

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

PORIRUA CITY COUNCIL
AND MERIDIAN ENERGY LIMITED

Prepared by: Steve Woods

Date audit commenced: 13 May 2021

Date audit report completed: 13 August 2021

Audit report due date: 24 December 2020

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EXECUTIVE SUMMARY

This audit of the **Porirua City Council (PCC)** DUML database and processes was conducted at the request of **Meridian Energy Limited (Meridian)**, 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 scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information.

A RAMM database is managed by PCC in relation to this load. The database is remotely hosted by RAMM Software Ltd.

Field work and new light installations are carried out by Fulton Hogan, who update the database using Pocket RAMM. Park lights are managed by the parks team.

As recorded in the previous audit report and in this audit report, the database contains a large number of errors. PCC has almost completed a full field audit and the results will be populated into the database. The full field audit will not include parks or property lights.

Database accuracy is described as follows:

Result	Percentage	Comments
The point estimate of R	90.9	Wattage from survey is lower than the database wattage by 9.1%
R _L	81.2	With a 95% level of confidence, it can be concluded that the error could be between -18.8% and -1.2%
R _H	98.8	

In absolute terms, total annual consumption is estimated to be 84,800 kWh lower than the DUML database indicates.

During the previous audit, PCC provided the results of a full field survey of Parks and Property lights. This audit found that there were 440 lights, 324 more than are recorded in the RAMM database. The field survey results were not in a format where the total watts could be easily derived, but if I use the average wattage of the Parks and Property lights that are in RAMM (102 watts) there is under submission of 141,000 kWh per annum. I recorded that PCC intended to populate the RAMM database with the Parks and Property field survey results; however, they recently advised that this is not planned. Meridian is using the RAMM database information which only records a small proportion of the lights.

The future risk rating of 38 indicates that the next audit be completed in three months. This may not be sufficient time to resolve the matters raised and I recommend the Authority considers a next audit date of December 2021 to allow the field audit results to be populated and to give time to identify a data source for Parks lights.

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	<p>Under submission of 141,000 kWh due to inaccurate parks lighting records in RAMM.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p> <p>Livening dates not recorded for new connections.</p> <p>Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1.</p>	Weak	High	9	Identified
ICP identifier	2.2	11(2)(a) and (aa) of Schedule 15.3	ICP not recorded for three items of load.	Moderate	Low	2	Identified
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	One item of load does not have sufficient location information to enable it to be readily locatable.	Weak	Low	3	Identified
Description and capacity of load	2.4	11(2)(b) of Schedule 15.3	<p>35 lights have insufficient information to determine the light type.</p> <p>One lamp wattage recorded as zero.</p> <p>29 lamp wattages and descriptions are blank</p>	Weak	Low	3	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Five additional lamps in the field that were not recorded in the database.	Weak	Low	3	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	<p>3 items of load do not have the ICP recorded.</p> <p>One item of load does not have complete location information.</p> <p>2,028 examples of incorrect or incomplete description or capacity information.</p>	Weak	High	9	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			<p>Database is not confirmed as accurate with a 95% level of confidence.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p> <p>Livening dates not recorded for new connections.</p> <p>Under submission of 141,000 kWh due to inaccurate parks lighting records in RAMM.</p>				
Volume information accuracy	3.2	15.2 and 15.37B(c)	<p>Under submission of 141,000 kWh due to inaccurate parks lighting records in RAMM.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p> <p>Livening dates not recorded for new connections.</p> <p>Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1.</p>	Weak	High	9	Identified
Future Risk Rating						38	

