ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

WAKA KOTAHI GISBORNE & WAIROA AND MERIDIAN ENERGY

Prepared by: Steve Woods

Date audit commenced: 10 August 2022

Date audit report completed: 30 August 2022

Audit report due date: 1 September 2022

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EXECUTIVE SUMMARY

This audit of the Waka Kotahi Hawkes Bay DUML database and processes was conducted at the request of Meridian Energy (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 relevant ICPs were previously part of the NZTA Hawkes Bay database, which was due for audit by 01/09/2022. The other two ICPs in the NZTA Hawkes Bay database (0000939905HB23E and 7012031000CH80C) switched to another trader on 01/03/2022, leaving the ICPs below. The audit due date for the database remains at 01/09/2022.

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000934950WWBA3	HWY S/LIGHTS WAIROA REGION	TUI1101	DST	109	17,537
0000740571EN424	NZTA STREETLIGHTS GIS	TUI1101	DST	346	37,659

Database accuracy is described as follows:

Result	Percentage	Comments
The point estimate of R	94.5	Wattage from survey is lower than the database wattage by 5.5%
R_L	77.8	With a 95% level of confidence, it can be concluded that the error could be between -22.2% and +1.3%
R_H	101.3	

In absolute terms, total annual consumption is estimated to be 52,200 kWh lower than the DUML database indicates.

A small number of errors were identified by the database analysis.

This audit found five non-compliances and no recommendations were made. The future risk rating of 22 indicates that the next audit be completed in three months' time. I have considered this in conjunction with Meridian's response and the size of the database and recommend that the next audit be in nine months, reflecting that Waka Kotahi has demonstrated with similar databases that corrections are made quickly. Nine months also gives sufficient time to evaluate and correct other potential discrepancies.

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 current monthly report is provided as a snapshot and is non-compliant. The report contains a lamp install date, but this is not used to re-calculate historic submissions Database is not confirmed as accurate with a 95% level of confidence resulting in an estimated over submission of 52,200 kWh p.a. Six items of load with the incorrect ballast applied resulting in an estimated under submission of 51.25 kWh. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Livening dates not recorded for new connections.	Moderate	High	6	Identified
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Four XSP1 3M model lamps are incorrectly recorded in the database as 116W	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Three additional lamps in the field were not recorded in the database from a sample of 178 items of load.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database accuracy	3.1	15.2 and 15.37B(b)	Database is not confirmed as accurate with a 95% level of confidence resulting in an estimated over submission of 52,200 kWh p.a. six items of load with the incorrect ballast applied resulting in an estimated under submission of 51.25 kWh. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Livening dates not recorded for new connections.	Moderate	High	6	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Database is not confirmed as accurate with a 95% level of confidence resulting in an estimated over submission of 52,200 kWh p.a. six items of load with the incorrect ballast applied resulting in an estimated under submission of 51.25 kWh. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Livening dates not recorded for new connections.	Moderate	High	6	Identified
Future Risk Rating						22	

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

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

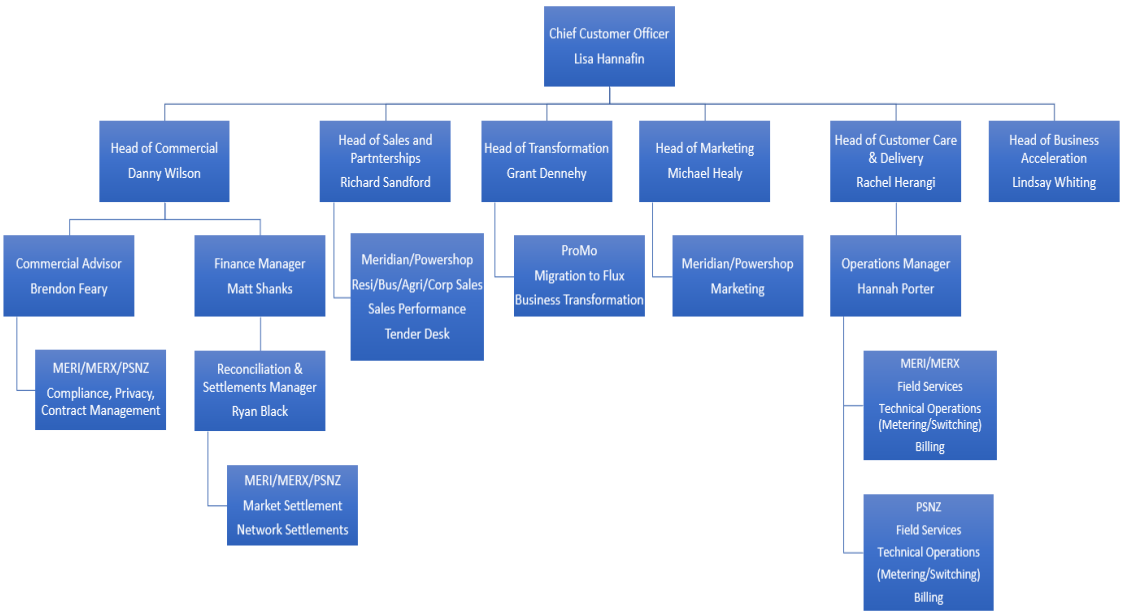
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian Energy provided a copy of their organisational structure.



