Maintenance Report

SUNSHINE COAST REGIONAL DISTRICT

2023 - Electrical Maintenance and Testing

Location: Chapman Water Treatment Plant

5624 Reservoir Road, Sechelt, BC

Prepared For:

Robert Green
SUNSHINE COAST REGIONAL DISTRICT
5920 Mason Rd
Sechelt, BC V7Z 0N4

Date: February 10, 2023
Job No: 4561

Prepared By:

Jeroen Vandamme, NETA II
PACIFIC POWERTECH INC.
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E-Mail: JVandamme@pacificpowertech.ca

Date: February 10, 2023
Job No: 4561

Attn: Robert Green

Subject: 2023 - Electrical Maintenance and Testing at Chapman Water Treatment Plant, Sechelt, BC

Dear Robert,

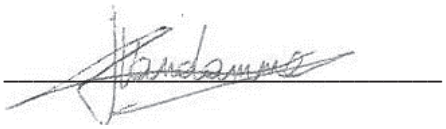
We are pleased to submit our report pertaining to the project noted above. The work was performed by Pacific Powertech field technicians Nikita Kanigan and Jeroen Vandamme. The work was completed in accordance with the shutdown schedule on January 30th, 2023 starting at 10:00hrs with power restoration at approximately 19:00hrs.

We trust this report will meet with your requirements. Should you require further information or assistance, please do not hesitate to contact us.

Thank you for retaining the services of Pacific Powertech Inc. We look forward to being of service to you in the future.

Regards,

PACIFIC POWERTECH INC.



Jeroen Vandamme, NETA II
Field Service Representative

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1. Maintenance Summary

The services of Pacific Powertech (PPI) were retained by Sunshine Coast Regional District to carry out maintenance and testing on the following electrical equipment at the Chapman Water Treatment Plant:

1. 600V Equipment:
    - MCC-A

The equipment listed above was maintained and tested in accordance with the NETA MTS 2019 standard. At this time, based on Pacific Powertech's analysis of the equipment inspection and test reports, the equipment within the scope of work is considered to be in satisfactory condition for service based on applicable standards (NETA, IEEE, and Manufacturer's Specifications). This excludes any items that have been noted as being deficient in Section 2 of this report. All equipment field test reports can be found in Appendix A of this report.

Section 2 of this report presents the deficient items noted during maintenance and outlines our recommendations to rectify these items.

2. Deficient Items

During the course of our service work, there were some items noted as being deficient and require further attention. Please review the deficiencies and recommendations presented in this section and contact us if you require further information.

2.1. Fire Extinguisher

It was noted that there was no fire extinguisher present in main electrical room where MCC-A is located.

Recommendation:

It is recommended that a properly rated fire extinguisher be permanently located in this area. It should be noted that an appropriate extinguishing agent be used for the application. Please consult your local fire inspector.

