M & M Electrics
ABN: 91 195 092 811
4 Exhibition Avenue, Biloela QLD 4715
Phone: 07 4992 5022
Email: admin@mmelectrics.com.au

CONDUCTED FOR: BANANA SHIRE COUNCIL	CLIENT REFERENCE	OUR REFERENCE
	180605	JN 8506

Generator Location	Theodore WTP
Asset ID	WPE2937
Manufacturer/Type	PERKINS
Model Number	30120U577313X
Serial Number	
Hours (meter reading)	385 hrs
Rated Capacity	60 KVA

GENERATOR SERVICE RECORD

PROCEDURE / STEPS	COMPLETED	PASS / FAIL	Comments
1. Complete site Risk Assessment and review & sign SWMS	✓		
2. Isolate and lock out generator	✓	*	Removed start key to isolate as no isolator present
3. Visual Inspection of generator:	✓		
* dust seals	✓		
* general condition	✓		
* battery connections	✓		
* battery level	✓	Pass **	Battery was faulty
4. Check electrical connections and wiring for loose or hot connections	✓		
5. Blow out generator and switchboard	✓		
6. Check generation Earths are present and correct	✓		
7. Check trickle charger and operation	n/a		No charger
8. Remove generation isolation	✓		
9. Start generation and confirm it runs	✓	Pass	Battery was flat
10. Check generator output polarity	✓	Pass	
11. Test RCDs if applicable	n/a	n/a	
12. Confirm circuit breakers operate correctly	✓	Pass	

13. Test operation of emergency stop (reset)		*	No E-stop
14. Isolate and lock out generator	✓		
15. Disconnect generator load connections and connect Load Bank cables	✓		
16. Connect Data Logger and set up ready to record test with time confirmed correct	✓		
17. Remove generator isolation	✓		
18. Start recording Data Logger	✓		
19. Start generator	✓		
20. Carry out step test	✓	Pass	10% 9:42am | 30% 9:51am 60% 9:56am | 80% 10:07am
21. Carry out rejection test	✓	Pass	10:49am
22. Carry out acceptance test	✓	Pass	10:50am
23. Carry out ATS operation test		No ATS present	
24. Stop recording Data Logger	✓		
25. Transfer information from Data Logger to Laptop and confirm transfer successful	✓		
26. Erase data on Data Logger	✓		
27. Isolate and lock out generator	✓		
28. Disconnect Load Bank cables and reconnect generator load cables	✓		
29. Pack up and clean up area	✓		
30. Confirm Test Sheet is completed	✓		
31. Take photos of any defects and upload to file	✓		

SERVICE INFORMATION

Serviced By	M & M Electrics
Date	30 November, 2023

ADDITIONAL NOTES

* No battery isolator or Emergency-Stop

** Battery was faulty - replaced with new

Instrument Information

Model Number	FLUKE 1735
Serial Number	S115013012B6
Firmware Revision	V01.09

Software Information

Power Log Version	Classic 4.6
FLUKE 345 DLL Version	11.20.2006
FLUKE 430 DLL Version	1.1.0.12

General Information

Recording location	Theodore WTP
Client	Banana Shire Council
Notes	

Measurement Summary

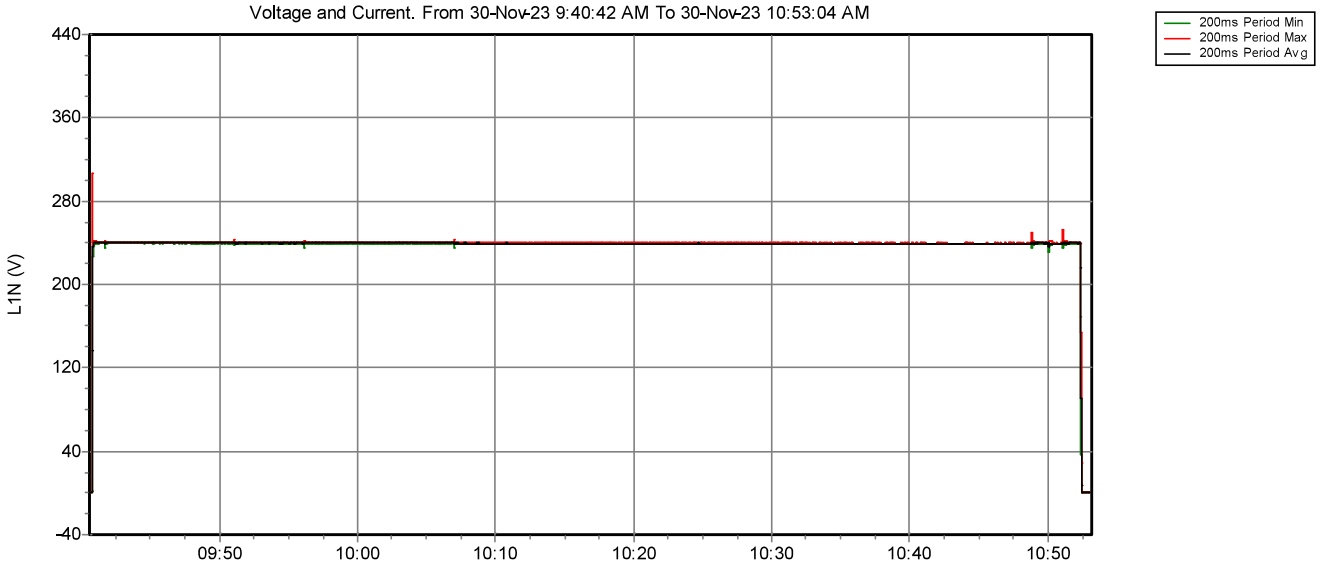
Application mode	
First recording	30-Nov-23 9:40:42 AM 0msec
Last recording	30-Nov-23 10:53:04 AM 0msec
Recording interval	0h 0m 2s 0msec
Nominal Voltage	230 V
Nominal Current	51 A
Nominal Frequency	50 Hz

