ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

ROTORUA LAKES DISTRICT COUNCIL AND MERCURY NZ LTD NZBN: 9429037705305

Prepared by: Steve Woods

Date audit commenced: 16 December 2022

Date audit report completed: 20 December 2022

Audit report due date: 20 February 2023

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This audit of the Rotorua Lakes District Council Unmetered Streetlights (**RLDC**) DUML database and processes was conducted at the request of Mercury Energy Limited (**Mercury**), 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 RLDC DUML volume is reconciled as HHR following the approval by the Electricity Authority of Exemption 233. The installations consist of an approved and certified data logger (to record on and off times) and a database from which the volume is derived.

Database accuracy is described as follows:

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 01/02/19 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 6.4% lower and 1.2% higher 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 8.0 kW lower than the database indicates.

There is a 95% level of confidence that the installed capacity is between 6.0 kW lower and 31 kW lower than the database.

In absolute terms, total annual consumption is estimated to be 33,300 kWh lower than the DUML database indicates.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 is non-compliant.

Five non-compliances were identified, and no recommendations were raised. The future risk rating of eight indicates that the next audit be completed in 18 months, and I agree with that recommendation.

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	The field audit identified potential under submission of 2,400 kWh per annum due to 16 discrepancies. Mercury uses a snapshot at the end of the month for submission purposes, which does not cater for the actual installation or change dates. Over submission of 1,691 kWh due to festive lighting being in the database all year.	Moderate	Low	2	Investigating
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	One item of load with insufficient location details recorded.	Strong	Low	1	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Six additional items of load found in the field.	Strong	Low	1	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit identified potential under submission of 2,400 kWh per annum due to 16 discrepancies. Discrepancies from the previous audit not corrected. Over submission of 1,691 kWh due to festive lighting being in the database all year.	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	15.2 and 15.37B(c)	The field audit identified potential under submission of 2,400 kWh per annum due to 16 discrepancies. Mercury uses a snapshot at the end of the month for submission purposes, which does not cater for the actual installation or change dates. Over submission of 1,691 kWh due to festive lighting being in the database all year.	Moderate	Low	2	Investigating
Future Risk Rating						8	

Future risk rating	1-3	4-6	7-8	9-17	18-26	27+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Description	Action
		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

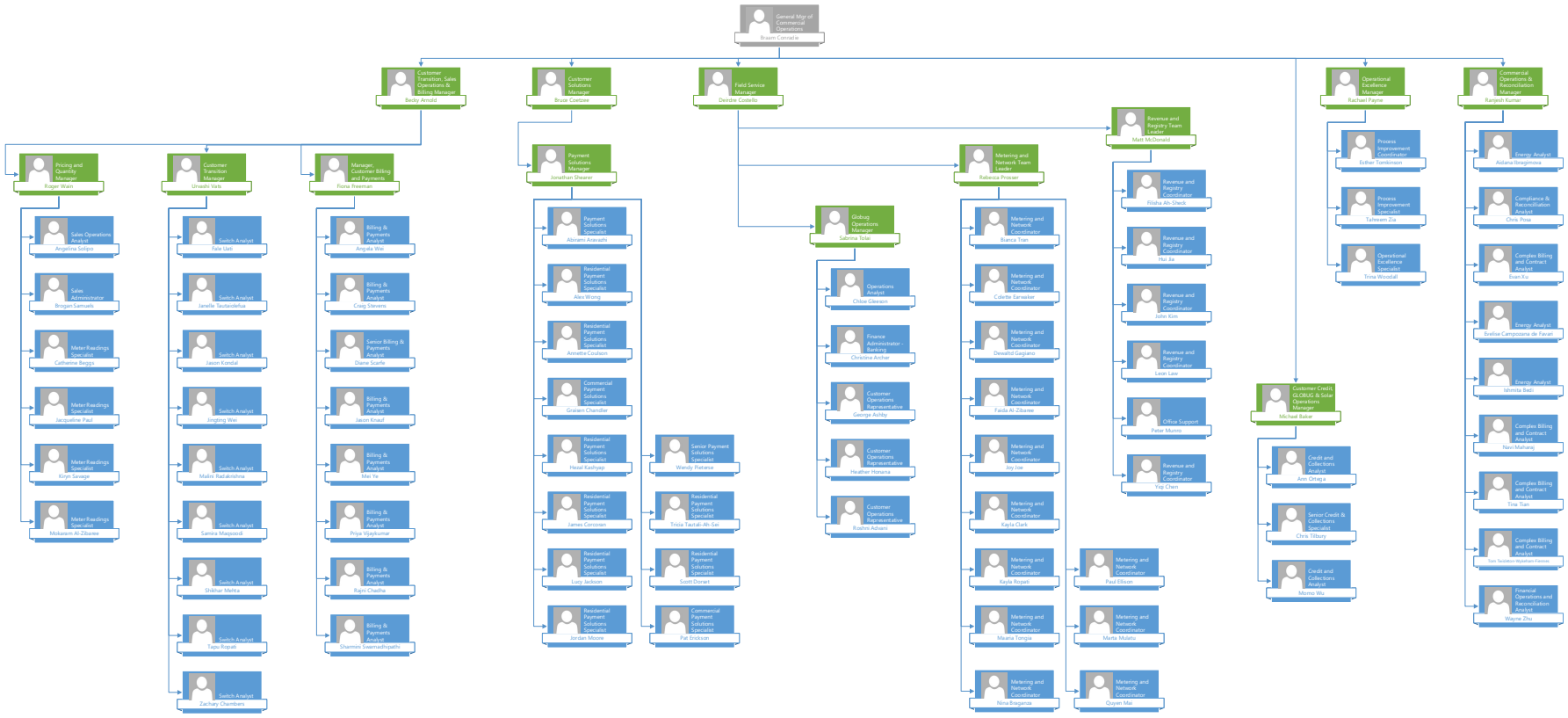
Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Audit commentary