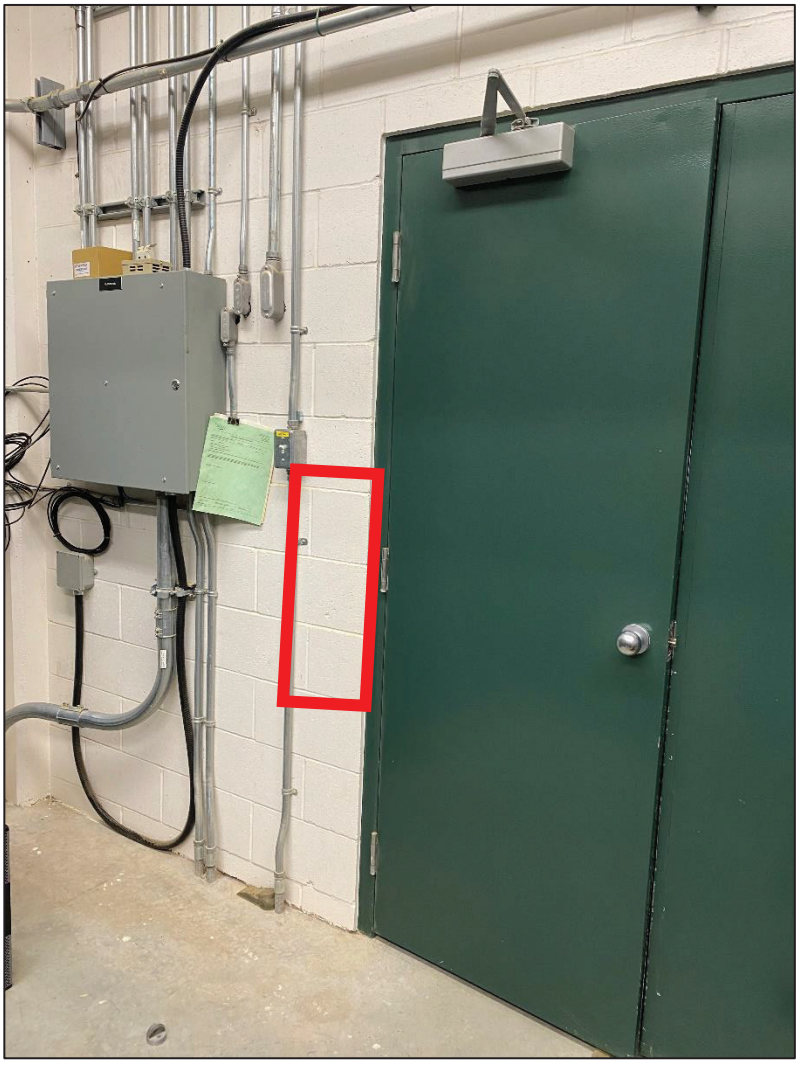

Figure 1: Suggested Location of Fire Extinguisher Install

2.2. Loose Wiring

During the course of our maintenance work, we noted several instances of loose wiring. We found one of the three phase conductors not properly terminated to the molded case circuit breaker inside the following MCC buckets:

- Cell 7E (Rooftop Unit RTU-1)
- Cell 9B (Make Up Air Unit MAU-2)
- Cell 9C (Air Compressor)

Recommendation:

We terminated all the loose wiring that we found during the maintenance outage. No further action is required.

Figure 2: Loose C-phase Conductor Found Inside Cell 7E (Rooftop Unit RTU-1)

2.3. Single Line Diagram

We noted that the single line diagram that was provided to us (drawing# E003 Rev. 2) did not fully match with the actual equipment installed in MCC-A. There are several MCC buckets that exist, but are not shown on the drawing. Vice versa, there are also buckets shown on the drawing that do no exist in reality. There are also several discrepancies between the breaker ratings & cable sizes shown on the drawing versus what is installed in reality.

Recommendation:

If drawing E003 Rev. 2 is in fact the most up-to-date single line diagram that exists for your facility, we recommend updating this drawing based on the information in this report. If you decide to go ahead with this recommendation, please feel free to contact us and we can provide you with a quote. We also forwarded all the cable information that was recorded on site to our engineering department, so that the arc flash hazard engineering study can be performed accurately.

2.4. Maturation Pump #1 Breaker Failure

The 50A breaker for "MP-3-1-01 Maturation Pump #1" (Cell 5B) was giving us very bad contact resistance results on C-phase. Upon operating this breaker several times in an attempt to improve these results, the breaker completely failed on C-phase and no longer had continuity. There was no replacement breaker present on site, so this pump was taken out of service temporarily until a replacement breaker is sourced.

Recommendation:

We recommend replacing this breaker and ordering additional breakers of several current ratings to keep as spares on site in case another breaker would fail in the future. **We also recommend replacing the 50A breaker for "MP-3-1-02 Maturation Pump #2" as this breaker was also returning bad contact resistance results.** We did not attempt to improve the results on this particular breaker to avoid a possible breaker failure like what happened to the Maturation Pump #1 breaker.

The failed breaker information is as follows:

- Brand: Eaton Cutler-Hammer
- Type: Series C Molded Case Circuit Breaker
- Category Number: HFD3050L
- Style Number: 3A16280G77

