

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

WAKA KOTAHI OTAGO RAMM DATABASE
AURORA ICPS
AND MANAWA
NZBN: 9429038917912

Prepared by: Steve Woods

Date audit commenced: 21 June 2023

Date audit report completed: 28 July 2023

Audit report due date: 31 March 2023

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EXECUTIVE SUMMARY

This audit of the **NZTA Otago (NZTA) Queenstown Lakes District council (QLDC)** DUML database and processes was conducted at the request of **Manawa Energy Limited (Manawa)** 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 audited is the NZTA database which contains the data previously held in the Queenstown Lakes and Aurora databases. The table below contains the details.

ICP	Previous database	New database	Qty of items of load	Database wattage
0000027638CECB5	Queenstown Lakes DC	NZTA	340	43,999
0000486694CE943	Aurora	NZTA	226	38,502
0000486695CE506	Aurora	NZTA	108	14,776

This database will eventually contain the entire Otago and Southland data set, once the base data has been sourced from the current databases.

The database is remotely hosted by thinkproject New Zealand Limited. The RAMM database is managed by NZTA. NZTA has commenced providing a monthly report to Manawa of this database.

Manawa reconciles this DUML load using the STL profile. At the time of the audit, submissions were still based on the historic database information from Aurora and Queenstown Lakes DC, with on and off times derived from data logger information. The submission calculation process is confirmed as accurate.

An issue was raised in the last three audit reports that identified approximately 30 lamps recorded in the NZTA database against ICP 0000027638CECB5, that were also recorded against ICP 0000486695CE506. This was investigated, and the duplicate lights were removed from the database in November 2021. Manawa have confirmed that no revisions of the duplicated lights have been made resulting in an estimated over submission for the available 14-month revision period of 23,120 kWh.

A further 31 lamps were incorrectly recorded against ICP 0000027638CECB5 (NSP FKN0331) and should have been recorded against ICP 0000486695CE506 (NSP CML0331). These have been removed and added to the correct ICP in November 2021. Manawa have confirmed no revisions been carried out to correct the submitted volumes against ICP 0000027638CECB5 for the available 14-month revision period resulting in an estimated 17,103 kWh of submission against the incorrect ICP and therefore the incorrect balancing area. These ICPs are in different balancing areas so this will impact submission accuracy.

Manawa have advised that they will complete the revisions for the over submission and the incorrectly submitted volumes against ICP 0000027638CECB5 when it is confirmed that the new database is complete and accurate for Central Otago NZTA for ICP 0000486694CE943 and 0000486695CE506. The current audit has found a significant number of discrepancies, as recorded in **sections 2.5** and **3.1**. The result of the discrepancies is under submission of 52,100 kWh per annum. I recommend in **section 3.1** that a full field audit is conducted to identify and resolve the discrepancies.

The audit found five non-compliances and makes one recommendation. The future risk rating of 34 indicates that the next audit be completed in three months. The next audit will be of the same database but with the addition of all Otago and Southland data. The database is not yet completely populated, and this project is dependent on the current database holders providing information and in some cases, distributors may need to create new ICPs. I therefore recommend the next audit is conducted by June 1st, 2024.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Distributed unmetered load audits.	1.10	16A.26 and 17.295F	Audit conducted late.	Moderate	Medium	4	Identified
Deriving submission information	2.1	Clause 11(1) of Schedule 15.3	<p>Revisions not carried out for duplicated lights resulting in an estimated over submission of 23,121 kWh over the available 14-month revision period.</p> <p>Revisions not carried out to correct the volumes for the available 14-month revision period resulting in approximately 17,103 kWh of submission against the incorrect balancing area.</p> <p>Inaccurate database resulting in under submission of 52,100 kWh per annum.</p> <p>Submission is based on a snapshot at the end of each month and does not consider changes made during the month</p>	Weak	High	9	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Seven additional lights found in the field.	Weak	Low	3	Identified
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	Inaccurate database resulting in under submission of 52,100 kWh per annum.	Weak	High	9	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	Clause 15.2 and 15.37B(c)	<p>Revisions not carried out for duplicated lights resulting in an estimated over submission of 23,121 kWh over the available 14-month revision period.</p> <p>Revisions not carried out to correct the volumes for the available 14-month revision period resulting in approximately 17,103 kWh of submission against the incorrect balancing area.</p> <p>Inaccurate database resulting in under submission of 52,100 kWh per annum.</p> <p>Submission is based on a snapshot at the end of each month and does not consider changes made during the month</p>	Weak	High	9	Identified
Future Risk Rating						34	

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	Recommendation
Database accuracy	3.1	Conduct a full field to ensure database accuracy.