Exemption 233 has been granted to allow Mercury to submit HHR data for DUML to the Reconciliation Manager.

1.2. Structure of Organisation

Mercury provided their current 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
Chris Posa	Compliance Reconciliation Analyst	Mercury NZ Ltd
Sarah Dark	Business Development Manager – Large Commercial	Mercury NZ Ltd
Edwin de Beun	Projects Engineer	Power Solutions
Darryl Robson	Manager - *Transport Infrastructure Networks*	Rotorua Lakes DC
Elisabeth Smith	Regional Business Support Manager	McKay Electrical

1.4. Hardware and Software

Section 1.8 records that Roading Asset and Maintenance Management database, commonly known as RAMM continues to be used the management of DUML. This is remotely hosted by Thinkproject Ltd. The specific module used for DUML is called "SLIMM" which stands for "Streetlighting Inventory Maintenance Management".

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

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)
0000043653HR7F7	STREETLIGHTING	ROT0331	HHR	1,530	59.984
0000043654HRA3D	Parks and Amenities	ROT0331	HHR	324	23.376
0000043655HR678	NZTA	ROT0331	HHR	536	101.449
0000043656HRAB8	STREETLIGHTING	OWH0111	HHR	721	20.127
0000043658HR923	AMENITY P & R EASTSIDE	OWH0111	HHR	26	1.326
0000043659HR566	NZTA EASTSIDE	OWH0111	HHR	289	37.922
0000043660HRCCF	STREETLIGHTING - GXP TRK0111	TRK0111	HHR	434	12.971
0000043661HR08A	AMENITY P & R NORTH	TRK0111	HHR	10	0.609
0000043662HRC4A	NZTA NORTH	TRK0111	HHR	56	7.479
0000043663HR00F	STREETLIGHTING	WRK0331	HHR	14	0.708
0001264717UNC3A	STREETLIGHTING	ROT0111	HHR	2,327	96.026
0001264718UN3E4	AMENITY P & R ROTORUA	ROT0111	HHR	450	37.250
0001264719UNFA1	NZTA ROTORUA	ROT0111	HHR	312	67.322
TOTAL				**7,029**	**466.547**

1.7. Authorisation Received

All information was provided directly by Mercury or Power Solutions.