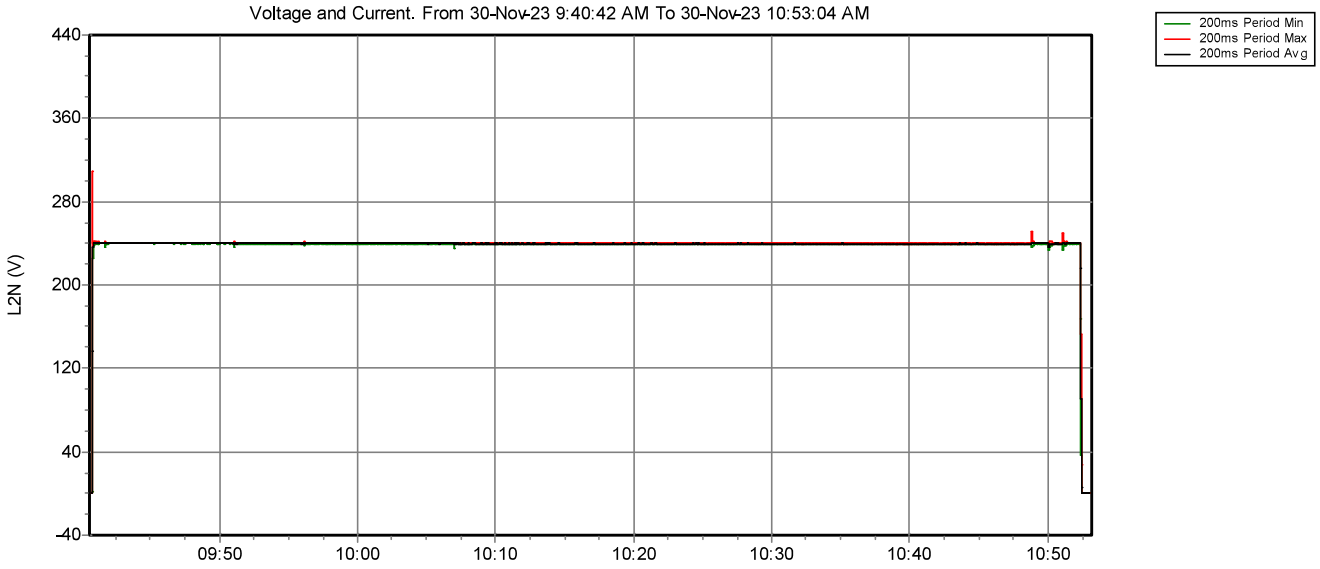
Recording Summary

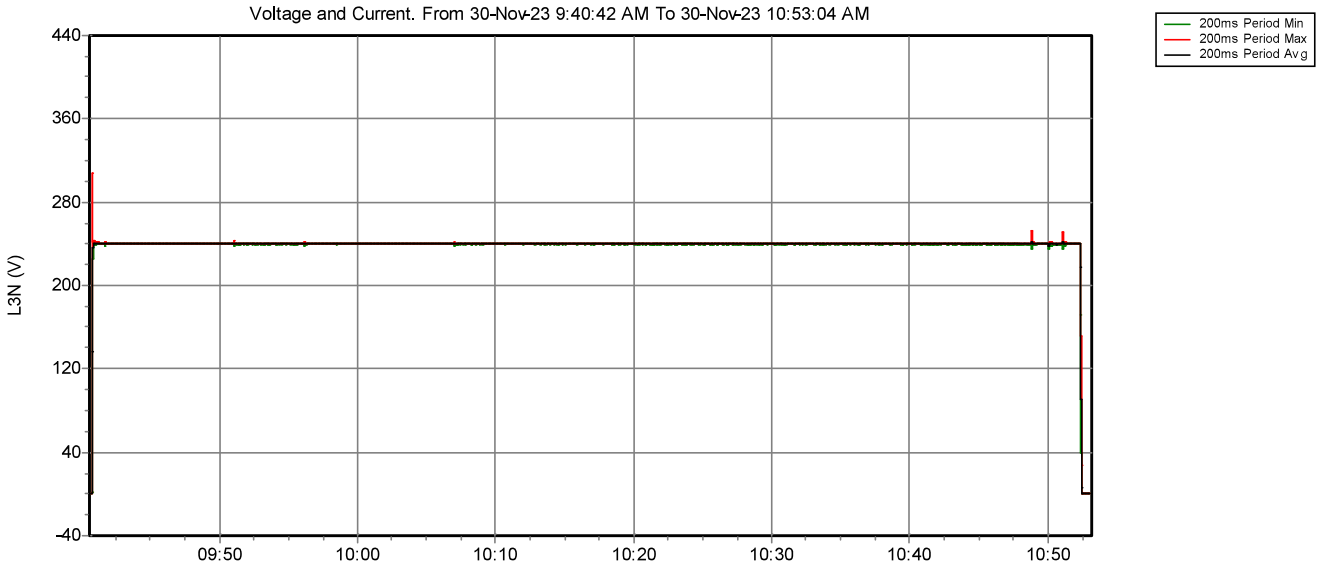
RMS recordings	2172
DC recordings	0
Frequency recordings	2172
Unbalance recordings	0
Harmonic recordings	0
Power harmonic recordings	0
Power recordings	0
Energy recordings	0
Flicker recordings	0
Mains signaling recordings	0