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

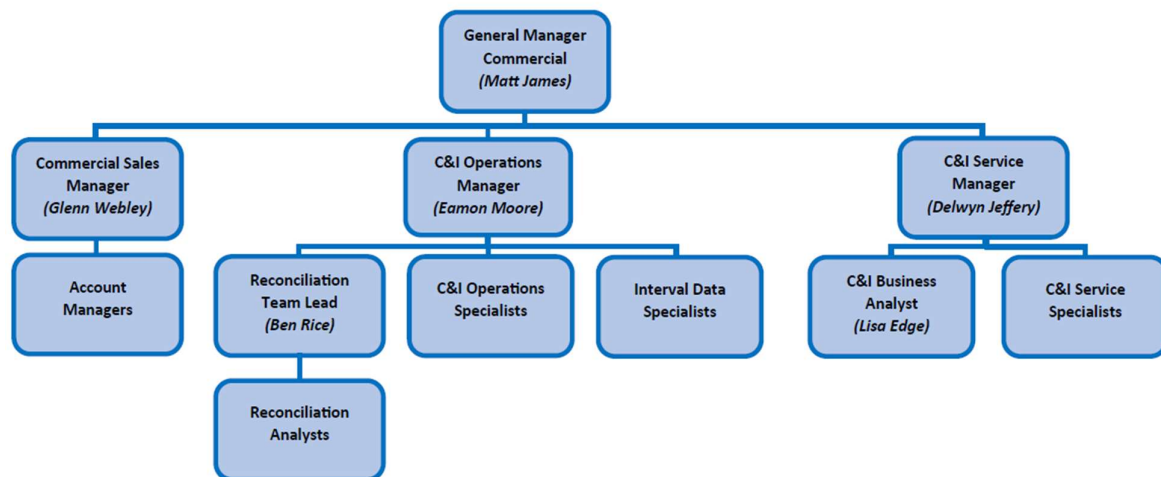
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Manawa provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditors:

Name	Company	Role
Steve Woods	Veritek Limited	Lead Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Eamon Moore	C&I Operations Manager	Manawa
Jamie Watts	C&I Administrator	Manawa
Kara Atkinson	Director	NZ Streetlighting

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Limited. The database is commonly known as “RAMM” which stands for “Road Assessment and Maintenance Management”. The specific data used for DUML is held in the Streetlight tables. thinkproject New Zealand Limited backs up the database and assists with disaster recovery as part of their hosting service.

Access to the database is secure by way of password protection.

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)
0000027638CECB5	Central Otago State Highways FKN0331	FKN0331	STL	340	43,999
0000486694CE943	Central Otago State Highways CYD0331	CYD0331	STL	226	38,502
0000486695CE506	Central Otago State Highways CML0331	CML0331	STL	108	14,776