1.8. Scope of Audit

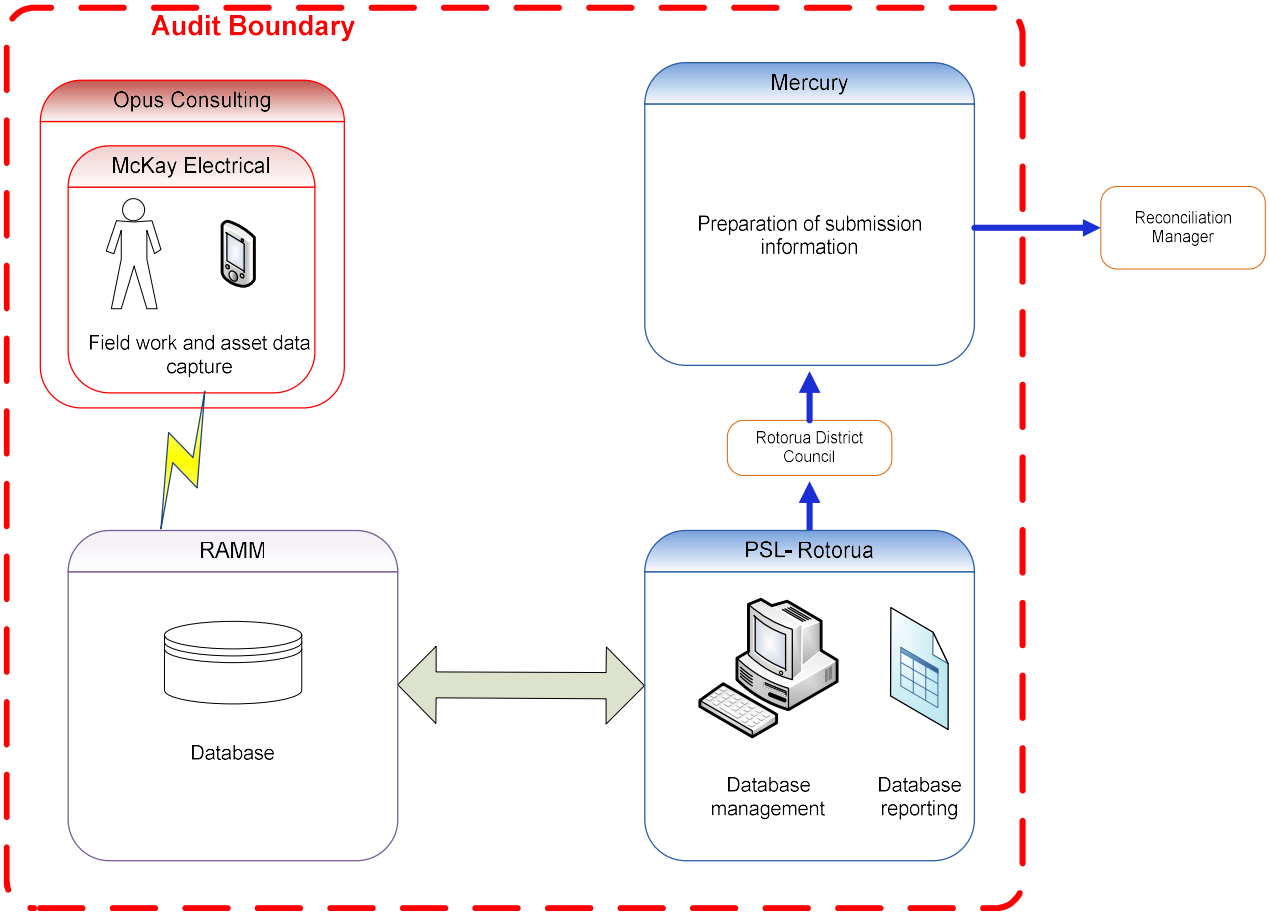
This audit of the Rotorua Lakes District Council Unmetered Streetlights (**RLDC**) DUML database and processes was conducted at the request of Mercury Energy Limited (**Mercury**), in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated 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 RLDC DUML volume is reconciled as HHR following the approval by the Electricity Authority of Exemption 233. The installations consist of an approved and certified data logger (to record on and off times) and a database from which the volume is derived.

The database is remotely hosted by Thinkproject Ltd. The field contracts are managed by WSP. McKay Electrical carry out the maintenance field work. LED lights are being installed in new areas and as a result of maintenance. The field work in is captured using Pocket RAMM. Power Solutions manage the database reporting on behalf of the RLDC and they provide reporting to Mercury on a monthly basis.

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



The field audit was undertaken of a statistical sample of 326 items of load on December 16th 2022.

1.9. Summary of previous audit

The last audit report undertaken by Steve Woods of Veritek Limited in February 2022 was reviewed. This found five non-compliances. The current status of the non-compliances identified in that audit are detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The field audit identified potential over submission of 33,000 kWh per annum due to 14 discrepancies. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Still existing with a lower impact.
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	Three items of load with insufficient location details recorded.	Still existing for one item of load
All load recorded in database	2.5	11(2A) of Schedule 15.3	One additional item of load found in the field	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit identified potential over submission of 33,000 kWh per annum due to 14 discrepancies.	Still existing with a lower impact.
Volume information accuracy	3.2	15.2 and 15.37B(c)	The field audit identified potential over submission of 33,000 kWh per annum due to 14 discrepancies. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Still existing with a lower impact.