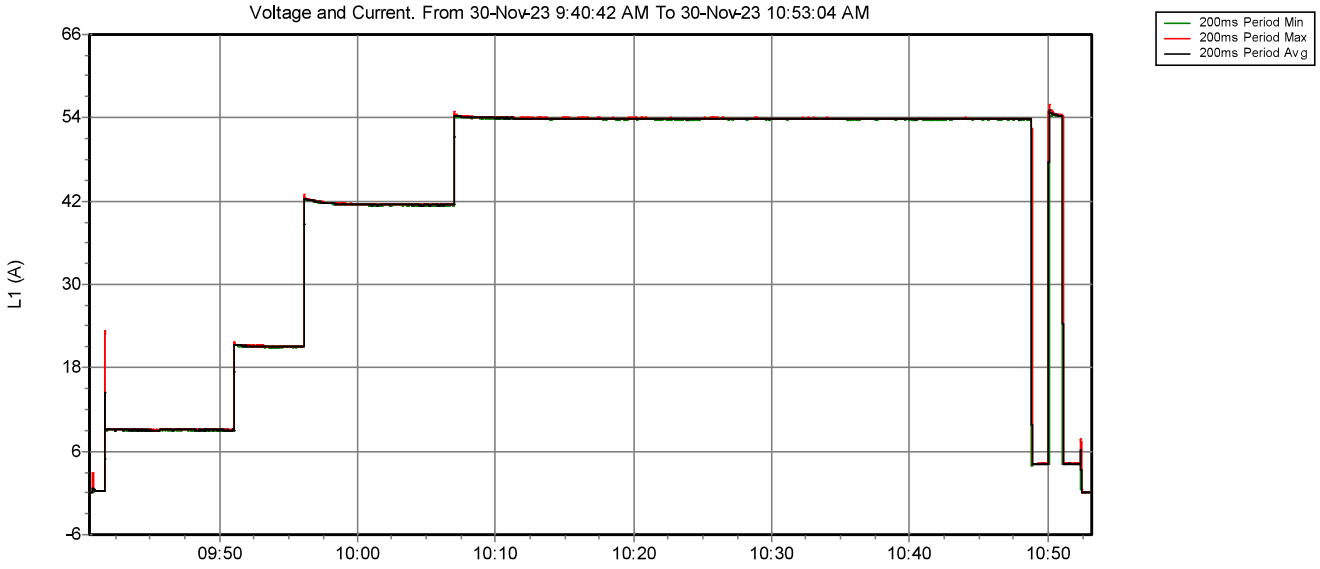
Events Summary

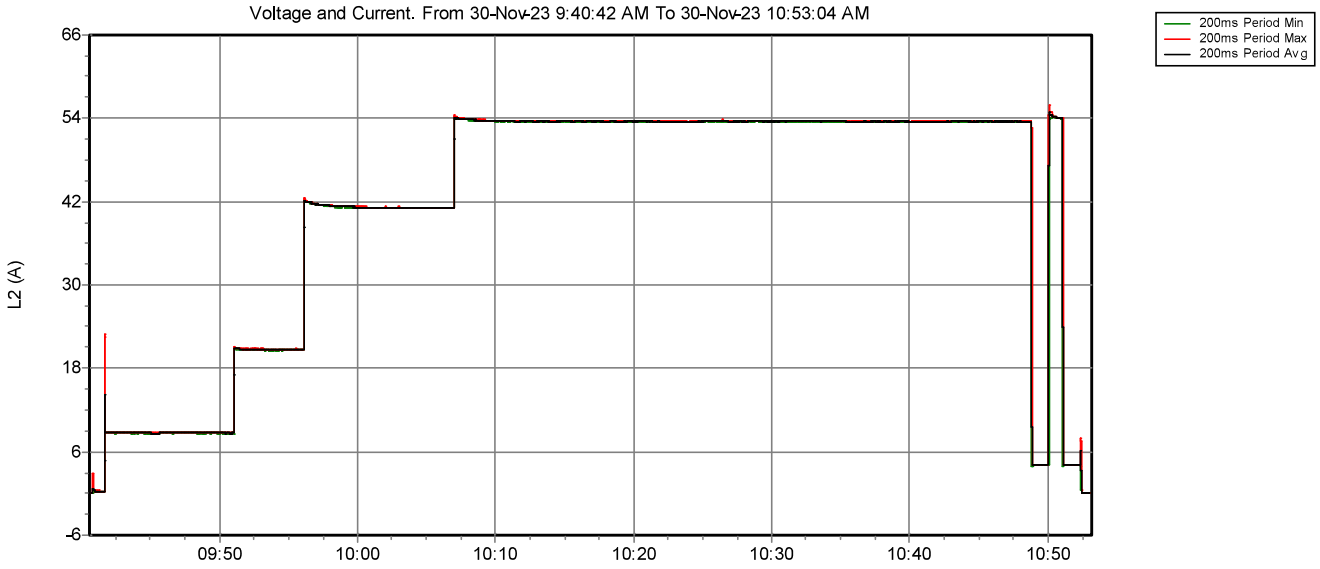
Dips	0
Swells	0
Transients	0
Interruptions	0
Voltage profiles	0
Rapid voltage changes	0
Screens	34
Waveforms	0
Intervals without measurements	0
Inrush current graphics	0

