ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

KAWAKAWA COMMUNITY LIGHTING AND TRUSTPOWER

Prepared by: Steve Woods

Date audit commenced: 27 September 2021

Date audit report completed: 28 October 2021

Audit report due date: 1 December 2021

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EXECUTIVE SUMMARY

This audit of the Kawakawa Community Lighting DUML database and processes was conducted at the request of Trustpower Limited (**Trustpower**), in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

The database is held by Trustpower in the form of a spreadsheet with updates provided by the Kawakawa Business Association when changes are made.

The audit found four non-compliances and makes no recommendations.

The non-compliances relate to two main issues:

- the incorrect description and wattage values recorded in the database for six lamps, and
- two additional lights were found in the field.

The future risk rating of 12 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Trustpower's responses and agree that a 12 month audit period is appropriate.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	Database wattage is estimated as 11 watts higher than the wattage installed in the field resulting in an over submission of 46.98 kWh per annum.	Weak	Low	3	Investigating
All load recorded in database	2.5	11(2A) and (d) of Schedule 15.3	Two additional items of load found in the field sample.	Weak	Low	3	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	Database wattage is estimated as 11 watts higher than the wattage installed in the field resulting in an over submission of 46.98 kWh per annum.	Weak	Low	3	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	Database wattage is estimated as 11 watts higher than the wattage installed in the field resulting in an over submission of 46.98 kWh per annum.	Weak	Low	3	Investigating
Future Risk Rating						12	

Future risk rating	0	1-4	5-8	9-15	16-18	19+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Description	Recommendation
		Nil	

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Audit observation

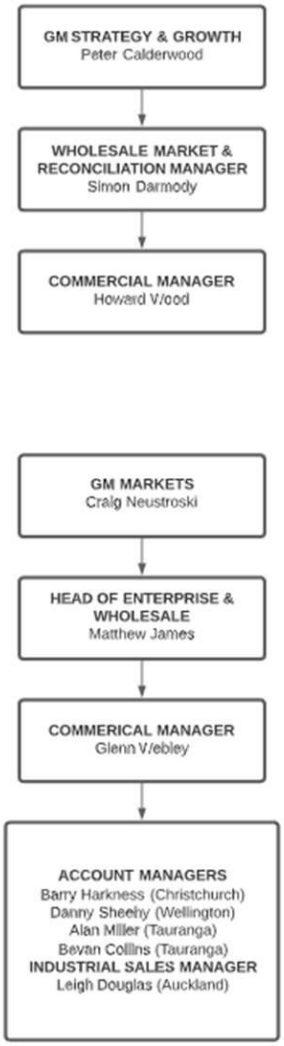
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

There are no exemptions in place relevant to the scope of this audit.

1.2. Structure of Organisation

Trustpower provided the relevant organisational structure:



1.3. Persons involved in this audit

Auditor:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Supporting Auditor:

Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Robbie Diederen	Reconciliation Analyst	Trustpower

1.4. Hardware and Software

The streetlight data is held in an excel spreadsheet. This is backed up in accordance with standard industry procedures. Access to the spreadsheet is restricted by way of user log into the computer drive.

Systems used by the trader to calculate submissions are assessed as part of their reconciliation participant audits.

1.5. Breaches or Breach Allegations

There are no breach allegations relevant to the scope of this audit.

1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000911250TE0FB	KAWAKAWA COMMUNITY LIGHTING x 18 RECORDS	KOE1101	STL	20	1,296

The ballast values are included in the wattage totals.

1.7. Authorisation Received

All information was provided directly by Trustpower.