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Status

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

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

Audit commentary

Mercury reconciles the RLDC load using the HHR profile. I reviewed the submission information for November 2022 and confirmed that it the calculation methodology was correct. The logger information was correctly applied.

The field audit identified potential over submission of 33,000 kWh per annum due to 13 discrepancies.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 is non-compliant. 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. Mercury completes revision submissions where corrections are required and has not yet updated their processes to be compliant with the Authority's memo.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Mar-20 To: 18-Feb-22	The field audit identified potential under submission of 2,400 kWh per annum due to 16 discrepancies. Mercury uses a snapshot at the end of the month for submission purposes, which does not cater for the actual installation or change dates. Over submission of 1,691 kWh due to festive lighting being in the database all year. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
RLDC has made good progress on correcting the field discrepancies identified in the audit. We will follow up with RLDC regarding the festive lights being included in the database in error. We are discussing with RLDC's Mercury account manager to confirm the feasibility of RLDC providing the data in a format that makes non-snapshot practical.	March 2023	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We've found that RLDC is very compliance conscious, conscientious about accuracy of the database and easy to communicate with; this gives us confidence that accuracy will be maintained.	Ongoing	

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 the correct ICP was recorded against each item of load.

Audit commentary

All items of load have 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 the nearest street address, pole numbers and Global Positioning System (GPS) coordinates for all but one item of load. This has a road name but no street number. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.3 With: 11(2)(b) of Schedule 15.3 From: 18-Feb-22 To: 21-Dec-22	One item of load with insufficient location details recorded. Potential impact: Low Actual impact: None Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong as processes in place mitigate this risk to an acceptable level. The audit risk rating is low this affected only three items of load and has no direct impact on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
We have followed up with RLDC and are awaiting confirmation that this has been updated.	February 2023	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
We've found that RLDC is very compliance conscious, conscientious about accuracy of the database and easy to communicate with; this gives us confidence that accuracy will be maintained.	Ongoing	

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 and that each item of load had a value recorded in these fields.

Audit commentary

The database contains two fields for wattage, firstly the manufacturers rated wattage and secondly the "ballast wattage". All items of load had values populated. The accuracy of these is discussed 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 a statistical sample of 326 items of load on December 16th 2022.

Audit commentary

The field audit discrepancies are detailed in the table below. The detailed results were provided in a spreadsheet.

Discrepancy	Quantity
Additional lights in the field not in the database	6

Lights in the database not in the field	2
Incorrect wattage	8

I found 6 additional lamps in the field than were recorded in the database. This is recorded as non-compliance below. The accuracy of the database is discussed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: 11(2A) of Schedule 15.3 From: 18-Feb-22 To: 21-Dec-22	Six additional items of load found in the field. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong as processes in place mitigate this risk to an acceptable level. 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
For the three additional lights on front of the blue baths, RLDC has confirmed that the lights were connected via the building not SL circuit. The three other additional lights have been noted as 'pole to be added to RAMM' and will be updated shortly.	February 2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We've found that RLDC is very compliance conscious, conscientious about accuracy of the database and easy to communicate with; this gives us confidence that accuracy will be maintained.	Ongoing	

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 database functionality achieves compliance with the code.

The change management process and the compliance of the database reporting provided to Mercury 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 RAMM database has a complete audit trail of all additions and 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

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	Rotorua Lakes region
Strata	The database contains items of load in Rotorua Lakes area. The processes for the management of RLDC items of load are the same, but I decided to place the items of load into four strata, as follows: 1. Road names A-G 2. Road names H-O 3. Road names P-Y 4. NZTA
Area units	I created a pivot table of the roads in each area and I used a random number generator in a spreadsheet to select a total of 71 subunits.
Total items of load	341 items of load were checked.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority against the database or in the case of LED lights against the LED light specification.

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

Audit commentary

Field audit findings

A field audit was conducted of a statistical sample of 359 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	100.1	Wattage from survey is 0.1% higher than that recorded in the database
R_L	95.8	With a 95% level of confidence, it can be concluded that the error could be between -4.2% and +7.3%
R_H	107.3	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 01/02/19 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 4.2% lower and 7.3% higher 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 1.0 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 20 kW lower and 34 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 2,400 kWh higher than the DUML database indicates.

Scenario	Description
A - **Good accuracy, good precision**	This scenario applies if: (a) R_H is less than 1.05; and (b) R_L is greater than 0.95 The conclusion from this scenario is that: (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**	This scenario applies if: (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. There is evidence to support this finding. In statistical terms, the inaccuracy is statistically significant at the 95% level
C - **Poor precision**	This scenario applies if: (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 %

Previous audit results

I checked the database to confirm that the discrepancies from the previous audit had been corrected. Only two of the 14 had been corrected, leaving 12 records still incorrect. These have been provided to Mercury, RLDC and McKays for action.