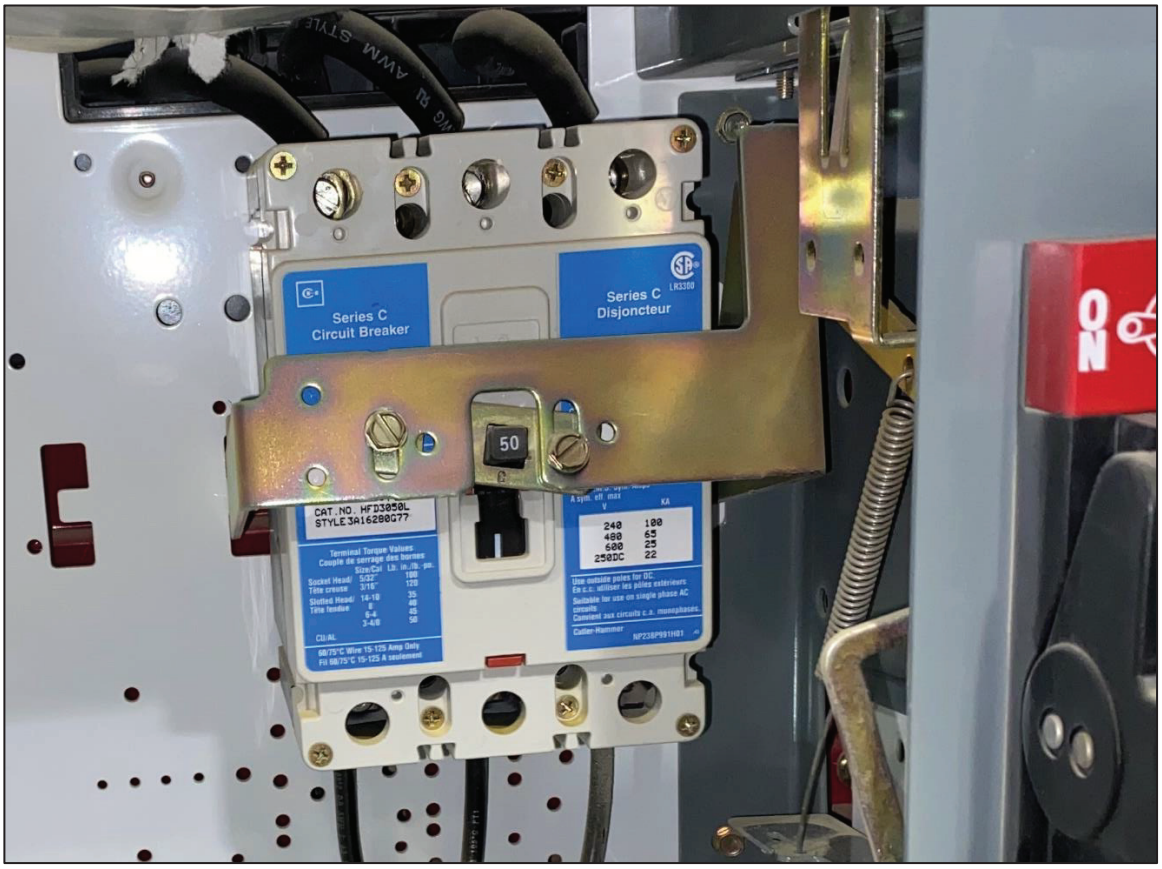

Figure 3: Failed Maturation Pump #1 Breaker

3. General Recommendations

3.1. BC Hydro Maintenance Shutdown

We were not able to service the main 1200A breaker, because the breaker itself was our lockout point for this maintenance shutdown.

Recommendation:

We recommend planning a full BC Hydro shutdown during the next scheduled maintenance outage, so that the main 1200A breaker and the pole transformers could also be serviced safely. Most likely, BC Hydro would isolate upstream from the high voltage pole disconnect switch that is owned by SCRD. In that case, this disconnect switch could also be included in the maintenance scope.

3.2. Infrared Scan

During the course of our maintenance work, we noticed several instances of loose wiring inside of MCC-A. Loose wiring can cause hot spots, which is a fire hazard. These hot spots can be detected by an infrared camera without the need of a power outage.

Recommendation:

We recommend performing an infrared scan that not only includes MCC-A, but also any electrical panels and disconnect switches spread throughout the facility. This is a service that Pacific Powertech offers. If you decide to go ahead with this recommendation, please feel free to contact us and we can provide you with a quote.

3.3. Dirt Accumulation

During the course of our maintenance work, we noticed a lot of dirt and dust accumulation inside MCC-A and the main electrical room as a whole. We cleaned every MCC bucket and vacuumed the electrical room.

Recommendation:

We recommend installing a filter on the air intake & exhaust manifolds of the electrical room to reduce future dirt & dust accumulation. We also recommend more frequent maintenance servicing.