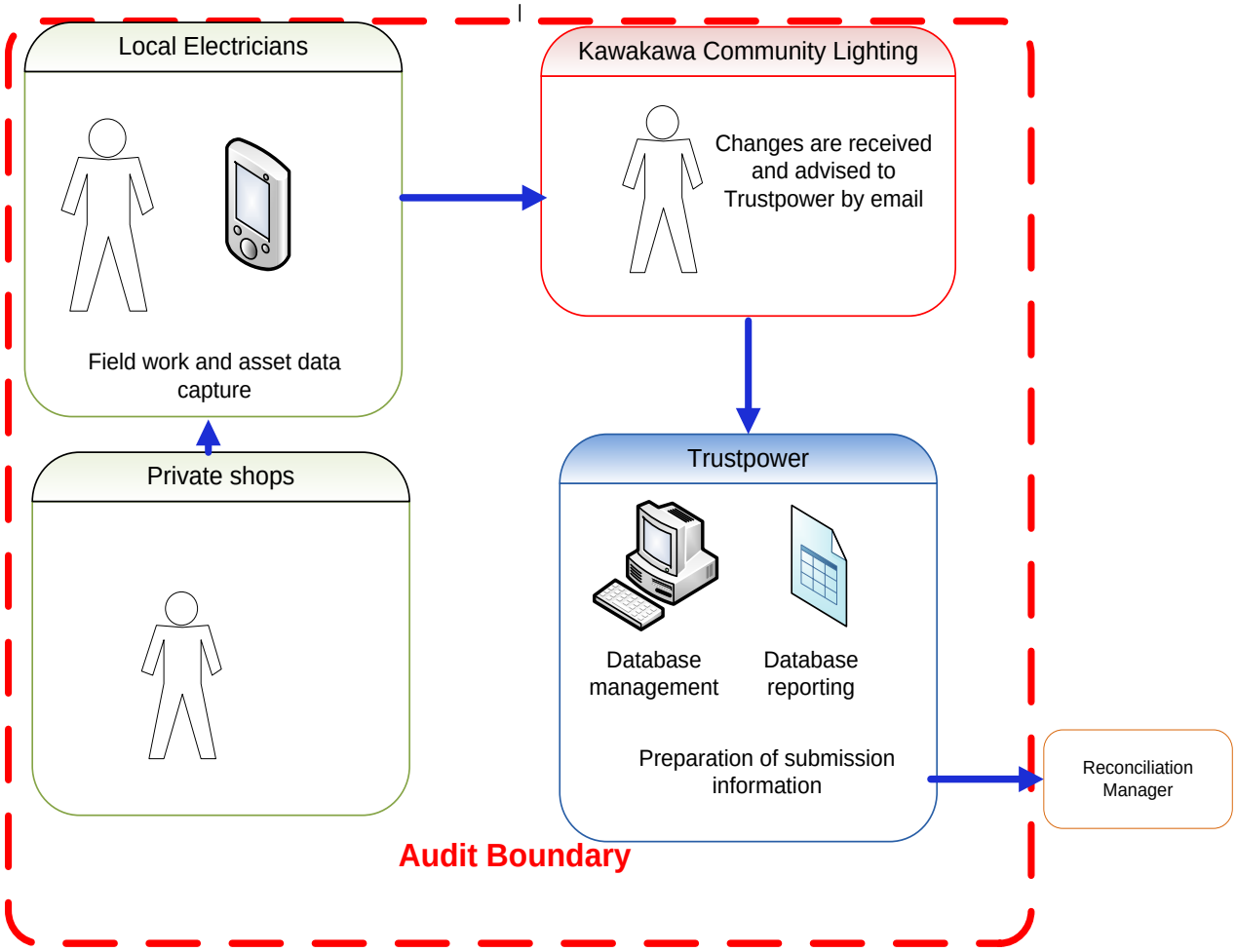
1.8. Scope of Audit

This audit of the Kawakawa Community Lighting DUML database and processes was conducted at the request of Trustpower, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

Kawakawa Community Lighting is located on the Top Energy network. The Kawakawa Business Association arranges any required maintenance. Changes are reported to Trustpower to be recorded in the database. The database is used by Trustpower to calculate submission information.

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the monthly reporting. The diagram below shows the flow of information and the audit boundary for clarity.



The field audit was undertaken of all items of load on 22nd October 2021.

