LOW VOLTAGE CIRCUIT BREAKER TEST REPORT

Customer: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Owner: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Location: Substation PC-S2
Identification: S26

Date: 5/23/21
Work Order: 15129
Temperature: 25 °C
Humidity: 69 %

Nameplate Information			
Manufacturer:	Westinghouse	Type:	SPB100
Model:	SPB	Serial Number:	N/A
Catalog Number:	N/A	Voltage Rating:	600 V AC
Frame Ampere Rating:	1600	Interrupting kA Rating:	100 kA @ 480 V
Tripping Voltage:	N/A	Charging Voltage:	N/A
Closing Voltage:	N/A	Shunt Trip Voltage Rating:	N/A

Trip Unit Information			
Manufacturer:	Westinghouse	Trip Module Ampere Rating:	1200
Catalog Number:	N/A	Model:	Digitrip RMS 600
Sensor (CT) Ampere Rating:	1200	Plug Ampere Rating:	1200

Trip Unit Settings				
Element	Ranges	As Found	As Left	As Tested
Long Time Element Settings				
Long Time Pick Up:	0.5 - 1	1	1	1
Long Time Delay:	2 - 24	4	4	7
Short Time Element Settings				
Short Time Pick Up:	2 - 8	3	3	4
Short Time Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	Out	Out	In
Ground Fault Element Settings				
Ground Fault Pick Up:	A - K	H	H	C
Ground Fault Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	Out	Out	In
Instantaneous Element Settings				
Instantaneous Pick Up:	2 - 10	10	10	4

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT (CONTINUED)

Identification: S26

Visual Inspection			
Circuit Breaker:	Cleaned	Arc Chutes:	Normal
Operating Mechanism:	Normal	Cubicle:	Normal
Electrical Connections:	Normal	Grounded:	Yes
Main Contacts:	Normal	Auxiliary Devices:	N/A
Arcing Contacts:	Normal	Panel Lights:	N/A
Contact Sequence:	Normal	Racking Mechanism	N/A
Auxiliary Contacts:	N/A	Shunt Trip Operation:	N/A

Operational Tests			
Manual Open:	OK	Manual Close:	OK
Electrically Open:	N/A	Electrically Close:	N/A
Manually Charge:	OK	Electrically Charge:	N/A
Trip with Protective Devices:	OK		

Insulation Resistance Tests		Pole #1	Pole #2	Pole #3
Insulation Resistance Pole to Pole in Ohms at 1 kV DC with Contacts Closed	As Found:	38.1 G	29.2 G	14.1 G
	As Left:	38.1 G	29.2 G	14.1 G
Insulation Resistance Across Pole in Ohms at 1 kV DC with Contacts Opened	As Found:	>100 G	>100 G	71.5 G
	As Left:	>100 G	>100 G	71.5 G
Contact Resistance Tests		Pole #1	Pole #2	Pole #3
Resistance in Micro-Ohms	As Found:	18	21	22
	As Left:	18	21	22

Trip Tests				
Long Time Elements		Pole #1	Pole #2	Pole #3
Long Time Delay in Seconds at 300 % Pick Up	As Found:	22.4	22.4	22.4
Equal to 3600 Amps	As Left:	22.4	22.4	22.4
Manufacturers Curve 18.7 to 28 Seconds				
Short Time Elements				
Short Time Delay in Seconds at 150 % Pick Up	As Found:	0.25	0.25	0.25
Equal to 7200 Amps	As Left:	0.25	0.25	0.25
Manufacturers Curve 0.14 to 0.28 Seconds				
Ground Fault Elements				
Ground Fault Delay in Seconds at 150 % Pick Up	As Found:	0.23	0.23	0.23
Equal to 630 Amps	As Left:	0.23	0.23	0.23
Manufacturers Curve 0.12 to 0.24 Seconds				
Instantaneous Elements				
Instantaneous Pick Up in Amperes	As Found:	5072	5072	5072
Manufacturers Curve 4320 to 5280 Amperes	As Left:	5072	5072	5072

Tested By: Mike Ney, Chris Wenzel & Jake Stabb Test Equipment #: 111, 204, 509

Comments: The circuit breaker is acceptable for operation.