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

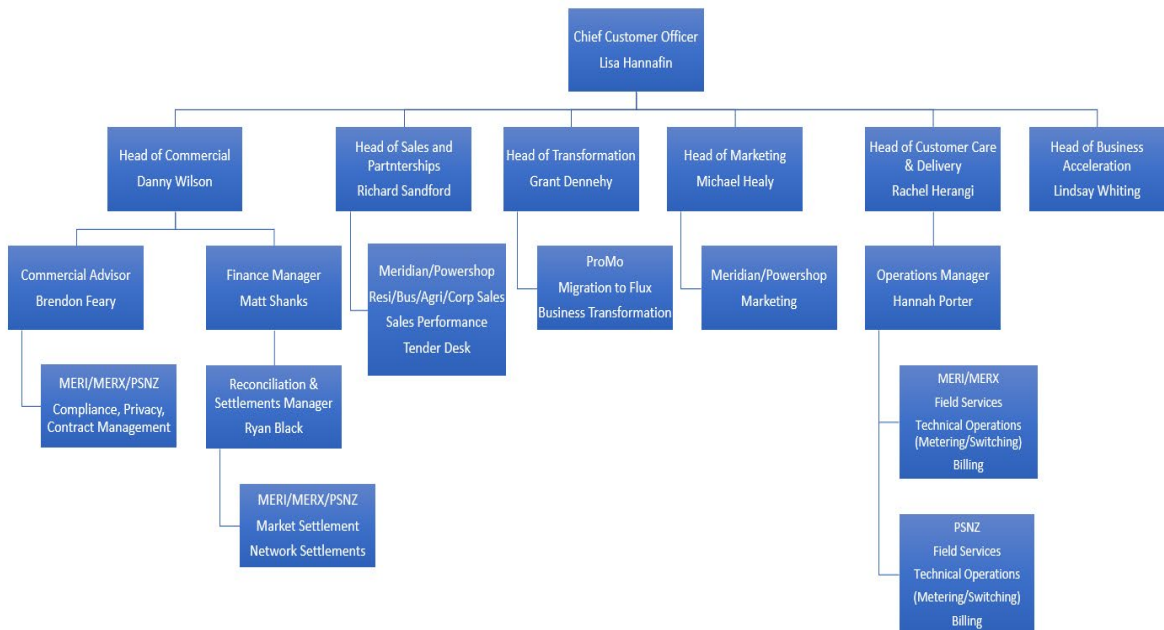
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditor:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Amy Cooper	Compliance Officer	Meridian
Jane Pearson	RAMM Technician	Porirua City Council

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by RAMM Software Ltd. The database is commonly known as “RAMM” which stands for “Roading Asset and Maintenance Management”.

PCC confirmed that the database back-up is in accordance with standard industry procedures. Access to the database is secure by way of password protection.

Systems used by the trader and their agent 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	Registry profile	Number of items of load	Database wattage (watts)
0000023024WE5D5	PCC Property – TKR0331	DST	49	5,569
0001255308UN5C4	MASTER ICP PCC Streetlight – TKR0331	DST	3,817	166,286
0001256873UNFA3	MASTER ICP PCC Streetlight – PNI0331	DST	1,403	51,714
0000161078CKA46	MASTER ICP PCC PARKS # PNI0331	DST	34	2,333
0000161079CK603	PCC PARKS #TKR0331 TOTAL ASSETS	DST	0	0
Total			5,303	225,902

1.7. Authorisation Received

All information was provided directly by Meridian or PCC.

1.8. Scope of Audit

This audit of the PCC DUML database and processes was conducted at the request of Meridian, 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.

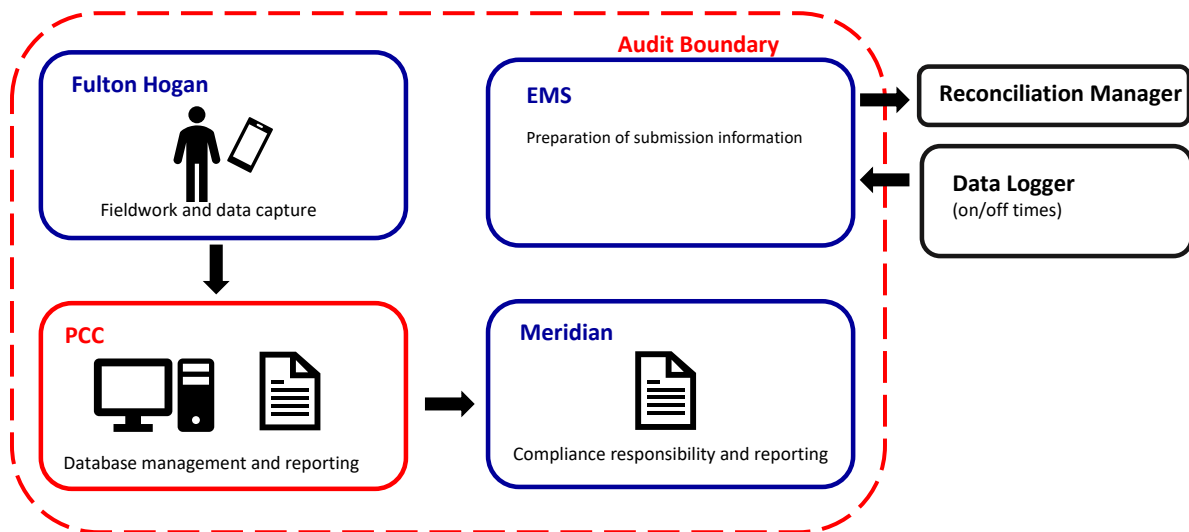
The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information.