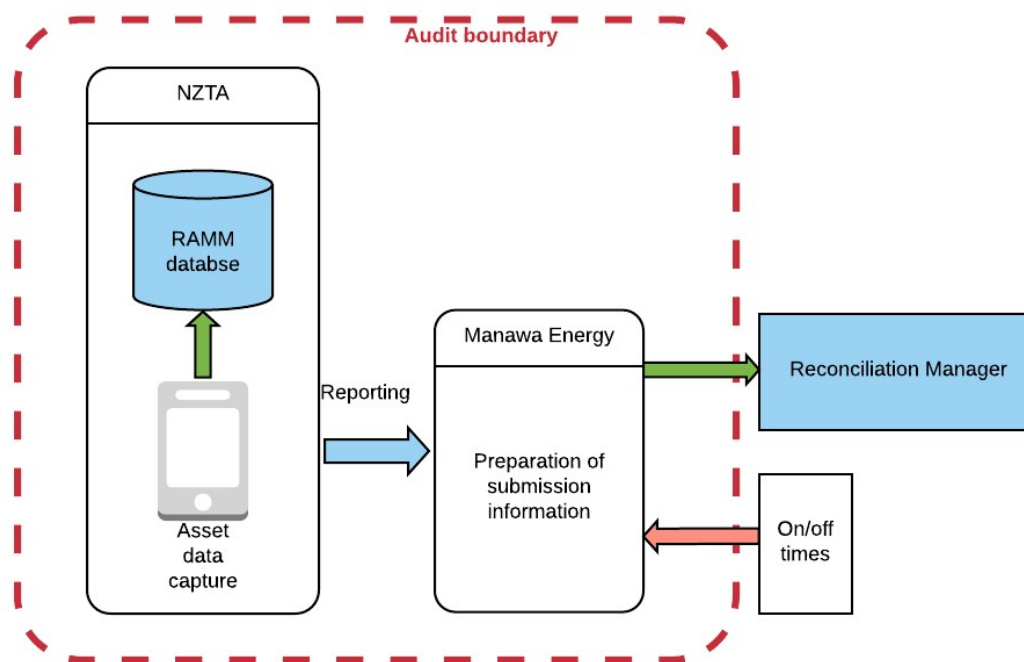
1.7. Authorisation Received

All information was provided directly by Manawa and NZ Streetlighting.

1.8. Scope of Audit

The database is remotely hosted by thinkproject New Zealand Limited. The RAMM database is managed by NZTA. NZTA has commenced providing a monthly report to Manawa of this database.

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.



The field audit was undertaken of a statistical sample of 244 items of load on 21 June 2023.

1.9. Summary of previous audit

The ICPs recorded in this report were previously audited separately. I've noted previous audit findings from both previous audit reports.

The previous audit for ICP 0000027638CECB5 was completed in February 2023 by Steve Woods and Claire Stanley of Veritek Limited. That audit found three non-compliances as shown in the table below.

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	Clause 11(1) of Schedule 15.3	Revisions not carried out for duplicated lights resulting in an estimated over submission of 23,121 kWh over the available 14-month revision period. Revisions not carried out to correct the volumes for the available 14-month revision period resulting in approximately 17,103 kWh of submission against the incorrect balancing area.	Still existing
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	Revisions not carried out for duplicated lights resulting in an estimated over submission of 23,121 kWh over the available 14-month revision period. Revisions not carried out to correct the volumes for the available 14-month revision period resulting in approximately 17,103 kWh of submission against the incorrect balancing area.	Still existing
Volume information accuracy	3.2	Clause 15.2 and 15.37B(c)	Revisions not carried out for duplicated lights resulting in an estimated over submission of 23,121 kWh over the available 14-month revision period. Revisions not carried out to correct the volumes for the available 14-month revision period resulting in approximately 17,103 kWh of submission against the incorrect balancing area.	Still existing

The previous audit for ICPs 0000486694CE943 and 0000486695CE506 was completed in February 2022 by Rebecca Elliot and Claire Stanley of Veritek Limited. That audit found four non-compliances as shown in the table below.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Revisions not carried out to correct the volumes for the available 14-month revision period resulting in approximately 17,103 kWh of submission against the incorrect balancing area. In absolute terms, total annual consumption is estimated to be 1,800 kWh lower than the DUML database indicates, as recorded in section 3.1. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Still existing

Subject	Section	Clause	Non-compliance	Status
All load recorded in database	2.5	11(2A) of Schedule 15.3	Four additional items of load were found in the field.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	<p>The database is inaccurate. In absolute terms, total annual consumption is estimated to be to be 1,800 kWh lower than the DUML database indicates.</p> <p>44 items of load with incomplete lamp descriptions.</p> <p>LED lights recorded with insufficient descriptions to confirm lamp wattage.</p> <p>Revisions not carried out to correct the volumes for the available 14-month revision period resulting in approximately 17,103 kWh of submission against the incorrect balancing area.</p> <p>Load changes no longer maintained in the Aurora GIS database.</p>	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	<p>The database is inaccurate. In absolute terms, total annual consumption is estimated to be to be 1,800 kWh lower than the DUML database indicates.</p> <p>44 items of load with incomplete lamp descriptions.</p> <p>LED lights recorded with insufficient descriptions to confirm lamp wattage.</p> <p>Load changes no longer maintained in the Aurora GIS database.</p>	Still existing

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

Manawa have requested Veritek to undertake this streetlight audit.