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT

Customer: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Owner: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Location: Substation PC-S2
Identification: S27

Date: 5/23/21
Work Order: 15129
Temperature: 25 °C
Humidity: 69 %

Nameplate Information			
Manufacturer:	Westinghouse	Type:	SPB100
Model:	SPB	Serial Number:	N/A
Catalog Number:	N/A	Voltage Rating:	600 V AC
Frame Ampere Rating:	800	Interrupting kA Rating:	100 kA @ 480 V
Tripping Voltage:	N/A	Charging Voltage:	N/A
Closing Voltage:	N/A	Shunt Trip Voltage Rating:	N/A

Trip Unit Information			
Manufacturer:	Westinghouse	Trip Module Ampere Rating:	800
Catalog Number:	N/A	Model:	Digitrip RMS 600
Sensor (CT) Ampere Rating:	800	Plug Ampere Rating:	800

Trip Unit Settings				
Element	Ranges	As Found	As Left	As Tested
Long Time Element Settings				
Long Time Pick Up:	0.5 - 1	1	1	1
Long Time Delay:	2 - 24	7	7	7
Short Time Element Settings				
Short Time Pick Up:	2 - 8	3	3	3
Short Time Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	In	In	In
Ground Fault Element Settings				
Ground Fault Pick Up:	A - K	C	C	C
Ground Fault Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	In	In	In
Instantaneous Element Settings				
Instantaneous Pick Up:	2 - 10	4	4	4

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT (CONTINUED)

Identification: S27

Visual Inspection			
Circuit Breaker:	Cleaned	Arc Chutes:	Normal
Operating Mechanism:	Normal	Cubicle:	Normal
Electrical Connections:	Normal	Grounded:	Yes
Main Contacts:	Normal	Auxiliary Devices:	N/A
Arcing Contacts:	Normal	Panel Lights:	N/A
Contact Sequence:	Normal	Racking Mechanism	N/A
Auxiliary Contacts:	N/A	Shunt Trip Operation:	N/A

Operational Tests			
Manual Open:	OK	Manual Close:	OK
Electrically Open:	N/A	Electrically Close:	N/A
Manually Charge:	OK	Electrically Charge:	N/A
Trip with Protective Devices:	OK		

Insulation Resistance Tests		Pole #1	Pole #2	Pole #3
Insulation Resistance Pole to Pole in Ohms at 1 kV DC with Contacts Closed	As Found:	42.0 G	16.3 G	27.8 G
	As Left:	42.0 G	16.3 G	27.8 G
Insulation Resistance Across Pole in Ohms at 1 kV DC with Contacts Opened	As Found:	>100 G	>100 G	>100 G
	As Left:	>100 G	>100 G	>100 G
Contact Resistance Tests		Pole #1	Pole #2	Pole #3
Resistance in Micro-Ohms	As Found:	26	24	22
	As Left:	26	24	22

Trip Tests				
Long Time Elements		Pole #1	Pole #2	Pole #3
Long Time Delay in Seconds at 300 % Pick Up	As Found:	22.7	22.7	22.7
Equal to 2400 Amps	As Left:	22.7	22.7	22.7
Manufacturers Curve 18.7 to 28 Seconds				
Short Time Elements				
Short Time Delay in Seconds at 150 % Pick Up	As Found:	0.38	0.38	0.38
Equal to 3600 Amps	As Left:	0.38	0.38	0.38
Manufacturers Curve 0.14 to 0.28 Seconds				
Ground Fault Elements				
Ground Fault Delay in Seconds at 150 % Pick Up	As Found:	0.23	0.23	0.23
Equal to 420 Amps	As Left:	0.23	0.23	0.23
Manufacturers Curve 0.12 to 0.24 Seconds				
Instantaneous Elements				
Instantaneous Pick Up in Amperes	As Found:	3376	3376	3376
Manufacturers Curve 2880 to 3520 Amperes	As Left:	3376	3376	3376

Tested By: Mike Ney, Chris Wenzel & Jake Stabb

Test Equipment #: 111, 204, 509

Comments: The circuit breaker is acceptable for operation.