Appendix A: Field Test Results

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MCC TEST FORM					
Job Number	4561			**Date**	30-Jan-23
Customer	Sunshine Coast Regional District			**Test By**	NK / JV
Location	Chapman Water Treatment Plant, Sechelt, BC			**Approved By**	Owen Kirby
NAMEPLATE DATA					
Designation	MCC-A	**Rated Current**	1200A Horizontal	**BIL**	Not Listed
Manufacturer	Allen-Bradley	**Rated Current**	300A Vertical	**Brace (kA)**	Not Listed
Type	Centerline BUL 2100	**Rated Voltage**	600V	**No. of Sect.**	13
Category Number	2100-ACT12-B2N-AAA-AAA	**System**	3 phase - 4 wire		

CELL DESIGNATION

Cell No.	Designation	Rated Current (A)	Cable Size (AWG)	Protection Settings/Comments
1A	BUS ACCESS	-	-	
1B	BC HYDRO METERING CELL	-	-	
1C	MCC-A MAIN 1200A BREAKER	1200A	-	LIVE CABLES NOT ACCESSIBLE
2A	MCC-A TRANSFER SWITCH	600A	2x 4C 250 kcmil Cu	
3A	BWP-1-01 BACKWASH PUMP	250A	1x 3C #4 AWG Cu	
4A	SPARE	7A	-	
4B	DF-4-0-01 DUST COLLECTOR FAN	7A	1x 3C #10 AWG Cu	70ft
4C	RV-4-1-01 SODA ASH BIN 1 ROTARY VALVE	7A	1x 3C #10 AWG Cu	70ft
4D	RV-4-2-01 SODA ASH BIN 2 ROTARY VALVE	7A	1x 3C #10 AWG Cu	70ft
4E	PDC-1 DISTRIBUTION PANEL	100A	1x 3C #2 AWG Cu	
4F	PDC-2 DISTRIBUTION PANEL	100A	1x 3C #2 AWG Cu	
5A	HWT-3	20A	1x 3C #12 AWG Cu	40ft
5B	MP-3-1-01 MATURATION PUMP #1	50A	1x 3C #6 AWG Cu	NOTE 7
5C	AB-3-1-01 AIR BLOWER #1	100A	1x 3C #2/0 AWG Cu	
6A	HWT-2	20A	1x 3C #12 AWG Cu	45ft
6B	DRP-2-1-01 DAF RECYCLE PUMP #1	50A	1x 3C #6 AWG Cu	
6C	DRP-2-1-02 DAF RECYCLE PUMP #2	50A	1x 3C #6 AWG Cu	
6D	DRP-2-1-03 DAF RECYCLE PUMP #3	50A	1x 3C #6 AWG Cu	
6E	MP-3-1-02 MATURATION PUMP #2	50A	1x 3C #6 AWG Cu	NOTE 7
7A	TRANSFORMER TRB BREAKER	30A	1x 3C #6 AWG Cu	
7B	TRANSFORMER TP-2 BREAKER	30A	1x 3C #6 AWG Cu	
7C	BCA SKID	30A	1x 3C #8 AWG Cu	500ft
7D	HWT-1	20A	1x 3C #12 AWG Cu	65ft
7E	ROOF TOP UNIT RTU-1	15A	1x 3C #10 AWG Cu	NOTE 4 / 400ft
7F	SPARE	30A	-	
7G	EMPTY SPACE	-	-	
7H	EMPTY SPACE	-	-	

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CELL DESIGNATION (continued)				
Cell No.	**Designation**	**Rated Current (A)**	**Cable Size (AWG)**	**Protection Settings/Comments**
8A	SPARE	30A	-	NOT LABELED
8B	AB-3-1-02 AIR BLOWER #2	100A	1x 3C #2/0 AWG Cu	
8C	AUTOMATIC CAPACITOR BANK	300A	1x 3C 250 kcmil Cu	
9A	BACKUP COMPRESSOR	30A	1x 3C #12 AWG Cu	
9B	MAKE UP AIR UNIT MAU-2	30A	1x 3C #12 AWG Cu	NOTE 4
9C	AIR COMPRESSOR	30A	1x 3C #12 AWG Cu	NOTE 4
9D	SEWAGE	30A	1x 3C #12 AWG Cu	
9E	SWP-5-1-01 SERVICE WATER PUMP #1	30A	1x 3C #12 AWG Cu	
9F	SWP-5-1-02 SERVICE WATER PUMP #2	30A	1x 3C #12 AWG Cu	
10A	LIGHTING PANEL A	-	-	
10B	TRANSFORMER TRA BREAKER	50A	1x 3C #8 AWG Cu	
10C	TRANSFORMER TRA (30kVA)	125A fuses	2x 4C #4 AWG AL	Ferraz Shawmut TR125R fuses
11A	P-1 PROCESS PANEL	-	-	
11B	PANEL P1 BREAKER	50A	1x 3C #8 AWG Cu	
11C	TRANSFORMER TRP1 (30kVA)	125A fuses	2x 4C #4 AWG AL	Ferraz Shawmut TR125R fuses
12A	FUTURE LIGHTING PANEL	-	-	
12B	EMPTY SPACE	-	-	
12C	EMPTY SPACE	-	-	
12D	EMPTY SPACE	-	-	
13A	EMPTY SPACE	-	-	
13B	EMPTY SPACE	-	-	
13C	EMPTY SPACE	-	-	
13D	EMPTY SPACE	-	-	
13E	EMPTY SPACE	-	-	
13F	EMPTY SPACE	-	-	