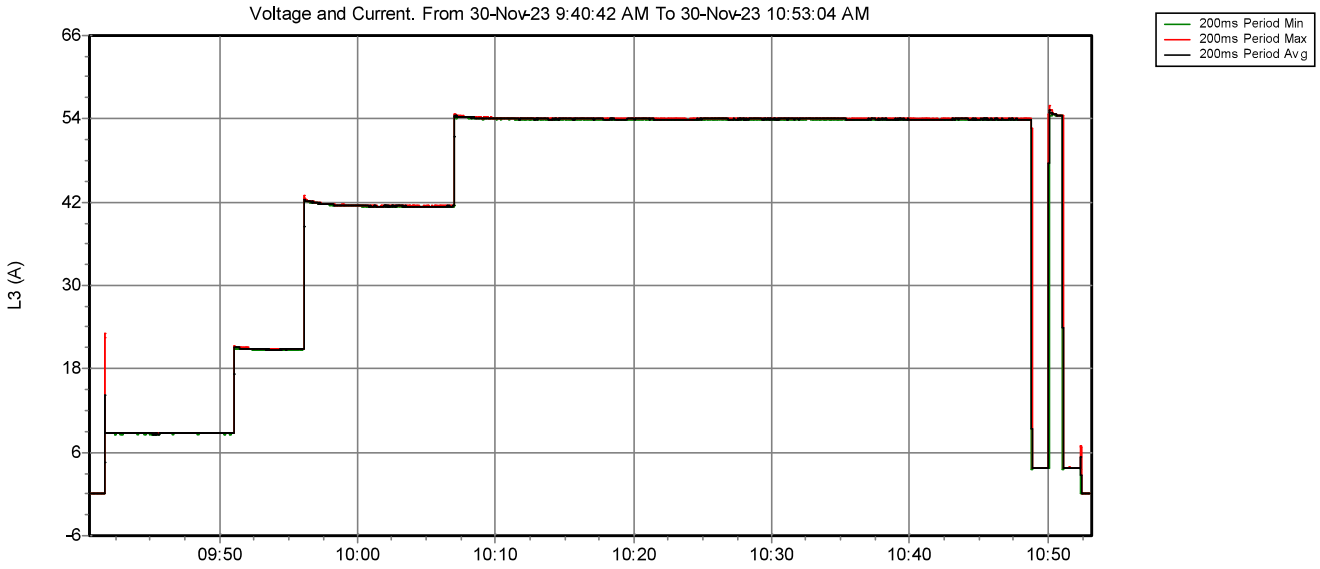

Voltage and Current. From 30-Nov-23 9:40:42 AM To 30-Nov-23 10:53:04 AM
200ms Period Min
200ms Period Max
200ms Period Avg
L1N (V)
440
360
280
200
120
40
-40
09:50
10:00
10:10
10:20
10:30
10:40
10:50

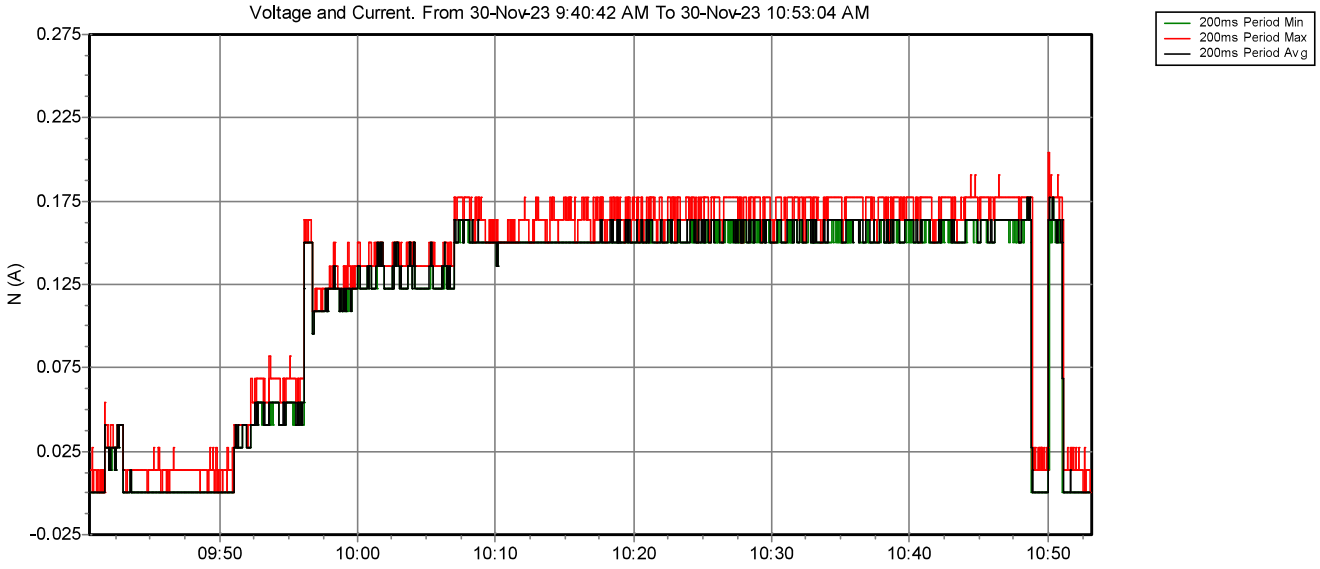

Voltage and Current. From 30-Nov-23 9:40:42 AM To 30-Nov-23 10:53:04 AM
200ms Period Min
200ms Period Max
200ms Period Avg
L2N (V)
440
360
280
200
120
40
-40
09:50
10:00
10:10
10:20
10:30
10:40
10:50