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT

Customer: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Owner: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Location: Substation PC-S2
Identification: S28

Date: 5/23/21
Work Order: 15129
Temperature: 25 °C
Humidity: 69 %

Nameplate Information			
Manufacturer:	Westinghouse	Type:	SPB100
Model:	SPB	Serial Number:	N/A
Catalog Number:	N/A	Voltage Rating:	600 V AC
Frame Ampere Rating:	1600	Interrupting kA Rating:	100 kA @ 480 V
Tripping Voltage:	N/A	Charging Voltage:	N/A
Closing Voltage:	N/A	Shunt Trip Voltage Rating:	N/A

Trip Unit Information			
Manufacturer:	Westinghouse	Trip Module Ampere Rating:	1200
Catalog Number:	N/A	Model:	Digitrip RMS 600
Sensor (CT) Ampere Rating:	1200	Plug Ampere Rating:	1200

Trip Unit Settings				
Element	Ranges	As Found	As Left	As Tested
Long Time Element Settings				
Long Time Pick Up:	0.5 - 1	1	1	1
Long Time Delay:	2 - 24	7	7	7
Short Time Element Settings				
Short Time Pick Up:	2 - 8	4	4	4
Short Time Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	In	In	In
Ground Fault Element Settings				
Ground Fault Pick Up:	A - K	C	C	C
Ground Fault Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	In	In	In
Instantaneous Element Settings				
Instantaneous Pick Up:	2 - 10	6	6	4

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT (CONTINUED)

Identification: S28

Visual Inspection			
Circuit Breaker:	Cleaned	Arc Chutes:	Normal
Operating Mechanism:	Normal	Cubicle:	Normal
Electrical Connections:	Normal	Grounded:	Yes
Main Contacts:	Normal	Auxiliary Devices:	N/A
Arcing Contacts:	Normal	Panel Lights:	N/A
Contact Sequence:	Normal	Racking Mechanism	N/A
Auxiliary Contacts:	N/A	Shunt Trip Operation:	N/A

Operational Tests			
Manual Open:	OK	Manual Close:	OK
Electrically Open:	N/A	Electrically Close:	N/A
Manually Charge:	OK	Electrically Charge:	N/A
Trip with Protective Devices:	OK		

Insulation Resistance Tests		Pole #1	Pole #2	Pole #3
Insulation Resistance Pole to Pole in Ohms at 1 kV DC with Contacts Closed	As Found:	26.0 G	36.6 G	27.0 G
	As Left:	26.0 G	36.6 G	27.0 G
Insulation Resistance Across Pole in Ohms at 1 kV DC with Contacts Opened	As Found:	>100 G	>100 G	>100 G
	As Left:	>100 G	>100 G	>100 G
Contact Resistance Tests		Pole #1	Pole #2	Pole #3
Resistance in Micro-Ohms	As Found:	23	20	24
	As Left:	23	20	24

Trip Tests				
Long Time Elements		Pole #1	Pole #2	Pole #3
Long Time Delay in Seconds at 300 % Pick Up	As Found:	22.7	22.7	22.7
Equal to 3600 Amps	As Left:	22.7	22.7	22.7
Manufacturers Curve 18.7 to 28 Seconds				
Short Time Elements				
Short Time Delay in Seconds at 150 % Pick Up	As Found:	0.25	0.25	0.25
Equal to 7200 Amps	As Left:	0.25	0.25	0.25
Manufacturers Curve 0.14 to 0.28 Seconds				
Ground Fault Elements				
Ground Fault Delay in Seconds at 150 % Pick Up	As Found:	0.23	0.23	0.23
Equal to 630 Amps	As Left:	0.23	0.23	0.23
Manufacturers Curve 0.12 to 0.24 Seconds				
Instantaneous Elements				
Instantaneous Pick Up in Amperes	As Found:	5012	5012	5012
Manufacturers Curve 4320 to 5280 Amperes	As Left:	5012	5012	5012

Tested By: Mike Ney, Chris Wenzel & Jake Stabb Test Equipment #: 111, 204, 509

Comments: The circuit breaker is acceptable for operation.