A RAMM database is managed by PCC in relation to this load. The database is remotely hosted by RAMM Software Ltd.

Field work and new light installations are carried out by Fulton Hogan. Pocket RAMM is used to update the database.

Park lights are managed by the parks team.

The diagram below shows the audit boundary for clarity.



The field audit was undertaken of a statistical sample of 298 items of load.

1.9. Summary of previous audit

The previous audit was completed in February 2020 by Steve Woods of Veritek Limited. Six non-compliances were identified, and one recommendation was made. The statuses of the findings are described below.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	<p>Potential under submission of 8,016 kWh p.a. due to incorrect on/off times.</p> <p>Potential over submission of 35,258 kWh p.a. due to incorrect wattages.</p> <p>Incorrect use of CST profile.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p> <p>Living dates not recorded for new connections.</p> <p>Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1.</p>	Still existing apart from the incorrect use of the profile
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	One item of load does not have sufficient location information to enable it to be readily locatable.	Still existing
Description and capacity of load	2.4	11(2)(b) of Schedule 15.3	<p>36 lights have insufficient information to determine the light type.</p> <p>67 lamp wattages were recorded as zero.</p> <p>Two gear wattages were recorded as zero.</p>	Still existing
All load recorded in database	2.5	11(2A) of Schedule 15.3	12 additional lamps in the field that were not recorded in the database.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	<p>4,238 examples of incorrect or incomplete description or capacity information.</p> <p>Database is not confirmed as accurate with a 95% level of confidence.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p> <p>Living dates not recorded for new connections.</p>	Still existing

Subject	Section	Clause	Non-compliance	Status
Volume information accuracy	3.2	15.2 and 15.37B(c)	<p>Potential under submission of 8,016 kWh p.a. due to incorrect on/off times.</p> <p>Potential over submission of 35,258 kWh p.a. due to incorrect wattages.</p> <p>Incorrect use of CST profile.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p> <p>Living dates not recorded for new connections.</p> <p>Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1.</p>	Still existing apart from the incorrect use of the profile

Subject	Section	Clause	Recommendation	Status
ICP identifier and items of load	2.1	11(2)(a) and (aa) of Schedule 15.3	Confirm whether lights with missing ICP numbers and owner of "Private" are being reconciled as standard unmetered load or whether shared unmetered load should be created for these lights.	Cleared

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

Meridian have requested Veritek to undertake this streetlight audit.

Audit commentary

The audit was due by 24 December 2020, but the ICPs did not switch to Meridian until 1 February 2021, therefore Meridian was not responsible for the audit being late.

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 and the application of profiles was checked. The database was checked for accuracy.

Audit commentary

Meridian reconciles this DUML load using the DST profile. The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM and the “burn time” which is sourced from data loggers installed on the Unison and Powerco networks. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian’s reconciliation participant audit and EMS’ agent audit.

The capacities supplied to EMS for April 2021 were checked and confirmed to be the same as the database.

The field audit determined that in absolute terms, total annual consumption is estimated to be 84,800 kWh lower than the DUML database indicates.

Under submission of 141,000 kWh per annum is occurring due to inaccurate parks lighting information in RAMM.

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 current monthly report is provided as a snapshot and this practice is non-compliant. The database contains a “light install date” and a “lamp install date” but there is not a field for “livening date” for newly connected lights. When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Mar-20 To: 01-Jun-21	Under submission of 141,000 kWh due to inaccurate parks lighting records in RAMM. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Liveness dates not recorded for new connections. Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Weak Breach risk rating: 9		
Audit risk rating	Rationale for audit risk rating		
High	The controls over the database are rated as weak, due to the large number of discrepancies identified during the field count and analysis of the RAMM database extract. The audit risk rating is high based on kWh variances detailed above.		
Actions taken to resolve the issue		Completion date	Remedial action status
Porirua CC have engaged the services of an external contractor who has reviewed the database and the findings of this audit and provided recommendations to the council regarding action required to resolve the issues identified. Meridian is actively engaging with PCC to establish when this action will be taken including sourcing of correct information for the Parks and Property lighting. Historic submission information will be corrected as required.		31 Dec 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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 DUMML database must contain:

- each ICP identifier for which the retailer is responsible for the DUMML,

- *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

Three items of load do not have the ICP recorded.