1.9. Summary of previous audit

The previous audit was completed in November 2019 by Rebecca Elliot of Veritek Limited. The current status of that audit's findings is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an over submission of 1,785.53 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an over submission of 1,785.53 kWh per annum.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an over submission of 1,785.53 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing Cleared

Table of Recommendations

Subject	Section	Recommendation for Improvement	Status
		Nil	

1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F)

Code reference

Clause 16A.26 and 17.295F

Code related audit information

Retailers must ensure that DUML database audits are completed:

1. *by 1 June 2018 (for DUML that existed prior to 1 June 2017)*
2. *within three months of submission to the reconciliation manager (for new DUML)*
3. *within the timeframe specified by the Authority for DUML that has been audited since 1 June 2017.*

Audit observation

Trustpower have requested Veritek to undertake this streetlight audit.

Audit commentary

This audit report confirms that the requirement to conduct an audit has been met for this database within the required timeframe.

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

- *DUML database is up to date*
- *methodology for deriving submission information complies with Schedule 15.5.*

Audit observation

The process for calculation of consumption was examined.

Audit commentary

Trustpower uses the STL profile. Trustpower derives the hours of operation from Top Energy.

I compared the submission volumes with the load recorded in the database extract provided for this audit in October against the volumes submitted by Trustpower. The database volumes matched the volumes submitted by Trustpower.

The field audit found there were six lamps with incorrect description and two lamps found in the field that were not recorded in the database. The differences identified result in the database wattage being 11 watts higher than the wattage found in the field. This would result in an estimated over submission of 46.98 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool). The nett result of the database differences is measured as a percentage inaccuracy of 0.84%. However, I have recorded non-compliance as 30% percent of lamp wattages are recorded inaccurately, and the two additional lights found in the field represent a 10% difference in the number of lamps recorded.

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The database records the dates of changes to the database and the Trustpower process ensures that the monthly submission data takes account of any changes made on a daily basis.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 16-Feb-18 To: 22-Oct-21	Database wattage is estimated as 11 watts higher than the wattage installed in the field resulting in an over submission of 46.98 kWh per annum. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as weak as changes in the database are not being managed as expected. The audit risk rating is assessed to be low due to the kWh volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
Contacted Richard of Kawakawa community. All news to him but will check it out. Part of the circuit is out of action at present, waiting for the electrician to get on to it. 20,40 & 12 Gillies have been dead for the last couple of weeks at least. Will amend database & bill October submission to auditors findings. If Richard is able to confirm a date of change I will rework to specific date.	29/10/2021	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
I have communicated this to Richard of Kawakawa Community to ensure he is updated.	29/10/2021	

2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)

Code reference

Clause 11(2)(a) and (aa) of Schedule 15.3

Code related audit information

The DUML database must contain:

- *each ICP identifier for which the retailer is responsible for the DUML*
- *the items of load associated with the ICP identifier.*

Audit observation

The database was checked to confirm an ICP was recorded against each item of load.

Audit commentary

All items of load had an ICP recorded.

Audit outcome

Compliant

2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

The DUML database must contain the location of each DUML item.

Audit observation

The database was checked to confirm the location is recorded for all items of load.

Audit commentary

The database contains Global Positioning System (GPS) coordinates for all of the 20 light fittings. Street address information and business name is recorded for all light fittings.

Audit outcome

Compliant

2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)

Code reference

Clause 11(2)(c) and (d) of Schedule 15.3

Code related audit information

The DUML database must contain:

- *a description of load type for each item of load and any assumptions regarding the capacity*
- *the capacity of each item in watts.*

Audit observation

The database was checked to confirm that it contained a field for lamp type and wattage capacity and included any ballast or gear wattage.

Audit commentary

The database contains a field for lamp type, and this is populated appropriately. The database contains four fields for wattage for each address, firstly the individual lamp wattage, secondly the total wattage excluding gear wattage, the third field contains the gear wattage and the fourth contains the total wattage including gear wattage. All had a value populated.