Audit commentary

The Authority allowed an extension for this audit until March 2023. The database was audited soon after it was ready, which was after March 2023.

Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 1.10 With: Clause 16A.26 and 17.295F From: 31-Mar-23 To: 30-Jun-23	Audit conducted late. Potential impact: Medium Actual impact: Medium Audit history: Controls: Moderate Breach risk rating: 4	
Audit risk rating	Rationale for audit risk rating	
Medium	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. Revisions required as a result of previous audits have not been conducted because Manawa was waiting for this database to be provided and audited, therefore the impact is moderate.	
Actions taken to resolve the issue	Completion date	Remedial action status
Submit completed audit	31/07/2023	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Manawa has implemented a new compliance management system called Totum which is now live. Totum allows us to track Audit due dates, and follow up actions from completed audits, transparently; it also gives us the ability to assign responsibility to these actions. Totum has been live since March 2023	Complete	

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

Manawa reconciles this DUML load using the STL profile. At the time of the audit, submissions were still based on the historic database information from Aurora and Queenstown Lakes DC, with on and off times derived from data logger information. The submission calculation process is confirmed as accurate.

An issue was raised in the last three audit reports that identified approximately 30 lamps recorded in the NZTA database against ICP 0000027638CECB5, that were also recorded against ICP 0000486695CE506. This was investigated, and the duplicate lights were removed from the database in November 2021. Manawa have confirmed that no revisions of the duplicated lights have been made resulting in an estimated over submission for the available 14-month revision period of 23,120 kWh.

A further 31 lamps were incorrectly recorded against ICP 0000027638CECB5 (NSP FKN0331) and should have been recorded against ICP 0000486695CE506 (NSP CML0331). These have been removed and added to the correct ICP in November 2021. Manawa have confirmed no revisions been carried out to correct the submitted volumes against ICP 0000027638CECB5 for the available 14-month revision period resulting in an estimated 17,103 kWh of submission against the incorrect ICP and therefore the incorrect balancing area. These ICPs are in different balancing areas so this will impact submission accuracy.

Manawa have advised that they will complete the revisions for the over submission and the incorrectly submitted volumes against ICP 0000027638CECB5 when it is confirmed that the new database is complete and accurate for Central Otago NZTA for ICP 0000486694CE943 and 0000486695CE506. The current audit has found a significant number of discrepancies, as recorded in **sections 2.5** and **3.1**. The result of the discrepancies is under submission of 52,100 kWh per annum. I recommend in **section 3.1** that a full field audit is conducted to identify and resolve the discrepancies.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3</p> <p>From: 01-Mar-22 To: 30-Jun-23</p>	<p>Revisions not carried out for duplicated lights resulting in an estimated over submission of 23,121 kWh over the available 14-month revision period.</p> <p>Revisions not carried out to correct the volumes for the available 14-month revision period resulting in approximately 17,103 kWh of submission against the incorrect balancing area.</p> <p>Inaccurate database resulting in under submission of 52,100 kWh per annum.</p> <p>Submission is based on a snapshot at the end of each month and does not consider changes made during the month.</p> <p>Potential impact: High Actual impact: High Audit history: Three times Controls: Weak Breach risk rating: 9</p>		
Audit risk rating	Rationale for audit risk rating		
High	<p>The controls are rated as weak because they do not mitigate risk and inaccuracies to an acceptable level.</p> <p>The audit risk rating is assessed to be high due to the impact on submission.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Updated database and identified discrepancies to be added to SLIM system; this will be used to conduct revisions of previous reconciliations which will resolve the incorrect submissions for each balancing area for the available 14 months.</p> <p>Updates within the SLIM system will be completed before revisions are due for submission in August.</p>		04/08/2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Manawa to work with Waka Kotahi to update RAMM with lamp discrepancies identified in this audit and to improve Database maintenance processes. We will also work with WK to continue their work to amalgamate and update the Otago area ICPs into one database.</p>		01/04/2024	

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 is recorded for each item of load.