The previous audit recorded findings in relation to private lights, but it was confirmed that these are not the responsibility of Porirua CC.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.2 With: Clause 11(2)(a) and (aa) of Schedule 15.3 From: 01-Mar-20 To: 01-Jun-21	ICP not recorded for three items of load. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
A full review of database discrepancies has been conducted and provided to PCC for resolution. We will continue to liaise with PCC to ensure action is taken to resolve these issues.		31 Dec 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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 DUMML database must contain the location of each DUMML item.

Audit observation

The databases were checked to confirm the location is recorded for all items of load.

Audit commentary

The database contains fields for the street address and also GPS coordinates.

28 items of load do not have GPS coordinates. Of these only one item of load does not have sufficient other information to enable it to be located. It is the same item of load recorded during the last two audits and is shown in the table below.

House Address	Pole Number	Side	Offset	Northing	Easting
JOHN BURKE DRIVE		Unknown	0	0	0

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: 01-Aug-19 To: 01-Jun-21	One item of load does not have sufficient location information to enable it to be readily locatable. 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	The controls are recorded as weak because although only one example was found, there does not appear to be a process to identify and resolve discrepancies. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
A full review of database discrepancies has been conducted and provided to PCC for resolution. We will continue to liaise with PCC to ensure action is taken to resolve these issues.		31 Dec 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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 it contained a field for lamp type and wattage capacity and included any ballast or gear wattage and that each item of load had a value recorded in these fields.

Audit commentary

Lamp description information is contained within the lamp make model field, and four other model fields. Analysis of the database found:

- 35 lights have insufficient information to determine the light type,
- 29 lamp wattages were blank,
- 29 lamp descriptions were blank,
- 1 lamp wattage is zero, and
- 1,963 items of load have wattages different to the description.

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

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.4 With: Clause 11(2)(b) of Schedule 15.3 From: 01-Mar-20 To: 01-Jun-21	35 lights have insufficient information to determine the light type. One lamp wattage recorded as zero. 29 lamp wattages and descriptions are blank. 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	The controls are rated as weak because there does not appear to be a process in place to identify and resolve discrepancies. The audit risk rating is low based on the small volume of lights affected.		
Actions taken to resolve the issue		Completion date	Remedial action status
A full review of database discrepancies has been conducted and provided to PCC for resolution. We will continue to liaise with PCC to ensure action is taken to resolve these issues.		31 Dec 2021	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	

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 a statistical sample of 298 items of load. The sample was selected from five strata, as follows:

- roads A-D,
- roads E-K,
- roads L-O,
- roads P-S, and
- roads T-Z.

Audit commentary

The field audit discrepancies were provided in a separate spreadsheet and can be summarised as follows:

- 51 incorrect wattages,
- 5 additional fittings, and
- 11 fittings in the database but not in the field.

This clause relates to lights in the field that are not recorded in the database. The field audit found five additional lights. This is recorded as non-compliance.

The count differences where lights were present in the database but not recorded in the field, and wattage differences are discussed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-Mar-20 To: 01-Jun-21	Five additional lamps in the field that were not recorded in the database. 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	The controls are rated as weak because there does not appear to be a process in place to identify and resolve discrepancies.	
	The audit risk rating is low based on the small volume of lights affected.	
Actions taken to resolve the issue	Completion date	Remedial action status
A full review of database discrepancies has been conducted and provided to PCC for resolution. We will continue to liaise with PCC to ensure action is taken to resolve these issues.	31 Dec 2021	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	

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 DUMML 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 RAMM database functionality achieves compliance with the code.

The change management process and the compliance of the database reporting provided to Meridian 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 DUMML 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 has a complete audit trail.

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

The DUML Statistical Sampling Guideline was used to determine the database accuracy. The table below shows the survey plan.

Plan Item	Comments
Area of interest	PCC streetlights in the Porirua area
Strata	The database contains 5,303 items of load in the PCC area. The processes for the management of all PCC items of load is the same. I selected the following strata: <ul style="list-style-type: none">• roads A-D,• roads E-K,• roads L-O,• roads P-S, and• roads T-Z.
Area units	I created a pivot table of the roads in each database and used a random number generator in each spreadsheet to select a total of 41 sub-units.
Total items of load	298 items of load were checked.

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

The change management process to track changes and timeliness of database updates was evaluated.

Audit commentary

A field audit was conducted of a statistical sample of 298 items of load. The “database auditing tool” was used to analyse the results, which are shown in the table below.

