIDE LOAD SIDE

CT SET ID EZCT-2000

NAMEPLATE RATIO 1,200 : 5

MEASURED RATIO 239.942 : 1

ERROR 0.02 %

POLARITY IN PHASE OUT OF PHASE

PHASE ANGLE 0.1 °

EXCITATION VOLTAGE 99.2

EXCITATION CURRENT 0.0450

KNEE POINT TYPE IEEE 45 Vkp[Volts]

KNEE VOLTAGE 534.0

KNEE CURRENT 0.1550

CT DATA POINT	CURRENT IN AMPERES	VOLTAGE IN VOLTS	IMPEDANCE IN OHMS
1	0.0000	0.0	
2	0.0000	0.0	
3	0.0000	0.0	
4	0.0058	7.3	1,262.1
5	0.0080	10.9	1,365.0
6	0.0100	15.2	1,524.0
7	0.0114	17.7	1,550.9
8	0.0134	22.0	1,641.8
9	0.0166	29.1	1,754.2
10	0.0202	36.3	1,798.0
11	0.0244	45.7	1,872.1
12	0.0316	64.0	2,026.6
13	0.0372	79.4	2,134.4
14	0.0454	102.4	2,255.5
15	0.0568	138.6	2,440.1
16	0.0682	178.4	2,616.4
17	0.0838	237.4	2,832.9
18	0.1034	320.3	3,097.5
19	0.1264	421.5	3,334.5
20	0.1576	544.2	3,453.3
21	0.1908	639.5	3,351.8
22	0.2372	709.0	2,988.9
23	0.2902	749.3	2,582.1
24	0.3590	778.4	2,168.2
25	0.4422	799.4	1,807.7
26	0.5360	815.0	1,520.5
27	0.6572	829.0	1,261.4
28	0.8116	842.4	1,038.0
29	0.9896	852.7	861.6
30	1.2166	864.0	710.1



CURRENT TRANSFORMER RATIO SATURATION TEST

POSITION 52-G1 CTG Y-135

PHASE X Y Z N

LINE SIDE LOAD SIDE

CT SET ID EZCT-2000

NAMEPLATE RATIO 1,200 : 5

MEASURED RATIO 240.272 : 1

ERROR -0.11 %

POLARITY IN PHASE OUT OF PHASE

PHASE ANGLE 0.1 °

EXCITATION VOLTAGE 99.1

EXCITATION CURRENT 0.0440

KNEE POINT TYPE IEEE 45 V_{kp}[Volts]

KNEE VOLTAGE 541.2

KNEE CURRENT 0.1520

CT DATA POINT	CURRENT IN AMPERES	VOLTAGE IN VOLTS	IMPEDANCE IN OHMS
1	0.0000	0.0	
2	0.0000	0.0	
3	0.0000	0.0	
4	0.0060	7.7	1,286.7
5	0.0072	9.7	1,344.4
6	0.0086	12.9	1,502.3
7	0.0108	17.1	1,581.5
8	0.0146	25.2	1,723.3
9	0.0164	28.6	1,746.3
10	0.0198	36.5	1,842.4
11	0.0254	50.7	1,995.3
12	0.0300	62.5	2,084.0
13	0.0370	81.3	2,196.8
14	0.0464	109.2	2,352.6
15	0.0558	140.0	2,508.2
16	0.0684	184.9	2,703.5
17	0.0840	246.6	2,935.2
18	0.1034	332.1	3,212.0
19	0.1272	437.6	3,440.6
20	0.1556	553.9	3,559.9
21	0.1928	660.0	3,423.0
22	0.2348	721.3	3,072.1
23	0.2878	762.2	2,648.5
24	0.3564	791.3	2,220.3
25	0.4406	811.2	1,841.1
26	0.5360	826.8	1,542.6
27	0.6572	840.8	1,279.4
28	0.8036	851.6	1,059.7
29	0.9790	861.3	879.8
30	1.2126	871.0	718.3



CURRENT TRANSFORMER RATIO SATURATION TEST

Electrical Testing
Engineering and
Controls

PAGE 39 of 133

SUBSTATION Switchyard POSITION 52-G1 CTG Y-135 JOB # TPG9065103

SERIAL NO. NA

CT SET ID EZCT-2000

LINE SIDE LOAD SIDE

NAMEPLATE RATIO 1,200 : 5