Audit commentary

All items of load had an ICP recorded as required by this clause.

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 DUMML database must contain the location of each DUMML item.

Audit observation

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

Audit commentary

Street addresses and GPS coordinates are recorded for all items of load.

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 DUMML 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

Lamp type description, lamp wattage and ballast wattage are included in the database. This was populated in the database for all items of load. The accuracy of this is examined 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 244 items of load on 21 June 2023.

Audit commentary

The field audit found the following discrepancies. A detailed list of discrepancies has been supplied to Manawa and NZTA.

Discrepancy	Quantity	Comments
Lights in the field not in the database	7	Six are pedestrian crossing lights, one is an additional 100-watt HPS.
Lights in the database not in the field	2	One is due to roadworks, and one has a new pole without the light being re-attached.
Incorrect wattages	76	NZTA intends to correct these wattages.

Non-compliance is recorded for the seven additional lights identified.

The accuracy of the database is 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-22 To: 30-Jun-23	Seven additional lights found in the field. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Weak Breach risk rating: 3	
Audit risk rating	Rationale for audit risk rating	
Low	The controls are rated as weak because they do not mitigate risk and inaccuracies 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

Manawa to work with Waka Kotahi to update RAMM with lamp discrepancies identified in this audit and use the updated database to update our records within the SLIM system. Updates within the SLIM system will be completed before revisions are due for submission in August.	04/08/2023	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Manawa to work with Waka Kotahi to update RAMM with lamp discrepancies identified in this audit and to improve Database maintenance processes. We will also work with WK to continue their work to amalgamate and update the Otago area ICPs into one database.	01/04/2024	

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 RAMM database functionality achieves compliance with the code.

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

RAMM 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	NZTA Otago lights on the Aurora network
Strata	The database contains items of load in the Otago Aurora network area. The area has two distinct sub-groups of urban and rural. The processes for the management of NZTA Aurora Otago items of load are the same, but I decided to place the items of load into four geographical strata, as follows: <ol style="list-style-type: none"> 1. Clyde, 2. Cromwell, 3. Frankton 1, and 4. Frankton 2.
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 21 sub-units.
Total items of load	244 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 244 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	112.5	Wattage from survey is higher than the database wattage by 12.5%
R _L	97.2	With a 95% level of confidence, it can be concluded that the error could be between -2.8% and 25.7%
R _H	125.7	

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 B (detailed below) applies.

The conclusion from Scenario B is that the database has poor accuracy, demonstrated with statistical significance.

There is a 95% level of confidence that the installed capacity is between 3 kW lower to 25 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 52,100 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 11,600 kWh p.a. lower to 106,700 kWh p.a. higher than the 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 %

The field audit of 244 items of load found 85 discrepancies (35%) which is considered a high error rate. I therefore recommend a complete field audit is conducted to ensure the database is accurate.

Description	Recommendation	Audited party comment	Remedial action
Database accuracy	Conduct a full field to ensure database accuracy.	<p>Manawa will work with Waka Kotahi (WK) to plan additional field audits of the ICPs within the database. Field audits are likely to align with the roll out of additional LED lamps in the region.</p> <p>Manawa will work with WK to remediate lamp and wattage discrepancies identified in the audit and push for additional field audits to be conducted when the rest of the Otago and southland DUMML ICPs are merged into the same database.</p>	Identified

Lamp description and capacity accuracy

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority in the database and found all wattages were correct.

ICP Accuracy

ICP inaccuracy issues were resolved during previous audits and no new issues were identified.

Change management process findings

The processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance.

The database contains a “light date added” and a “lamp date changed”, the monthly report is provided with changes made through the month, but this information is not yet used to calculate the kW for each day of the month.

Queenstown Lakes DC manages the fieldwork in their region using McKay electrical. Aspiring Highways manages the fieldwork in the rest of the region, using Delta. Updates are provided on a “maintenance form” and updates to RAMM are conducted manually.