Result	Percentage	Comments
The point estimate of R	90.9	Wattage from survey is lower than the database wattage by 9.1%
R _L	81.2	With a 95% level of confidence, it can be concluded that the error could be between -18.8% and -1.2%
R _H	98.8	

These results were categorised in accordance with the “Distributed Unmetered Load Statistical Sampling Audit Guideline”, effective from 1 February 2019 and the table below shows that Scenario C (detailed below) applies.

The conclusion from Scenario C is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between 1.2%% lower and 18.8% lower than the wattage recorded in the DUML database. Non-compliance is recorded because the potential error is greater than 5.0%.

In absolute terms the installed capacity is estimated to be 20.0 kW lower than the database indicates.

There is a 95% level of confidence that the installed capacity is between 3.0 kW lower to 41 kW lower than the database.

In absolute terms, total annual consumption is estimated to be 84,800 kWh lower than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 11,000kWh p.a. lower to 175,800 kWh p.a. lower than the database indicates.

Scenario	Description
A - Good accuracy, good precision	<p>This scenario applies if:</p> <ul style="list-style-type: none"> (a) R_H is less than 1.05; and (b) R_L is greater than 0.95 <p>The conclusion from this scenario is that:</p> <ul style="list-style-type: none"> (a) the best available estimate indicates that the database is accurate within +/- 5 %; and (b) this is the best outcome.
B - Poor accuracy, demonstrated with statistical significance	<p>This scenario applies if:</p> <ul style="list-style-type: none"> (a) the point estimate of R is less than 0.95 or greater than 1.05 (b) as a result, either R_L is less than 0.95 or R_H is greater than 1.05. <p>There is evidence to support this finding. In statistical terms, the inaccuracy is statistically significant at the 95% level</p>
C - Poor precision	<p>This scenario applies if:</p> <ul style="list-style-type: none"> (a) the point estimate of R is between 0.95 and 1.05 (b) R_L is less than 0.95 and/or R_H is greater than 1.05

	The conclusion from this scenario is that the best available estimate is not precise enough to conclude that the database is accurate within +/- 5 %
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Lamp description and capacity accuracy

- 35 lights have insufficient information to determine the light type,
- 29 lamp wattages were blank,
- 29 lamp descriptions were blank,
- 1 lamp wattage is zero, and
- 1,963 items of load have wattages different to the description.

Address accuracy

The location information is incomplete for one item of load.

ICP number and owner accuracy

Three items of load do not have the ICP recorded.

Change management process findings

The RAMM database used for submission is managed by PCC. The streetlight contractors update the database using Pocket RAMM.

I conducted a walkthrough of the new connection process. The lights are recorded in RAMM when an “as built” plan is provided to Fulton Hogan.

The current monthly report is provided as a snapshot and this practice is non-compliant. The database contains a “light install date” and a “lamp install date” but there is not a field for “livening date” for newly connected lights. Lights can be livened prior to “vesting” and PCC will not take responsibility for the consumption until “vesting” occurs. The new connections process will need to be revised and it’s possible separate ICPs may be required for the developer in situations where lighting is livened but is not the responsibility of PCC. When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes.

Festive lighting is no longer connected.

Outage patrols are conducted at night over a 4-month cycle.

Parks Lighting

During the previous audit, PCC provided the results of a full field survey of Parks and Property lights. This audit found that there were 440 lights, 324 more than are recorded in the RAMM database. The field survey results were not in a format where the total watts could be easily derived, but if I use the average wattage of the Parks and Property lights that are in RAMM (102 watts) there is under submission of 141,000 kWh per annum. I recorded that PCC intended to populate the RAMM database with the Parks and Property field survey results; however, they recently advised that this is not planned. Meridian is using the RAMM database information which only records a small proportion of the lights.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Mar-20 To: 01-Jun-21	3 items of load do not have the ICP recorded. One item of load does not have complete location information. 2,028 examples of incorrect or incomplete description or capacity information. Database is not confirmed as accurate with a 95% level of confidence. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Liveness dates not recorded for new connections. Under submission of 141,000 kWh due to inaccurate parks lighting records in RAMM. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Weak Breach risk rating: 9		
Audit risk rating	Rationale for audit risk rating		
High	The controls over the database are rated as weak, due to the large number of discrepancies identified during the field count and analysis of the RAMM database extract. The audit risk rating is high based on kWh variances.		
Actions taken to resolve the issue		Completion date	Remedial action status
A full review of database discrepancies has been conducted and provided to PCC for resolution. We will continue to liaise with PCC to ensure action is taken to resolve these issues.		31 Dec 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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 the ICP has the correct profile and submission flag, and
- checking the database extract combined with the on hours against the submitted figure to confirm accuracy.