The accuracy of lamp descriptions, wattages and ballasts is recorded in **section 3.1**.

Audit outcome

Compliant

2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)

Code reference

Clause 11(2A) of Schedule 15.3

Code related audit information

The retailer must ensure that each item of DUML for which it is responsible is recorded in this database.

Audit observation

The field audit was undertaken of all items of load on 22nd October 2021.

Audit commentary

The field audit discrepancies found are detailed in the table below.

Location	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments/ Participant comment
20 Gillies Street	1	1	-	1	1x Round bulkhead LED 12W (estimated) found in the field recorded as 1x 36W fluorescent in the database. Richard to confirm. Will amend to Auditors findings.
21 Gillies Street	2	2	-	1	1x 36W and 1x 58W fluorescent found in the field recorded as 2x 58W fluorescents in the database. Richard to confirm. Will amend to Auditors findings.
27 Gillies Street	1	2	+1	1	2x 56W(estimated) LED battens found in the field recorded as 1x 58W fluorescent in the database. Richard to confirm. Will amend to Auditors findings.
31 Gillies Street	1	1	-	1	1x 56W(estimated) LED batten found in the field recorded as a 1x 58W fluorescent in the database.

Location	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments/ Participant comment
					Richard to confirm. Will amend to Auditors findings.
33 Gillies Street	1	1	-	1	1x 56W(estimated) LED batten found in the field recorded as a 1x 58W fluorescent in the database. Richard to confirm. Will amend to Auditors findings.
45 Gillies Street	1	2	+1	1	1x 56W(estimated) LED batten and 1x 57W(estimated) LED batten found in the field recorded as a 1x 58W fluorescent in the database. Richard to confirm. Will amend to Auditors findings.
TOTAL	20	22	+2	6	

There were six lamps with incorrect description and wattage applied.

This clause relates to lights in the field that are not recorded in the database. There were two additional lights found in the field. I have recorded non-compliance for the additional lights.

The database accuracy is discussed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) and (d) of Schedule 15.3 From: unknown To: 22-Oct-21	Two additional items of load found in the field sample. Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 3

Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as weak as changes in the database are not being managed as expected. The audit risk rating is assessed to be low due to the kWh volumes.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
Contacted Richard of Kawakawa community. All news to him but will check it out. Part of the circuit is out of action at present, waiting for the electrician to get on to it. 20,40 & 12 Gillies have been dead for the last couple of weeks at least. Will amend database & bill October submission to auditors findings. If Richard is able to confirm a date of change I will rework to specific date.		29/10/2021	Investigating
Preventative actions taken to ensure no further issues will occur		**Completion date**	
I have communicated this to Richard of Kawakawa Community to ensure he is updated.		29/10/2021	

2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

The DUML database must track additions and removals in a manner that allows the total load (in kW) to be retrospectively derived for any given day.

Audit observation

The process for tracking of changes in the database was examined.

Audit commentary

The Kawakawa Business Association arranges any required maintenance with local electricians. Changes are reported to Trustpower to be recorded in the database.

The change management process and the compliance of the database reporting provided to Trustpower is detailed in **sections 3.1** and **3.2**.

Audit outcome

Compliant

2.7. Audit trail (Clause 11(4) of Schedule 15.3)

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

The DUML database must incorporate an audit trail of all additions and changes that identify:

- *the before and after values for changes*
- *the date and time of the change or addition*
- *the person who made the addition or change to the database.*

Audit observation

The database was checked for audit trails.

Audit commentary

The database contains a complete audit trail of all changes to the database information.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

3.1. Database accuracy (Clause 15.2 and 15.37B(b))

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

Audit must verify that the information recorded in the retailer's DUML database is complete and accurate.

Audit observation

A field audit of all load items was conducted to determine the database accuracy.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority.