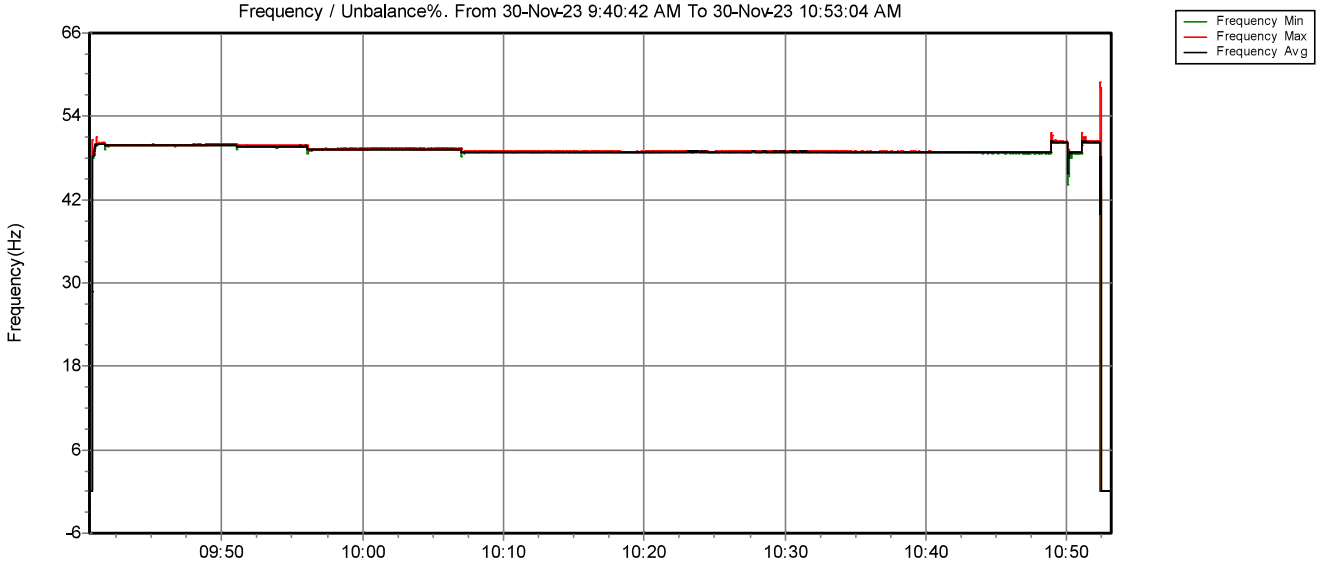

Voltage and Current. From 30-Nov-23 9:40:42 AM To 30-Nov-23 10:53:04 AM
200ms Period Min
200ms Period Max
200ms Period Avg
L3N (V)
440
360
280
200
120
40
-40
09:50
10:00
10:10
10:20
10:30
10:40
10:50