Audit commentary

Meridian reconciles this DUML load using the DST profile. The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM and the “burn time” which is sourced from data loggers installed on the Unison and Powerco networks. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian’s reconciliation participant audit and EMS’ agent audit.

The capacities supplied to EMS for April 2021 were checked and confirmed to be the same as the database.

The field audit determined that in absolute terms, total annual consumption is estimated to be 84,800 kWh lower than the DUML database indicates.

Under submission of 141,000 kWh per annum is occurring due to inaccurate parks lighting information in RAMM.

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 current monthly report is provided as a snapshot and this practice is non-compliant. The database contains a “light install date” and a “lamp install date” but there is not a field for “livening date” for newly connected lights. When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c)</p> <p>From: 01-Mar-20 To: 01-Jun-21</p>	<p>Under submission of 141,000 kWh due to inaccurate parks lighting records in RAMM.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p> <p>Livening dates not recorded for new connections.</p> <p>Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1.</p> <p>Potential impact: High</p> <p>Actual impact: High</p> <p>Audit history: Multiple times</p> <p>Controls: Weak</p> <p>Breach risk rating: 9</p>		
Audit risk rating	Rationale for audit risk rating		
<p>High</p>	<p>The controls over the database are rated as weak, due to the large proportion of discrepancies identified during the field count and analysis of the RAMM database extract.</p> <p>The audit risk rating is high based on kWh variances detailed above.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Porirua CC have engaged the services of an external contractor who has reviewed the database and the findings of this audit and provided recommendations to the council regarding action required to resolve the issues identified.</p> <p>Meridian is actively engaging with PCC to establish when this action will be taken including sourcing of correct information for the Parks and Property lighting.</p> <p>Historic submission information will be corrected as required.</p>		<p>31 Dec 2021</p>	<p>Identified</p>
Preventative actions taken to ensure no further issues will occur		Completion date	

CONCLUSION

A RAMM database is managed by PCC in relation to this load. The database is remotely hosted by RAMM Software Ltd.

Field work and new light installations are carried out by Fulton Hogan, who update the database using Pocket RAMM. Park lights are managed by the parks team.

As recorded in the previous audit report and in this audit report, the database contains a large number of errors. PCC has almost completed a full field audit and the results will be populated into the database. The full field audit will not include parks or property lights.

Database accuracy is described as follows:

Result	Percentage	Comments
The point estimate of R	90.9	Wattage from survey is lower than the database wattage by 9.1%
R _L	81.2	With a 95% level of confidence, it can be concluded that the error could be between -18.8% and -1.2%
R _H	98.8	

In absolute terms, total annual consumption is estimated to be 84,800 kWh lower than the DUML database indicates.

During the previous audit, PCC provided the results of a full field survey of Parks and Property lights. This audit found that there were 440 lights, 324 more than are recorded in the RAMM database. The field survey results were not in a format where the total watts could be easily derived, but if I use the average wattage of the Parks and Property lights that are in RAMM (102 watts) there is under submission of 141,000 kWh per annum. I recorded that PCC intended to populate the RAMM database with the Parks and Property field survey results; however, they recently advised that this is not planned. Meridian is using the RAMM database information which only records a small proportion of the lights.

The future risk rating of 38 indicates that the next audit be completed in three months. This may not be sufficient time to resolve the matters raised and I recommend the Authority considers a next audit date of December 2021 to allow the field audit results to be populated and to give time to identify a data source for Parks lights.

PARTICIPANT RESPONSE

Meridian began trading DUML for Porirua City Council on 01 February 2021 and immediately engaged with them regarding the issues with their DUML database including the omitted Parks and Property lights.

Initially we were advised they had contracted a new streetlighting contractor to conduct a full field audit however it has more recently been confirmed that an independent contractor has been enlisted to review the RAMM database and advise the council on what specific changes are to meet the Code requirements.

We understand that these recommendations were provided to the Council on 10 August. This included action required to address issues lamp descriptions, wattage discrepancies and the need to address the issue of the Parks and Property lights.

We are following up with the council to confirm what action will be taken as a result of the review and when but have not received that information to date.

We have provided an indicative date of 31 Dec 2021 for completion of actions identified and we believe this is a realistic date for many of the issues outlined in this report to be addressed provided the council prioritise the work required.