Audit commentary

Field Audit Findings

The field audit found there were six lamps with incorrect description and two lamps found in the field that were not recorded in the database. The differences identified result in the database wattage being 11 watts higher than the wattage found in the field. This would result in an estimated over submission of 46.98 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool). The nett result of the database differences is measured as a percentage inaccuracy of 0.84%. However, I have recorded non-compliance as 30% percent of lamp wattages are recorded inaccurately, and the two additional lights found in the field represent a 10% difference in the number of lamps recorded.

Wattage and ballast accuracy findings

I checked the ballasts being applied and found that there were no discrepancies when compared to the standardised wattage table.

Change management process findings

The Kawakawa Business Association arranges any required maintenance with local electricians. Changes are reported to Trustpower to be recorded in the database.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 16-Feb-18 To: 22-Oct-21	Database wattage is estimated as 11 watts higher than the wattage installed in the field resulting in an over submission of 46.98 kWh per annum. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as weak as changes in the database are not being managed as expected. The impact is assessed to be low due to the estimated impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
Contacted Richard of Kawakawa community. All news to him but will check it out. Part of the circuit is out of action at present, waiting for the electrician to get on to it. 20,40 & 12 Gillies have been dead for the last couple of weeks at least. Will amend database & bill October submission to auditors findings. If Richard is able to confirm a date of change I will rework to specific date.	29/10/2021	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
I have communicated this to Richard of Kawakawa Community to ensure he is updated.	29/10/2021	

3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

- *volume information for the DUML is being calculated accurately*
- *profiles for DUML have been correctly applied.*

Audit observation

The submission was checked for accuracy for the month the database extract was supplied. This included:

- checking the registry to confirm that all ICPs have the correct profile and submission flag, and

- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit commentary

Trustpower uses the STL profile. Trustpower derives the hours of operation from Top Energy. I checked the calculation for the month of October and confirmed that the submission matched the database.

The field audit found there were six lamps with incorrect description and two lamps found in the field that were not recorded in the database. The differences identified result in the database wattage being 11 watts higher than the wattage found in the field. This would result in an estimated over submission of 46.98 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool). The nett result of the database differences is measured as a percentage inaccuracy of 0.84%. However, I have recorded non-compliance as 30% percent of lamp wattages are recorded inaccurately, and the two additional lights found in the field represent a 10% difference in the number of lamps recorded.

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The database records the dates of changes to the database and the Trustpower process ensures that the monthly submission data takes account of any changes made on a daily basis.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 16-Feb-18 To: 22-Oct-21	Database wattage is estimated as 11 watts higher than the wattage installed in the field resulting in an over submission of 46.98 kWh per annum. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as weak as changes in the database are not being managed as expected. The audit risk rating is low as the errors are all minor in volume.
Actions taken to resolve the issue	**Completion date** / **Remedial action status**

Contacted Richard of Kawakawa community. All news to him but will check it out. Part of the circuit is out of action at present, waiting for the electrician to get on to it. 20,40 & 12 Gillies have been dead for the last couple of weeks at least. Will amend database & bill October submission to auditors findings. If Richard is able to confirm a date of change I will rework to specific date.	29/10/2021	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
I have communicated this to Richard of Kawakawa Community to ensure he is updated.	29/10/2021	

CONCLUSION

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

The database is held by Trustpower in the form of a spreadsheet with updates provided by the Kawakawa Business Association when changes are made.

The audit found four non-compliances and makes no recommendations.

The non-compliances relate to two main issues:

- the incorrect description and wattage values recorded in the database for six lamps, and
- two additional lights were found in the field.

The future risk rating of 12 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Trustpower's responses and agree that a 12 month audit period is appropriate.

PARTICIPANT RESPONSE

I Contacted Richard of Kawakawa community on 29 October 2021.

He was not aware of any changes and, all news to him but will check it out. Part of the circuit is out of action at present, waiting for the electrician to get on to it. Street numbers 20,40 & 12 Gillies have been dead for the last couple of weeks at least.

I will amend database & bill October submission to auditors findings.

If Richard is able to confirm a date of change I will rework to specific date.