New Connection work is notified by consultants on behalf of NZTA to QLDC or Aspiring Highways to update into the RAMM database.

A monthly submission report is provided by NZTA to Manawa.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Mar-22 To: 30-Jun-23	Inaccurate database resulting in under submission of 52,100 kWh per annum. Potential impact: High Actual impact: High Audit history: Three times Controls: Weak Breach risk rating: 9		
Audit risk rating	Rationale for audit risk rating		
High	The controls are rated as weak because they do not mitigate risk and inaccuracies to an acceptable level. The audit risk rating is assessed to be high due to the impact on submission.		
Actions taken to resolve the issue		Completion date	Remedial action status
Manawa to work with Waka Kotahi to update RAMM with lamp discrepancies identified in this audit and use the updated database to update our records within the SLIM system. Updates within the SLIM system will be completed before revisions are due for submission in August.		04/08/2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Manawa to work with Waka Kotahi to update RAMM with lamp discrepancies identified in this audit and to improve Database maintenance processes. We will also work with WK to continue their work to amalgamate and update the Otago area ICPs into one database.		01/04/2024	

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

Manawa reconciles this DUML load using the STL profile. At the time of the audit, submissions were still based on the historic database information from Aurora and Queenstown Lakes DC, with on and off times derived from data logger information. The submission calculation process is confirmed as accurate.

An issue was raised in the last three audit reports that identified approximately 30 lamps recorded in the NZTA database against ICP 0000027638CECB5, that were also recorded against ICP 0000486695CE506. This was investigated, and the duplicate lights were removed from the database in November 2021. Manawa have confirmed that no revisions of the duplicated lights have been made resulting in an estimated over submission for the available 14-month revision period of 23,120 kWh.

A further 31 lamps were incorrectly recorded against ICP 0000027638CECB5 (NSP FKN0331) and should have been recorded against ICP 0000486695CE506 (NSP CML0331). These have been removed and added to the correct ICP in November 2021. Manawa have confirmed no revisions been carried out to correct the submitted volumes against ICP 0000027638CECB5 for the available 14-month revision period resulting in an estimated 17,103 kWh of submission against the incorrect ICP and therefore the incorrect balancing area. These ICPs are in different balancing areas so this will impact submission accuracy.

Manawa have advised that they will complete the revisions for the over submission and the incorrectly submitted volumes against ICP 0000027638CECB5 when it is confirmed that the new database is complete and accurate for Central Otago NZTA for ICP 0000486694CE943 and 0000486695CE506. The current audit has found a significant number of discrepancies, as recorded in **sections 2.5** and **3.1**. The result of the discrepancies is under submission of 52,100 kWh per annum. I recommend in **section 3.1** that a full field audit is conducted to identify and resolve the discrepancies.

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-22 To: 30-Jun-23</p>	<p>Revisions not carried out for duplicated lights resulting in an estimated over submission of 23,121 kWh over the available 14-month revision period.</p> <p>Revisions not carried out to correct the volumes for the available 14-month revision period resulting in approximately 17,103 kWh of submission against the incorrect balancing area.</p> <p>Inaccurate database resulting in under submission of 52,100 kWh per annum.</p> <p>Submission is based on a snapshot at the end of each month and does not consider changes made during the month.</p> <p>Potential impact: High Actual impact: High Audit history: Three times Controls: Weak Breach risk rating: 9</p>		
Audit risk rating	Rationale for audit risk rating		
<p>High</p>	<p>The controls are rated as weak because they do not mitigate risk and inaccuracies to an acceptable level.</p> <p>The audit risk rating is assessed to be high due to the impact on submission.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Manawa to work with Waka Kotahi to update RAMM with lamp discrepancies identified in this audit and use the updated database to update our records within the SLIM system; this will be used to conduct revisions of previous reconciliations which will resolve the incorrect submissions for each balancing area within the available 14-month revision period.</p> <p>Updates within the SLIM system will be completed before revisions are due for submission in August.</p>		<p>10/08/2023</p>	<p>Identified</p>
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Manawa to work with Waka Kotahi to update RAMM with lamp discrepancies identified in this audit and to improve Database maintenance processes. We will also work with WK to continue their work to amalgamate and update the Otago area ICPs into one database.</p> <p>Manawa has also implemented the new compliance management system Totum which will give additional transparency and traceability of audit actions.</p> <p>Totum has been live since March 2023</p>		<p>01/04/2024</p>	

CONCLUSION

The database audited is the NZTA database which contains the data previously held in the Queenstown Lakes and Aurora databases. The table below contains the details.