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT

Customer: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Owner: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Location: Substation PC-S2
Identification: B24

Date: 5/23/21
Work Order: 15129
Temperature: 25 °C
Humidity: 69 %

Nameplate Information			
Manufacturer:	Westinghouse	Type:	SPB100
Model:	SPB	Serial Number:	N/A
Catalog Number:	N/A	Voltage Rating:	600 V AC
Frame Ampere Rating:	800	Interrupting kA Rating:	100 kA @ 480 V
Tripping Voltage:	N/A	Charging Voltage:	N/A
Closing Voltage:	N/A	Shunt Trip Voltage Rating:	N/A

Trip Unit Information			
Manufacturer:	Westinghouse	Trip Module Ampere Rating:	800
Catalog Number:	N/A	Model:	Digitrip RMS 600
Sensor (CT) Ampere Rating:	800	Plug Ampere Rating:	800

Trip Unit Settings				
Element	Ranges	As Found	As Left	As Tested
Long Time Element Settings				
Long Time Pick Up:	0.5 - 1.0	1	1	1
Long Time Delay:	2 - 24	7	7	7
Short Time Element Settings				
Short Time Pick Up:	2 - 8	4	4	3
Short Time Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	Out	Out	In
Ground Fault Element Settings				
Ground Fault Pick Up:	A - K	K	K	C
Ground Fault Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	Out	Out	In
Instantaneous Element Settings				
Instantaneous Pick Up:	2 - 10	10	10	4

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT (CONTINUED)

Identification: B24

Visual Inspection			
Circuit Breaker:	Cleaned	Arc Chutes:	Normal
Operating Mechanism:	Normal	Cubicle:	Normal
Electrical Connections:	Normal	Grounded:	Yes
Main Contacts:	Normal	Auxiliary Devices:	N/A
Arcing Contacts:	Normal	Panel Lights:	N/A
Contact Sequence:	Normal	Racking Mechanism	N/A
Auxiliary Contacts:	N/A	Shunt Trip Operation:	N/A

Operational Tests			
Manual Open:	OK	Manual Close:	OK
Electrically Open:	N/A	Electrically Close:	N/A
Manually Charge:	OK	Electrically Charge:	N/A
Trip with Protective Devices:	OK		

Insulation Resistance Tests		Pole #1	Pole #2	Pole #3
Insulation Resistance Pole to Pole in Ohms at 1 kV DC with Contacts Closed	As Found:	24.8 G	40.0 G	21.1 G
	As Left:	24.8 G	40.0 G	21.1 G
Insulation Resistance Across Pole in Ohms at 1 kV DC with Contacts Opened	As Found:	>100 G	>100 G	>100 G
	As Left:	>100 G	>100 G	>100 G
Contact Resistance Tests		Pole #1	Pole #2	Pole #3
Resistance in Micro-Ohms	As Found:	21	24	22
	As Left:	21	24	22

Trip Tests				
Long Time Elements		Pole #1	Pole #2	Pole #3
Long Time Delay in Seconds at 300 % Pick Up	As Found:	24.0	24.0	24.0
Equal to 2400 Amps	As Left:	24.0	24.0	24.0
Manufacturers Curve 18.7 to 28 Seconds				
Short Time Elements				
Short Time Delay in Seconds at 150 % Pick Up	As Found:	0.45	0.45	0.45
Equal to 3600 Amps	As Left:	0.45	0.45	0.45
Manufacturers Curve 0.26 to 0.50 Seconds				
Ground Fault Elements				
Ground Fault Delay in Seconds at 150 % Pick Up	As Found:	0.21	0.21	0.21
Equal to 420 Amps	As Left:	0.21	0.21	0.21
Manufacturers Curve 0.12 to 0.24 Seconds				
Instantaneous Elements				
Instantaneous Pick Up in Amperes	As Found:	3320	3340	3320
Manufacturers Curve 2880 to 3520 Amperes	As Left:	3320	3340	3320

Tested By: Mike Ney, Chris Wenzel & Jake Stabb Test Equipment #: 111, 204, 509

Comments: The breaker charging handle was found to have no return pressure to restore handle to normal position. The charging handle assembly was taken apart and the spring was found to be out of position. This was repaired and reassembled. The breaker is acceptable for operation.