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MCC TEST FORM - CELL LAYOUT

SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
1A	2A	3A	4A	5A
1B			4B	5B
			4C	
			4D	
1C			4E	5C
			4F	

SECTION 6	SECTION 7	SECTION 8	SECTION 9	SECTION 10
6A	7A	8A	9A	10A
6B	7B		9B	
	7C	8B		
6C	7D		9C	
	7E			
6D	7F		9D	10B
		8C	9E	10C
6E	7G			
	7H		9F	

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MCC TEST FORM - CELL LAYOUT (continued)

SECTION 11	SECTION 12	SECTION 13
11A	12A	13A
		13B
		13C
11B	12B	13D
11C	12C	13E
	12D	13F

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NETA

MCC TEST FORM

CONTACT RESISTANCE TESTS

From Cell #	To Cell #	Phase A	Phase B	Phase C	Test Current: 10A DC / Comments
CLOSED BREAKER MEASUREMENTS IN EVERY CELL					
2A	2A	94	82	101	TRANSFER SWITCH - NORMAL
2A	2A	136	153	184	TRANSFER SWITCH - GENERATOR
3A	3A	564	160	200	NOTE 8
4A	4A	-	-	-	BREAKER TOO SMALL TO TEST
4B	4B	-	-	-	BREAKER TOO SMALL TO TEST
4C	4C	-	-	-	BREAKER TOO SMALL TO TEST
4D	4D	-	-	-	BREAKER TOO SMALL TO TEST
4E	4E	1620	670	750	
4F	4F	964	1240	1210	
5A	5A	-	-	-	NOT ACCESSIBLE
5B	5B	4431	8040	-	BREAKER FAILED DURING TESTING (NOTE 7)
5C	5C	1041	550	5880	NOTE 8
6A	6A	-	-	-	NOT ACCESSIBLE
6B	6B	4185	2700	3330	
6C	6C	3678	1250	5650	
6D	6D	1048	1470	6740	
6E	6E	16330	11460	43960	RECOMMEND REPLACE BREAKER (NOTE 7)
7A	7A	4390	2980	4090	
7B	7B	3510	3880	2930	
7C	7C	5090	2540	6820	
7D	7D	-	-	-	NOT ACCESSIBLE
7E	7E	32910	25540	14040	
7F	7F	59840	15810	118560	SPARE BREAKER - NOT IN USE
7G	7G	-	-	-	EMPTY SPACE
7H	7H	-	-	-	EMPTY SPACE
8A	8A	158800	172070	221360	SPARE BREAKER - NOT IN USE
8B	8B	1500	790	2200	
8C	8C	1600	420	2000	
9A	9A	3840	3500	6280	
9B	9B	9970	3890	20150	
9C	9C	2950	3240	2630	
9D	9D	16720	27890	19450	
9E	9E	15880	11620	17470	
9F	9F	17460	10240	11930	

*Results in Micro Ohms

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NETA

MCC TEST FORM

CONTACT RESISTANCE TESTS (continued)

From Cell #	To Cell #	Phase A	Phase B	Phase C	Test Current	10A DC
					Comments	
CLOSED BREAKER MEASUREMENTS IN EVERY CELL (continued)						
10A	10A	-	-	-	LIGHTING PANEL	
10B	10B	1600	1560	1390		
10C	10C	-	-	-	TRANSFORMER	
11A	11A	-	-	-	LIGHTING PANEL	
11B	11B	6610	2630	4630		
11C	11C	-	-	-	TRANSFORMER	
12A	12A	-	-	-	FUTURE LIGHTING PANEL	
12B	12B	-	-	-	EMPTY SPACE	
12C	12C	-	-	-	EMPTY SPACE	
12D	12D	-	-	-	EMPTY SPACE	
13A	13A	-	-	-	EMPTY SPACE	
13B	13B	-	-	-	EMPTY SPACE	
13C	13C	-	-	-	EMPTY SPACE	
13D	13D	-	-	-	EMPTY SPACE	
13E	13E	-	-	-	EMPTY SPACE	
13F	13F	-	-	-	EMPTY SPACE	
FROM LOAD SIDE OF BC HYDRO METERING TO LINE SIDE OF TRANSFER SWITCH NORMAL POWER						
1A	2A	101	111	122		
FROM LOAD SIDE OF TRANSFER SWITCH TO LINE SIDE OF EVERY CELL						
2A	3A	996	1080	1280		
2A	4A	1282	840	1880		
2A	4B	1375	1110	1550		
2A	4C	1037	790	1230		
2A	4D	1106	800	1270		
2A	4E	526	400	550		
2A	4F	625	460	600		
2A	5A	8990	12040	9300	MEASURED TO LOAD SIDE	
2A	5B	1049	830	1100		
2A	5C	599	550	680		
2A	6A	10980	9380	12240	MEASURED TO LOAD SIDE	
2A	6B	875	760	980		
2A	6C	1102	1020	1050		
2A	6D	747	700	990		
2A	6E	1200	940	1240		
2A	7A	1990	1910	2660		
2A	7B	1980	2120	2570		
2A	7C	2240	2050	6150	NOTE 8	
2A	7D	11670	9480	11330	MEASURED TO LOAD SIDE	