ICP	Previous database	New database	Qty of items of load	Database wattage
0000027638CECB5	Queenstown Lakes DC	NZTA	340	43,999
0000486694CE943	Aurora	NZTA	226	38,502
0000486695CE506	Aurora	NZTA	108	14,776

This database will eventually contain the entire Otago and Southland data set, once the base data has been sourced from the current databases.

The database is remotely hosted by thinkproject New Zealand Limited. The RAMM database is managed by NZTA. NZTA has commenced providing a monthly report to Manawa of this database.

Manawa reconciles this DUML load using the STL profile. At the time of the audit, submissions were still based on the historic database information from Aurora and Queenstown Lakes DC, with on and off times derived from data logger information. The submission calculation process is confirmed as accurate.

An issue was raised in the last three audit reports that identified approximately 30 lamps recorded in the NZTA database against ICP 0000027638CECB5, that were also recorded against ICP 0000486695CE506. This was investigated, and the duplicate lights were removed from the database in November 2021. Manawa have confirmed that no revisions of the duplicated lights have been made resulting in an estimated over submission for the available 14-month revision period of 23,120 kWh.

A further 31 lamps were incorrectly recorded against ICP 0000027638CECB5 (NSP FKN0331) and should have been recorded against ICP 0000486695CE506 (NSP CML0331). These have been removed and added to the correct ICP in November 2021. Manawa have confirmed no revisions been carried out to correct the submitted volumes against ICP 0000027638CECB5 for the available 14-month revision period resulting in an estimated 17,103 kWh of submission against the incorrect ICP and therefore the incorrect balancing area. These ICPs are in different balancing areas so this will impact submission accuracy.

Manawa have advised that they will complete the revisions for the over submission and the incorrectly submitted volumes against ICP 0000027638CECB5 when it is confirmed that the new database is complete and accurate for Central Otago NZTA for ICP 0000486694CE943 and 0000486695CE506. The current audit has found a significant number of discrepancies, as recorded in **sections 2.5** and **3.1**. The result of the discrepancies is under submission of 52,100 kWh per annum. I recommend in **section 3.1** that a full field audit is conducted to identify and resolve the discrepancies.

The audit found five non-compliances and makes one recommendation. The future risk rating of 34 indicates that the next audit be completed in three months. The next audit will be of the same database but with the addition of all Otago and Southland data. The database is not yet completely populated, and this project is dependent on the current database holders providing information and in some cases, distributors may need to create new ICPs. I therefore recommend the next audit is conducted by June 1st 2024.

Participant response

Firstly I'd like to recognise the good work that Waka Kotahi (WK) have done up to this point to bring these ICPs together into the RAMM database; it is well known that the ICP's within the Aurora region (Assessed in this audit) have been historically inaccurate and required improvement, and this seems to be a big step in the right direction, however, this audit clearly outlines that there is still work to be done on this database.

Most of the non-compliances identified above relate to inaccuracy in the actual records of the database and the failure to update lamps once they have been changed. Manawa will continue to work with WK to improve the accuracy of this database and to support them with improving their ongoing maintenance processes. We recognise the recommendation of an additional field audit and will work with WK to plan how this can be conducted; it is likely this will be in line with additional LED lamp upgrades in the region.

Manawa will use the updated information from WK, and the identified discrepancies from this audit, to submit revisions for the available 14 months to correct previous under submission.

We support the recommendation for the next audit to be completed by June 1st 2024; this will give ourselves and WK a reasonable amount of time to address the non-compliance identified.

Thank you Veritek for your time and patience conducting this audit and for traveling to Otago to conduct the field audit.