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT

Customer: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Owner: **American Family Insurance**
Address: **6000 American Parkway - Madison, WI 53783**
Location: Substation PC-S2
Identification: Spare #1

Date: 5/23/21
Work Order: 15129
Temperature: 25 °C
Humidity: 60 %

Nameplate Information			
Manufacturer:	Westinghouse	Type:	SPB100
Model:	SPB	Serial Number:	N/A
Catalog Number:	N/A	Voltage Rating:	600 V AC
Frame Ampere Rating:	1600	Interrupting kA Rating:	100 kA @ 480 V
Tripping Voltage:	N/A	Charging Voltage:	N/A
Closing Voltage:	N/A	Shunt Trip Voltage Rating:	N/A

Trip Unit Information			
Manufacturer:	Westinghouse	Trip Module Ampere Rating:	1200
Catalog Number:	N/A	Model:	Digitrip RMS 600
Sensor (CT) Ampere Rating:	1200	Plug Ampere Rating:	1200

Trip Unit Settings				
Element	Ranges	As Found	As Left	As Tested
Long Time Element Settings				
Long Time Pick Up:	0.5 - 1.0	1	1	1
Long Time Delay:	2 - 24	2	2	7
Short Time Element Settings				
Short Time Pick Up:	2 - 8	4	4	3
Short Time Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	Out	In	Fixed
Ground Fault Element Settings				
Ground Fault Pick Up:	A - K	H	H	C
Ground Fault Delay:	0.1 - 0.5	0.1	0.1	0.1
I^2T:	In / Out	Out	In	In
Instantaneous Element Settings				
Instantaneous Pick Up:	2 - 10	10	10	4

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT (CONTINUED)

Identification: Spare #1

Visual Inspection			
Circuit Breaker:	Cleaned	Arc Chutes:	Normal
Operating Mechanism:	Normal	Cubicle:	Normal
Electrical Connections:	Normal	Grounded:	Yes
Main Contacts:	Normal	Auxiliary Devices:	N/A
Arcing Contacts:	Normal	Panel Lights:	N/A
Contact Sequence:	Normal	Racking Mechanism	N/A
Auxiliary Contacts:	N/A	Shunt Trip Operation:	N/A

Operational Tests			
Manual Open:	OK	Manual Close:	OK
Electrically Open:	N/A	Electrically Close:	N/A
Manually Charge:	OK	Electrically Charge:	N/A
Trip with Protective Devices:	OK		

Insulation Resistance Tests		Pole #1	Pole #2	Pole #3
Insulation Resistance Pole to Pole in Ohms at 1 kV DC with Contacts Closed	As Found:	44.0 G	46.2 G	45.8 G
	As Left:	44.0 G	46.2 G	45.8 G
Insulation Resistance Across Pole in Ohms at 1 kV DC with Contacts Opened	As Found:	>100 G	>100 G	>100 G
	As Left:	>100 G	>100 G	>100 G
Contact Resistance Tests		Pole #1	Pole #2	Pole #3
Resistance in Micro-Ohms	As Found:	19	19	21
	As Left:	19	19	21

Trip Tests				
Long Time Elements		Pole #1	Pole #2	Pole #3
Long Time Delay in Seconds at 300 % Pick Up	As Found:	24.1	24.1	24.1
Equal to 3600 Amps	As Left:	24.1	24.1	24.1
Manufacturers Curve 18.7 to 28 Seconds				
Short Time Elements				
Short Time Delay in Seconds at 150 % Pick Up	As Found:	0.37	0.37	0.37
Equal to 5400 Amps	As Left:	0.37	0.37	0.37
Manufacturers Curve 0.24 to 0.38 Seconds				
Ground Fault Elements				
Ground Fault Delay in Seconds at 150 % Pick Up	As Found:	0.19	0.19	0.19
Equal to 630 Amps	As Left:	0.19	0.19	0.19
Manufacturers Curve 0.12 to 0.24 Seconds				
Instantaneous Elements				
Instantaneous Pick Up in Amperes	As Found:	4899	4899	4899
Manufacturers Curve 3840 to 5760 Amperes	As Left:	4899	4899	4899

Tested By: Mike Ney, Chris Wenzel & Jake Stabb

Test Equipment #: 111, 204, 509

Comments: The circuit breaker is acceptable for operation.