*Results in Micro Ohms

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MCC TEST FORM

CONTACT RESISTANCE TESTS (continued)

From Cell #	To Cell #	Phase A	Phase B	Phase C	Test Current NOTE 4 Comments
FROM LOAD SIDE OF TRANSFER SWITCH TO LINE SIDE OF EVERY CELL (continued)					
2A	7E	1230	920	1170	
2A	7F	1260	1000	1740	
2A	7G	-	-	-	EMPTY SPACE
2A	7H	-	-	-	EMPTY SPACE
2A					
2A	8A	1200	910	1240	
2A	8B	670	540	800	
2A	8C	450	360	400	
2A					
2A	9A	1150	1220	1390	
2A	9B	1110	1080	1210	
2A	9C	1000	820	1150	
2A	9D	1230	1250	1260	
2A	9E	1380	1030	1240	
2A	9F	2300	1180	1440	
2A	10A	-	-	-	LIGHTING PANEL
2A	10B	580	610	620	
2A	10C	-	-	-	TRANSFORMER
2A	11A	-	-	-	LIGHTING PANEL
2A	11B	620	540	640	
2A	11C	-	-	-	TRANSFORMER
2A	12A	-	-	-	FUTURE LIGHTING PANEL
2A	12B	-	-	-	EMPTY SPACE
2A	12C	-	-	-	EMPTY SPACE
2A	12D	-	-	-	EMPTY SPACE
2A	13A	-	-	-	EMPTY SPACE
2A	13B	-	-	-	EMPTY SPACE
2A	13C	-	-	-	EMPTY SPACE
2A	13D	-	-	-	EMPTY SPACE
2A	13E	-	-	-	EMPTY SPACE
2A	13F	-	-	-	EMPTY SPACE

*Results in Micro Ohms

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MCC TEST FORM

INSULATION TESTS

Temperature (°C)	8	Humidity (%)	69		
Test Description	**Voltage**	**Time**	**Phase A**	**Phase B**	**Phase C**
NOT ABLE TO ISOLATE MCC BUS FOR TESTING DUE TO BC HYDRO METERING CONNECTIONS					

Results In: Giga Ohms

INSPECTION CHECK LIST

Description	Pass	Fail	N/A	Comments
Push Buttons			X	No push buttons present on this MCC
Indicator Lamps	X			Most are not connected
Isolator Handles & Interlocks	X			All handles & interlocks function as designed
Signs of Stress or Overheating	X			No signs of stress or overheating
Starter Contacts	X			No signs of wear; cleaned
Bolted Connections	X			Verified via contact resistance testing
Cables & Wire Terminations	X			All cables & wires checked for tightness. NOTE 4
Power Fuses/Control Fuses	X			All power & control fuses checked for continuity
Dirt Accumulation	X			Found very dirty. Cleaned & vacuumed. NOTE 5
Breaker/Contactor Function Test	X			All breakers & contactors operated as designed
Grounding	X			Verified via contact resistance testing
Moisture/Corrosion	X			None visible upon inspection
Barriers/Insulators	X			Visually inspected & cleaned; No signs of damage
Equipment Matches Drawing		X		MCC does not exactly match provided drawing
Panel Meters	X			Verified before and after maintenance outage
Instrument Transformers	X			Cleaned & verified via panel metering