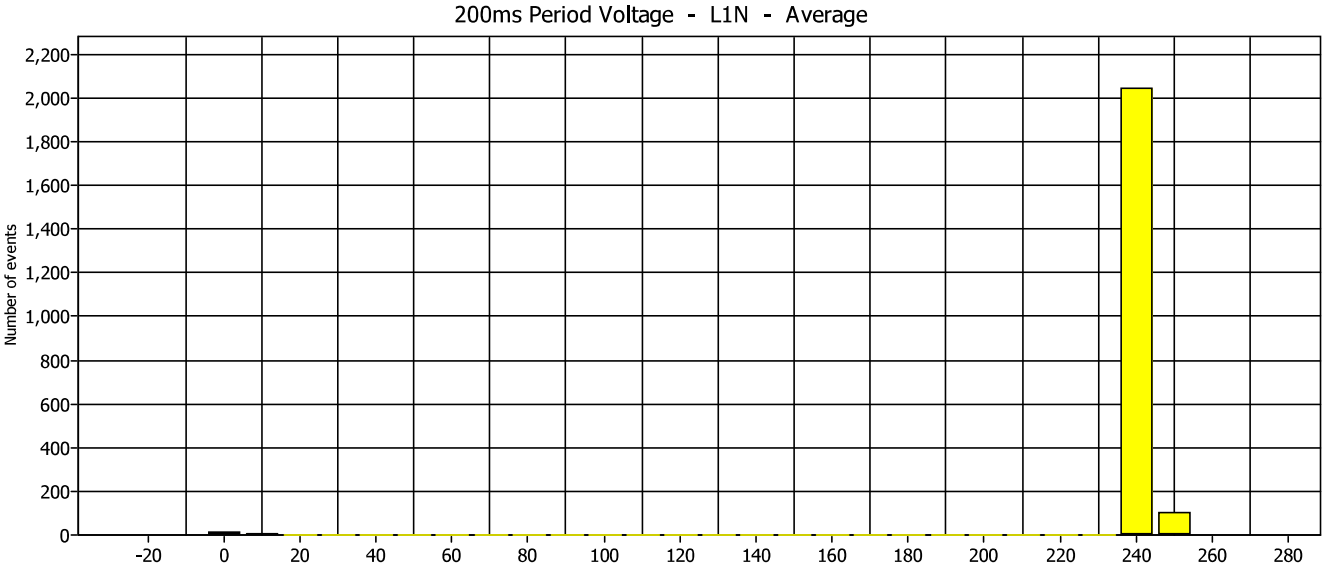

Voltage and Current. From 30-Nov-23 9:40:42 AM To 30-Nov-23 10:53:04 AM
200ms Period Min
200ms Period Max
200ms Period Avg
L1 (A)
66
54
42
30
18
6
-6
09:50
10:00
10:10
10:20
10:30
10:40
10:50


Voltage and Current. From 30-Nov-23 9:40:42 AM To 30-Nov-23 10:53:04 AM
200ms Period Min
200ms Period Max
200ms Period Avg
L2 (A)
66
54
42
30
18
6
-6
09:50
10:00
10:10
10:20
10:30
10:40
10:50


Voltage and Current. From 30-Nov-23 9:40:42 AM To 30-Nov-23 10:53:04 AM
200ms Period Min
200ms Period Max
200ms Period Avg
L3 (A)
66
54
42
30
18
6
-6
09:50
10:00
10:10
10:20
10:30
10:40
10:50


Voltage and Current. From 30-Nov-23 9:40:42 AM To 30-Nov-23 10:53:04 AM
200ms Period Min
200ms Period Max
200ms Period Avg
N (A)
0.275
0.225
0.175
0.125
0.075
0.025
-0.025
09:50
10:00
10:10
10:20
10:30
10:40
10:50


Frequency / Unbalance%. From 30-Nov-23 9:40:42 AM To 30-Nov-23 10:53:04 AM
Frequency Min
Frequency Max
Frequency Avg
Frequency (Hz)
66
54
42
30
18
6
-6
09:50
10:00
10:10
10:20
10:30
10:40
10:50


200ms Period Voltage - L1N - Average
Number of events
2,200
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
-20
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280

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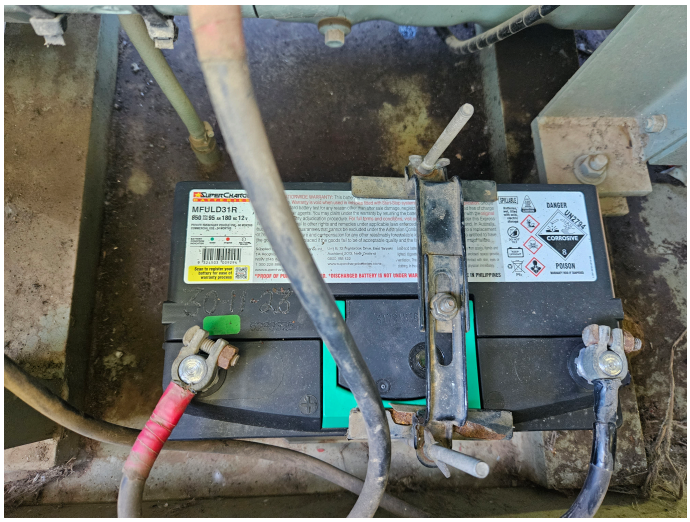
End Results

• Prior to start engine checks	COMPLETED
• Generator 80% load test for 40 minutes	PASSED
• Generator rejection test	PASSED
• Generator acceptance test	PASSED
• Generator automatic start and power transfer switch test	NOT APPLICABLE

Comments/Recommendations

- Generator has no battery isolator and no Emergency Stop.
- Battery was faulty, has been replaced.
- Audit required on MEN connection and ATS wiring.




PHASE AMMETERS
VOLTMETER
Hz
OIL
OFF RUN CRANK
CHARGE
OVERSPEED
LOW OIL PRESSURE
HIGH COOLANT TEMPERATURE
LOW FUEL LEVEL
MANUFACTURED BY
WELLING + CROSSLEY P/L

M&M ELECTRICS
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Risk Assessment

04912

must be conducted BEFORE every job

Client / Location: BSC - Generator testing

Task: Theodore WTP Job Number: 8506

Date: 30-11-23 Time: 8-10 am/pm Expected Duration: 4hrs

Does this activity involve any work listed in the High-Risk Construction Work Activity Table?	
YES ☑	STOP: Review the Safe Work Method Statement for this activity and THEN carry out an Area Risk analysis using this form.
SWMS Ref: 01, 36	
NO ☐	ASSESS RISK: Carry out risk assessment using this form before proceeding

Identify the HAZARDS → Assess the RISKS → APPLY the Hierarchy of CONTROLS

Biological	Biomechanical	Chemical	Physical	Psychosocial
Blood-borne viruses & bacterial infection eg Hep C & Leptospira	Manual handling, job design, workplace design	ASBESTOS, solvents, pesticides, flammable or explosive chemicals	Electricity, noise, gravity, radiation, pressure, vibration, moving plant	Bullying and harassment, work behaviours, fatigue

Hazards Identified	INHERENT Risk Level	Control measures Used	RESIDUAL Risk Level
Electricity	H	Isolate & lockout.	M
wildlife - snakes,			
spiders, wasps	M	inspect work area	M

Comments:

Team working under this risk assessment

Name:	A. Swift	Signature:		Date:	30-11-23
Name:	N. Miller	Signature:		Date:	30/11/23
Name:		Signature:		Date:	
Name:		Signature:		Date:	
Name:		Signature:		Date:	
Name:		Signature:		Date:	

This risk assessment is only valid for the day it was signed. A new risk assessment must be carried out every day or when conditions change

NO JOB IS SO IMPORTANT, THAT IT CANNOT BE DONE SAFELY

Activity Information			
High Risk Activity	Isolation	Project / Task Identification (JN)	JN 8506 – Theodore WTP BSC Generator Servicing 2023
SWMS No	01	Revision No	6
Company Information			
Company Name	M & M Electrics	Company ABN	91 195 092 811
Company Address	4 Exhibition Avenue Biloela	Company Contact	Matthew Middleton
		Phone Number	07 4992 5022 / 0419 679 969
Supervisor:	Anthony Swift	Personnel Consulted in Development	M & M Electrics Team

Requirements					
High Risk Work Contained in This Activity	☐ Asbestos ☐ Confined Space	☐ Demolition ☐ Excavation and Trenching	☐ Hazardous Substances ☐ Heights	☐ Plant ☑ Working on or near Energised Electrical Installations Equipment	☐ Working Near Overhead Powerlines ☐ Working on or near a Road
PPE/Emergency Equipment Required	Switchboard Rescue Kit, Lock Out Tag Out Kit, Fire Extinguisher, First Aid Kit, Calibrated / in-test test equipment, Safety Glasses, LV Gloves				
Plant/Equipment Required for this Activity	None				
Permit/s Required (tick if permits required)	☐ Confined Space ☐ Excavation	☐ Hot Work ☐ Live Electrical	☐ High Voltage ☐ Radiation	☐ Penetration of Walls and Structures	☐ Other, specify
Potential Environmental Impacts (tick applicable impacts)	☐ Vibration ☐ Air pollution (Dust) ☐ Spills to ground or water	☐ Noise pollution ☐ Fire prevention ☐ Mud	☐ Soil Management ☐ Hazards to flora & fauna ☐ Waste Management	☐ Asbestos ☐ Lead Exposure ☐ Services Proximity (Power/Gas)	☐ Other (List):
Competencies/ Qualifications/ Training Requirements	Trained in use of this SWMS		Competent Assistant (Current LVR/CPR Training)		

Risk Matrix

LIKELIHOOD	CONSEQUENCE				
	Insignificant [1]	**Minor [2]**	**Moderate [3]**	**Major [4]**	**Catastrophic [5]**
Almost Certain [5]	Moderate (5)	High (10)	High (15)	Catastrophic (20)	Catastrophic (25)
Likely [4]	Moderate (4)	Moderate (8)	High (12)	Catastrophic (16)	Catastrophic (20)
Possible [3]	Low (3)	Moderate (6)	Moderate (9)	High (12)	High (15)
Unlikely [2]	Low (2)	Moderate (4)	Moderate (6)	Moderate (8)	High (10)
Rare [1]	Low (1)	Low (2)	Low (3)	Moderate (4)	Moderate (5)

If the residual risk	=	Catastrophic (16+)	then	Work unable to proceed seek other methods **(Significant)**
	=	High (10 - 15)	then	Permission from **high level management** for work to proceed **(Significant)**
	=	Moderate (4 - 9)	then	Permission from **worker in charge** for work to proceed **(Insignificant)**
	=	Low (1 - 3)	then	Work able to proceed **(Insignificant)**

1. Eliminate →	2. Substitute →	3. Isolate →	4. Redesign →	5. Administrative →	6. PPE Last Resort
Eliminate the hazard	*Substitute with a less hazardous material, process or equipment*	*Isolate the hazard*	*Redesign equipment or work process*	*Introduce administrative controls*	*Use appropriate Personal Protective Equipment*

C = Consequence	L = Likelihood
5 = **Catastrophic** = Fatality, permanent disability, long term widespread impacts, huge financial loss.	5 = **Almost Certain** = It is almost certain that the risk will occur in most circumstances.
4 = **Major** = Permanent disability or extensive injuries, medium to long term widespread impact, major financial loss.	4 = **Likely** = The risk is likely to occur in most circumstances.
3 = **Moderate** = Lost time injury, reversible medium term local impact, high financial loss.	3 = **Possible** = There is uncertainty that the risk could occur.
2 = **Minor** = Medical treatment, reversible short – medium term impact to local area, medium financial loss.	2 = **Unlikely** = The risk could occur at some time but there is confidence that it will not.
1 = **Insignificant** = First aid, limited impact to minimal area, low financial loss.	1 = **Rare** = The impact/risk may occur only in exceptional circumstances.