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT

Customer: **American Family Insurance**
Address: **302 N Walbridge Ave – Madison, WI 53714**
Owner: **American Family Insurance - Cottage Court**
Address: **718 Cottage Court – Madison, WI 53716**
Location: EGS-1
Identification: EGS-1 Main Breaker

Date: 6/26/21
Work Order: 15177
Temperature: 24 °C
Humidity: 61 %

Nameplate Information			
Manufacturer:	Square D	Type:	RL1600
Model:	PowerPact	Serial Number:	06409930420011
Catalog Number:	0320-2164-03	Voltage Rating:	600
Frame Ampere Rating:	1600	Interrupting kA Rating:	35 kA @ 480 V
Tripping Voltage:	N/A	Charging Voltage:	N/A
Closing Voltage:	N/A	Shunt Trip Voltage Rating:	N/A

Trip Unit Information			
Manufacturer:	Square D	Trip Module Ampere Rating:	1600
Catalog Number:	N/A	Model:	Micrologic
Sensor (CT) Ampere Rating:	1600	Plug Ampere Rating:	1600

Trip Unit Settings

Element	Ranges	As Found	As Left	As Tested
Long Time Element Settings				
Long Time Pick Up:	0.84 – 1	1	1	1
Long Time Delay:	0.5 – 24	24	24	4
Short Time Element Settings				
Short Time Pick Up:	N/A			
Short Time Delay:	N/A			
I^2T:	N/A			
Ground Fault Element Settings				
Ground Fault Pick Up:	N/A			
Ground Fault Delay:	N/A			
I^2T:	N/A			
Instantaneous Element Settings				
Instantaneous Pick Up:	1.5 – 12	8	8	4

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT (CONTINUED)

Identification: EGS-1 Main Breaker

Visual Inspection			
Circuit Breaker:	Cleaned	Arc Chutes:	Cleaned
Operating Mechanism:	Lubricated	Cubicle:	Cleaned
Electrical Connections:	Normal	Grounded:	Yes
Main Contacts:	Normal	Auxiliary Devices:	N/A
Arcing Contacts:	Normal	Panel Lights:	N/A
Contact Sequence:	Normal	Racking Mechanism	Normal
Auxiliary Contacts:	Normal	Shunt Trip Operation:	Normal

Operational Tests			
Manual Open:	OK	Manual Close:	OK
Electrically Open:	N/A	Electrically Close:	N/A
Manually Charge:	OK	Electrically Charge:	N/A
Trip with Protective Devices:	N/A		

Insulation Resistance Tests		Pole #1	Pole #2	Pole #3
Insulation Resistance Pole to Pole in Ohms at 1 kV DC with Contacts Closed	As Found:	53.5 G	13.8 G	14.5 G
	As Left:	53.5 G	13.8 G	14.5 G
Insulation Resistance Across Pole in Ohms at 1 kV DC with Contacts Opened	As Found:	68 G	54 G	70 G
	As Left:	68 G	54 G	70 G
Contact Resistance Tests		Pole #1	Pole #2	Pole #3
Resistance in Micro-Ohms	As Found:	20	16	15
	As Left:	20	16	15

Trip Tests				
Long Time Elements		Pole #1	Pole #2	Pole #3
Long Time Delay in Seconds at 300 % Pick Up	As Found:	14.9	15.1	14.7
Equal to 4800 Amps	As Left:	14.9	15.1	14.7
Manufacturers Curve 12 to 17 Seconds				
Short Time Elements				
Short Time Delay in Seconds at % Pick Up	As Found:			
Equal to Amps	As Left:			
Manufacturers Curve to Seconds				
Ground Fault Elements				
Ground Fault Delay in Seconds at % Pick Up	As Found:			
Equal to Amps	As Left:			
Manufacturers Curve to Seconds				
Instantaneous Elements				
Instantaneous Pick Up in Amperes	As Found:	6410	6360	6490
Manufacturers Curve 5600 to 7200 Amperes	As Left:	6410	6360	6490

Tested By: Frank Kotecki Test Equipment #: 111, 203, 575

Comments: The circuit breaker is acceptable for operation.