NOTES

NOTE 1: We recommend a full BC Hydro shutdown during the next scheduled maintenance outage so that the main 1200A breaker and possibly the upstream pole disconnect switch could also be included in the maintenance scope.
NOTE 2: There is no fire extinguisher installed in the electrical room. Recommend installing one.
NOTE 3: We recommend performing an infrared scan of all the electrical equipment in this plant while it is up and running under normal load.
NOTE 4: In this cell we found one of the three phase conductors not properly terminated to the breaker. We terminated this conductor. No further action required.
NOTE 5: MCC was found very dirty. We recommend installing a filter on the air intake & exhaust manifolds of the electrical room. We also recommend more frequent maintenance servicing.
NOTE 6: This MCC does not match exactly with the single line drawing that was provided to us (DWG# E003 Rev. 2). There are several MCC buckets that exist, but are not shown on the drawing. Vice versa, there are also buckets shown on the drawing that do no exist in reality. There are also several discrepancies between the breaker ratings & cable sizes shown on the drawing versus what is installed in reality. Recommend updating single line drawing based on the information in this test sheet.
NOTE 7: The 50A breaker for "Maturation Pump #1" was giving us very bad contact resistance results on C-phase. Upon operating this breaker several times in an attempt to improve these results, the breaker completely failed on C-phase and no longer has continuity. There was no replacement breaker present on site, so this pump was taken out of service temporarily until a replacement breaker is sourced. We also recommend replacing the 50A "Maturation Pump #2" breaker as it is also returning bad contact resistance results.
NOTE 8: Recommend allotting extra time during the next outage to attempt improving the contact resistance results of

Appendix B: Safety Documentation

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NETA

SITE SAFETY MEETING

Job Number	[redacted] 4561	Date	JAN 30, 2022
Customer	SCRD	Presented By	NK
Location	CHAPMAN WTP, 5624 RESERVOIR RD.	Revision	9.1 (Mar, 2022)

ATTENDEES

Name	Initial	Name	Initial	Name	Initial
NIKITA KANIGAN	NK				
JEROEN VAN D.	J.V.				
ROBERT GREEN	R.G				

Safety Equipment Used:

- [x] Pacific Powertech Safety / OH&S manuals on hand
- [x] Voltage dectectors
- [x] Nomex coveralls, hard hat, safety shoes, safety glasses
- [x] Arc flash suit and hood during switching & grounding
- [x] # of High Voltage Safe Work Grounds Used: 1
- [x] High voltage gloves - class: 3

Safety Clearance Certificate Used:

- [x] Pacific Powertech
- [ ] Customer
- [ ] Utility: GOI / Customer Isolation
- [ ] Safety Clearance not required

Isolation Methods Used:

- [x] Visual
- [x] Lockout and Tag
- [ ] Hot work required & specific written procedure in place

Specific Items Discussed prior to Work:

- [x] Review SLD & confirm points of isolation & grounding to all workers
- [x] Walk around equipment & identify hazards (energized equipment)
- [x] Install safety barriers/flagging to energized equipment in work zone
- [x] Exposure to sharp & hot objects has been discussed
- [x] Site hazard assessment: falling objects, chemicals, dust
- [x] Review requirement for ventilation
- [x] Location of fire extinguishers, eyewash & first aid station
- [x] Emergency contact numbers/procedure (911)
- [ ] Other:
- [x] Nearest hospital: SEACHELT HOSPITAL
- [x] Authorized personnel only in work/testing areas
- [x] Emergency power backfeed potential reviewed/discussed (Genset/UPS)
- [x] Equipment arc flash labels have been reviewed prior to any switching
- [x] Ensure all utility feeders to transfer switches are included in lockout
- [x] Identify possible back feeds from control circuits
- [x] Open communication policy - "if in doubt ask"
- [x] Power tools
- [x] Emergency lighting
- [x] Access/Egress
- [x] Anticipate power back at: 16:00
- [x] **Test before touch policy**

PACIFIC POWERTECH Inc.
PPI
#110-2071 Kingsway Avenue
Port Coquitlam, BC V3C 6N2
Phone: 604-944-6697 (24HR)
www.pacificpowertech.ca

NETA

SITE SAFETY MEETING

Cautions/Concerns During Outage:

- [x] All switches to be noted and reset to "As Found" condition
- [x] Transformer X0 ground bond location has been verified
  NOTE: Refer to dry-type transformer SWP for isolation of X0 ground bond
- [x] Tools, test jumpers and rags - keep count and do not set down inside or on the electrical equipment
- [x] Discuss concern surrounding Asbestos containing materials (PPE)
- [x] Discuss caution with loaded springs and hazardous mechanisms
- [x] Review requirements for megger/hipot testing
- [x] Refer to NETA Standards for equipment testing procedures
- [x] All equipment included in scope of work must be tested for absence of potential prior to issuance of SWC.
- [x] Discuss with owner any other work that is taking place outside of our defined scope of work
- [x] Discuss with crew concerns surrounded heat exhaustion and the importance of staying hydrated
- [x] Person disconnecting cables is responsible to reconnect cables prior to signing off Safe Work Clearance
- [x] Second person must inspect switchgear prior to installing covers
- [ ] Designated Electrical Safety Watch (ESW): _____