SWMS Isolation- Date Created: 29/05/2017

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	INHERENT RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure implementation of controls)
Pre-Start at Worksite	• Lack of Awareness • Hazards and Risks not addressed or managed	L C R 4 3 12	Ensure that prior to work commencing a pre-start is carried out that covers, as a minimum: • Isolation Permit (if required) has been completed and approved • Planned activities for the day • Involve other employees and operators in preparation of risk assessment: all hazards for the activities are identified and control measures for each hazard eliminate the risk or reduce the risk to an acceptable level *Note: All workers and sub-contractors shall attend the pre-start.*	L C R 1 2 2	Site Supervisor
Identify ALL energy sources to be isolated.	• Contact with energy sources.	L C R 4 5 20	• Identify energy sources • Consult operators, labelling or handbooks if present • Confirm isolation control by testing- do not rely on 'switch-on' test • Do not work live • Use appropriate PPE designed and tested for electrical testing • Only staff deemed competent to do so by QTP/Nominee/Technical Supervisor may perform electrical isolation.	L C R 2 3 6	Workers
Isolate ALL power sources associated with the works.	• Contact with energy sources.	L C R 4 5 20	• Confirm isolation of all power sources at switches and valves or by consultation with operators • Open switches, remove fuse links, open circuit breakers or alternatively remove and tie back load side active conductor • Bond conductors where safe, practical and necessary.	L C R 2 3 6	Workers
Secure the isolation.	• Contact with energised components.	L C R 4 5 20	• Apply appropriate lockout devices to isolating components • Attach personal padlock on all isolating switches, valves etc. • Use lockout hasp for multiple padlocks • Where an isolating switch has facility to be locked this shall be used • Fit personal 'DANGER' tags to isolation devices – signed and dated with mobile phone number- secured with an adequate tie.	L C R 2 3 6	Workers
Discharge where necessary any stored energy E.g. Capacitors.	• Contact with live components.	L C R 4 5 20	• Capacitors and associated circuitry should be proved to be de-energised and fully discharged prior to commencing work. • Follow equipment safety directions. E.g. wait 3minutes for capacitor to bleed down	L C R 2 3 6	Workers

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	INHERENT RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure implementation of controls)
	• Arc flash.	L C R 4 5 20	• Short circuiting or earthing of capacitors with metal objects should not be attempted use only suitable devices.	L C R 2 3 6	
Prove de-energised all relevant equipment and conductors.	• Contact with live electrical components • Unreliable test results.	L C R 4 5 20	• Check testing equipment for integrity and ensure it is 'in test' and in good working order. • Suitable electrically protective gloves to be worn. • Prove de-energised in the following sequence a. Test the voltage tester on a known voltage source b. test between all conductors and a known earth c. test between all conductors d. Retest the voltage tester on a known voltage source.	L C R 2 3 6	Workers
Identify limits of safe working area in order to protect against unauthorized access.	• Others contact with live electrical components.	L C R 4 5 20	• Install prohibited area signage or barricade isolation sources • Ensure safety observer present if required • Advise all personnel working in the area of safe working limits and location of any energised components conductors or equipment.	L C R 2 3 6	Workers
Re-energise equipment and apparatus and return to service.	• Self or others making contact with live electrical components.	L C R 4 5 20	• Ensure all work has been completed and is safe • Locks and Danger Tags to be removed by person who placed and signed Tags • Fit Out of Service Tags to any incomplete work • Advise all personnel working in the area of intention to re energise.	L C R 2 3 6	Workers
	• Electrical explosion.	L C R 4 5 20	• Visual inspection of all work performed prior to re energising • All to stand clear when reenergising • Wear flame resistant clothing and safety glasses.	L C R 2 3 6	
Emergency situation	• Delayed response or rescue.	L C R 3 5 15	Complete site safety induction for all staff when required or available • Identify Site first aid officer • Identify site Emergency contact number • Establish Emergency evacuation procedure • Determine site emergency muster point • Ensure Clear access and egress to work area.	L C R 2 1 2	Workers

PROCEDURE (break the job down into steps)	POTENTIAL SAFETY AND ENVIRONMENTAL HAZARDS (what can go wrong)	INHERENT RISK SCORE	MANAGEMENT METHOD (controls to be in place in order to manage potential hazards)	RESIDUAL RISK SCORE	PERSON RESPONSIBLE (to ensure implementation of controls)
	• Contact with energised components.	L C R 4 5 20	• Ensure switchboard rescue kit is available adjacent to live work area • Ensure availability of Fire extinguisher • Ensure availability of First Aid kit.	L C R 3 3 9	
Other	•	L C R	•	L C R	

Legislations/Standards

Queensland (QLD)	
Work Health and Safety Act 2011	COP Electrical Safety - Managing electrical risks in the workplace 2020
Electrical Safety Act 2002	AS/NZS 3000:2018 Electrical Installations – Wiring rules
Work Health and Safety Regulation 2011	AS/NZS 3017:2022 Electrical Installations – Verification by inspection and testing
Electrical Safety Regulation 2013	AS/NZS 4836:2011 Safe working on or near low-voltage and extra-low voltage electrical installations and equipment
COP How to manage work health and safety risks 2021	

Note: For the latest version, please refer to legal register or call MEA on 1300 889 198.

We the undersigned confirm that we have been consulted in the development of this SWMS. If a failure is identified within the SWMS work will stop, the SWMS amended, and changes communicated to the workforce. We also clearly understand that the controls must be applied as documented, otherwise work is to cease immediately. We also confirm that we are qualified to carry out the works identified above; a copy of our required qualifications has been provided and where applicable all insurances and work cover policies to undertake this activity are current.

Name & Signature	Date	Name & Signature	Date
A. Swift A.S	30-11-23		
N. Mill	30/11/23		

SWMS Isolation- Date Created: 29/05/2017									
Approver Name	Matthew Middleton		Signature			Date of Approval		29/05/2017	
Review No	1	2	3	4	5	6	7	8	9
Initials	MM	MM	MM	MM	MM	MM			
Date	29/05/2017	29/05/2018	13/09/19	14/07/2021	11/07/2022	21/08/2023			