Light description and capacity accuracy

These were checked and found all lights descriptions, wattages and ballasts to be correct.

Change Management

New lamp connections are captured in RAMM as soon as the as-builts are received by the council. RLDC liaises with Unison to liven the lights. The new connection process was improved during the previous audit period with livening dates being provided and these are captured in the database. Whilst dates are recorded in the database, Mercury uses a snapshot at the end of the month for submission purposes, which does not cater for the actual installation or change dates. This is recorded as non-compliance in Sections 2.1 and 3.2.

Outage patrols occur on a rolling weekly basis and part of this process is to check the accuracy of the database. This is effectively a "rolling" database audit.

The processes were reviewed for ensuring that changes in the field are notified through to Power Solutions. All field data is entered directly into a PDA that then automatically populates the database. WSP carry out a 10% spot audit to confirm claims for work done are correctly carried out and all the relevant information is captured.

The database contains 16 festive lights, which are connected in the first week of December and disconnected in mid-January. These lights are in the database permanently and not just for the December/January period. This results in over submission of approx. 1,691 kWh per annum assuming each light is 27 watts and is incorrectly recorded for 11 of 12 months.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 18-Feb-22 To: 21-Dec-22	The field audit identified potential under submission of 2,400 kWh per annum due to 16 discrepancies. Discrepancies from the previous audit not corrected. Over submission of 1,691 kWh due to festive lighting being in the database all year. Potential impact: Medium Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
RLDC has made good progress on correcting the field discrepancies identified in the audit. We will follow up with RLDC regarding the festive lights being included in the database in error. We are discussing with RLDC's Mercury account manager to confirm the feasibility of RLDC providing the data in a format that makes non-snapshot practical.	March 2023	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
We've found that RLDC is very compliance conscious, conscientious about accuracy of the database and easy to communicate with; this gives us confidence that accuracy will be maintained.	Ongoing	

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 burn hours against the submitted figure to confirm accuracy.

Audit commentary

Mercury reconciles the RLDC load using the HHR profile. I reviewed the submission information for November 2022 and confirmed that it the calculation methodology was correct. The logger information was correctly applied.

The field audit identified potential under submission of 2,400 kWh per annum due to 16 discrepancies.

The database contains 16 festive lights, which are connected in the first week of December and disconnected in mid-January. These lights are in the database permanently and not just for the December/January period. This results in over submission of approx. 1,691 kWh per annum assuming each light is 27 watts and is incorrectly recorded for 11 of 12 months.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 is non-compliant. 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. Mercury completes revision submissions where corrections are required and has not yet updated their processes to be compliant with the Authority's memo.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 18-Feb-22 To: 21-Dec-22	The field audit identified potential under submission of 2,400 kWh per annum due to 16 discrepancies. Mercury uses a snapshot at the end of the month for submission purposes, which does not cater for the actual installation or change dates. Over submission of 1,691 kWh due to festive lighting being in the database all year. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
RLDC has made good progress on correcting the field discrepancies identified in the audit. We will follow up with RLDC regarding the festive lights being included in the database in error. We are discussing with RLDC's Mercury account manager to confirm the feasibility of RLDC providing the data in a format that makes non-snapshot practical.	March 2023	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We've found that RLDC is very compliance conscious, conscientious about accuracy of the database and easy to communicate with; this gives us confidence that accuracy will be maintained.	Ongoing	

CONCLUSION

The RLDC DUML volume is reconciled as HHR following the approval by the Electricity Authority of Exemption 233. The installations consist of an approved and certified data logger (to record on and off times) and a database from which the volume is derived.

Database accuracy is described as follows:

The results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 01/02/19 and the table below shows that Scenario C 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 4.2% lower and 7.3% higher 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 1.0 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 20 kW lower and 34 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 2,400 kWh higher than the DUML database indicates.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 is non-compliant.

The database contains 16 festive lights, which are connected in the first week of December and disconnected in mid-January. These lights are in the database permanently and not just for the December/January period. This results in over submission of approx. 1,691 kWh per annum assuming each light is 27 watts and is incorrectly recorded for 11 of 12 months.

Five non-compliances were identified, and no recommendations were raised. The future risk rating of eight indicates that the next audit be completed in 18 months, and I agree with that recommendation.

PARTICIPANT RESPONSE

Mercury have reviewed this report and their comments are contained within its body.