Additional Site Specific Items: _____

Scope of Work General Description:

MCC-A TESTING

Hazard Assessment

Hazard	Mitigation Methods
ARC FLASH	FLASH SUIT DURING SWITCHING & GROUNDING
SHOCK	TEST BEFORE TOUCH

ALWAYS REMEMBER - TEST BEFORE YOU TOUCH!!

Pacific Powertech Inc.

JAN 30, 2023
Date

PACIFIC POWERTECH Inc.

NETA

SAFE WORK CLEARANCE CERTIFICATE

Job Number	4561	Date	JAN 30, 2022
Customer	SCRD	Clearance #	
Location	CHAPMAN WTP, 5624 RESERVOIR RD	Revision	11.0 - May/2022
Job Description	MCC TESTING, DATA GATHERING		

PART I - SECTION A : ISSUE OF CLEARANCE (To Be Completed By The Person Switching To Achieve Isolation)

Issuer: NIKITA K. Signed:

Date: JAN 30, 2022 Time: 10:30

Safety Watch: JEROEN V. Recipient: JEROEN V.

LIST OF EQUIPMENT CLEARED FOR SERVICE

①	600V MCC

ISOLATION POINTS

	Isolation Points	By	Verified
①	600V MAIN BREAKER	PPI	JV
②	GENERATOR DISCONNECT	PPI	JV

BC Hydro SPG #: For Work On Circuit #

SAFE WORK GROUND LOCATIONS

①	LOAD SIDE MAIN BREAKER

NOTES

PACIFIC POWERTECH Inc.

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SAFE WORK CLEARANCE CERTIFICATE

PART I - SECTION B : ISSUE OF CLEARANCE (To Be Completed By Recipient / Safety Watch)

Reason For Work: MCC TESTING

The isolation points, location of grounding and extent of work have been thoroughly discussed with the following:

	Name	Signature		Name	Signature
1	NIKITA K.		11		
2	JEROEN V.		12		
3			13		
4			14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

I am satisfied with the clearance provided and that all dangerous locations are secure from access by unauthorized personnel and equipment has been tested for ABSENCE OF POTENTIAL.

THIS SAFE WORK CLEARANCE IS IN EFFECT AT 10 : 50 HRS

Signed: _____ (Recipient / Safety Watch) Date: JAN 30, 2023

PART II - SECTION C : SURRENDER OF CLEARANCE

WORKER SIGN-OFF. (BY SIGNING HERE YOU HAVE STATED THAT WORK IS COMPLETE AND THE EQUIPMENT IS TO BE TREATED AS ENERGIZED)

	Name	Signature		Name	Signature
1	NIKITA K		11		
2	Jeroen Vanlaere		12		
3			13		
4			14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

CLEARANCE TERMINATION CHECKLIST (COMPLETED BY RECIPIENT)

- ✓ All work on equipment has ceased.
- ✓ All tools and test leads are removed and accounted for.
- ✓ All working grounds have been removed and visually accounted for. No. of Sets: 7
- ✓ All control and power fuses have been returned to the operating state.
- ✓ Equipment checklist is complete and the equipment is ready for energization.
- ✓ All personnel have been informed of equipment status and are to stay CLEAR prior to energization

I have SURRENDERED this SAFE WORK CLEARANCE by my signature and request issuer to complete the verification in Section D below.

THIS SAFE WORK CLEARANCE IS TERMINATED AT 17 : 20 HRS Date: JAN 30, 2023

PART III - SECTION D : VERIFICATION OF CLEARANCE (Must Be Completed By Issuer Prior To Power Restoration)

- ✓ I have read, reviewed and verified the foregoing Part II (Section C)
- ✓ All tools and test leads are removed and accounted for.
- ✓ All working grounds have been removed and visually accounted for. No. of Sets: 1
- ✓ Equipment checklist is complete and the equipment is ready for energization.

SURRENDER OF CLEARANCE IS VERIFIED AND ACCEPTED AT 17 : 25 HRS

Signed: _____ (Issuer) Date: JAN 30, 2022