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT

Customer: **American Family Insurance**
Address: **302 N Walbridge Ave – Madison, WI 53714**
Owner: **American Family Insurance - Cottage Court**
Address: **718 Cottage Court – Madison, WI 53716**
Location: EGS-2
Identification: EGS-2 Main Breaker

Date: 6/26/21
Work Order: 15177
Temperature: 24 °C
Humidity: 61 %

Nameplate Information			
Manufacturer:	Square D	Type:	RL1600
Model:	PowerPact	Serial Number:	06409930420014
Catalog Number:	0320-2164-03	Voltage Rating:	600
Frame Ampere Rating:	1600	Interrupting kA Rating:	35 kA @ 480 V
Tripping Voltage:	N/A	Charging Voltage:	N/A
Closing Voltage:	N/A	Shunt Trip Voltage Rating:	N/A

Trip Unit Information			
Manufacturer:	Square D	Trip Module Ampere Rating:	1600
Catalog Number:	N/A	Model:	Micrologic
Sensor (CT) Ampere Rating:	1600	Plug Ampere Rating:	1600

Trip Unit Settings

Element	Ranges	As Found	As Left	As Tested
Long Time Element Settings				
Long Time Pick Up:	0.84 – 1	1	1	1
Long Time Delay:	0.5 – 24	24	24	4
Short Time Element Settings				
Short Time Pick Up:	N/A			
Short Time Delay:	N/A			
I^2T:	N/A			
Ground Fault Element Settings				
Ground Fault Pick Up:	N/A			
Ground Fault Delay:	N/A			
I^2T:	N/A			
Instantaneous Element Settings				
Instantaneous Pick Up:	1.5 – 12	8	8	4

LOW VOLTAGE CIRCUIT BREAKER TEST REPORT (CONTINUED)

Identification: EGS-2 Main Breaker

Visual Inspection			
Circuit Breaker:	Cleaned	Arc Chutes:	Cleaned
Operating Mechanism:	Lubricated	Cubicle:	Cleaned
Electrical Connections:	Normal	Grounded:	Yes
Main Contacts:	Normal	Auxiliary Devices:	N/A
Arcing Contacts:	Normal	Panel Lights:	N/A
Contact Sequence:	Normal	Racking Mechanism	Normal
Auxiliary Contacts:	Normal	Shunt Trip Operation:	Normal

Operational Tests			
Manual Open:	OK	Manual Close:	OK
Electrically Open:	N/A	Electrically Close:	N/A
Manually Charge:	OK	Electrically Charge:	N/A
Trip with Protective Devices:	N/A		

Insulation Resistance Tests		Pole #1	Pole #2	Pole #3
Insulation Resistance Pole to Pole in Ohms at 1 kV DC with Contacts Closed	As Found:	14 G	15.1 G	28.6 G
	As Left:	14 G	15.1 G	28.6 G
Insulation Resistance Across Pole in Ohms at 1 kV DC with Contacts Opened	As Found:	56 G	63 G	60 G
	As Left:	56 G	63 G	60 G
Contact Resistance Tests		Pole #1	Pole #2	Pole #3
Resistance in Micro-Ohms	As Found:	19	18	18
	As Left:	19	18	18

Trip Tests				
Long Time Elements		Pole #1	Pole #2	Pole #3
Long Time Delay in Seconds at 300 % Pick Up	As Found:	14.2	14.0	14.9
Equal to 4800 Amps	As Left:	14.2	14.0	14.9
Manufacturers Curve 12 to 17 Seconds				
Short Time Elements				
Short Time Delay in Seconds at % Pick Up	As Found:			
Equal to Amps	As Left:			
Manufacturers Curve to Seconds				
Ground Fault Elements				
Ground Fault Delay in Seconds at % Pick Up	As Found:			
Equal to Amps	As Left:			
Manufacturers Curve to Seconds				
Instantaneous Elements				
Instantaneous Pick Up in Amperes	As Found:	7120	7001	6890
Manufacturers Curve 5600 to 7200 Amperes	As Left:	7120	7001	6890

Tested By: Frank Kotecki Test Equipment #: 111, 203, 575

Comments: The circuit breaker is acceptable for operation.