1.3. Persons involved in this audit

Lead Auditor:

Steve Woods - Veritek Limited

Supporting Auditor:

Bernie Cross - Veritek Limited

Other personnel assisting in this audit were:

Name	Title	Company
Amy Cooper	Compliance Officer	Meridian Energy
Melanie Matthews	Quality and Compliance Advisor	Meridian Energy
Kara Atkinson		NZ Streetlighting

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by Thinkproject Ltd. The database is commonly known as "RAMM" which stands for "Roading Asset and Maintenance Management". The specific module used for DUML is called RAMM Contractor.

Stantec have previously 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

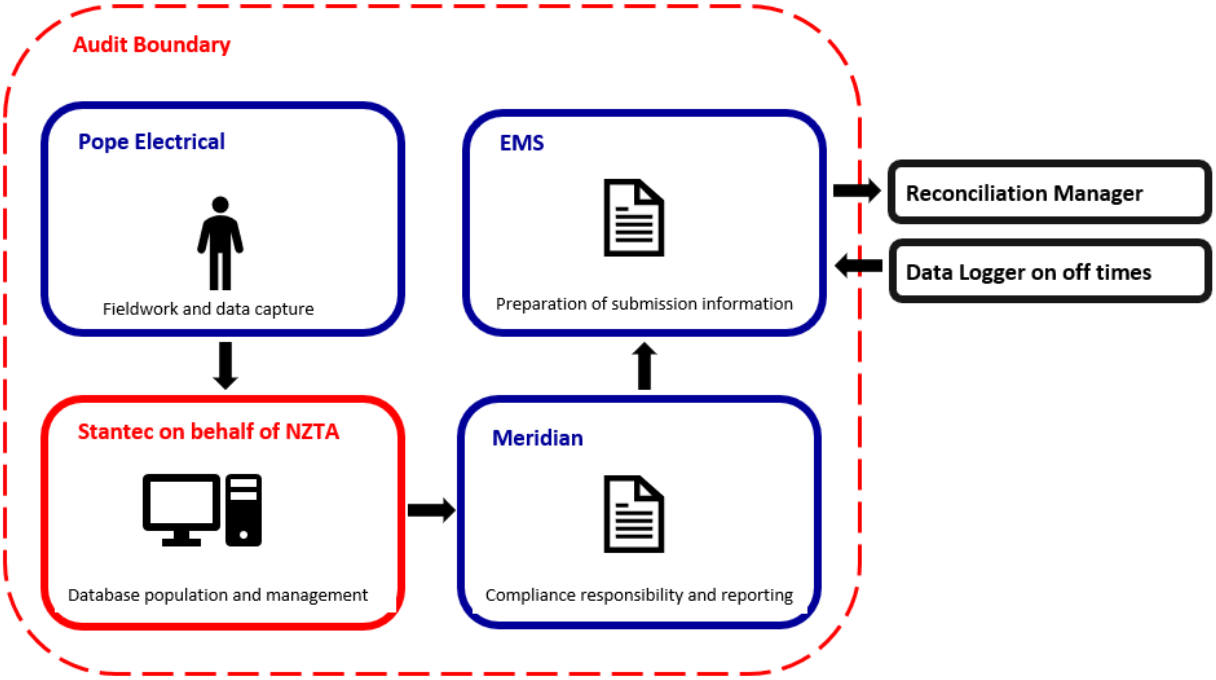
ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000934950WWBA3	HWY S/LIGHTS WAIROA REGION	TUI1101	DST	109	17,537
0000740571EN424	NZTA STREETLIGHTS GIS	TUI1101	DST	346	37,659

1.7. Authorisation Received

All information was provided directly by Meridian, NZ Streetlighting and Stantec.

1.8. Scope of Audit

The database is remotely hosted by RAMM Software Ltd and is managed by Stantec on behalf of Waka Kotahi, who is Meridian's customer. Reporting is provided by Stantec to Meridian on a monthly basis. The fieldwork and asset data capture are conducted by Pope Electrical. 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 audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

The field audit was undertaken of a statistical sample of 264 items of load in February 2021.

1.9. Summary of previous audit

The relevant ICPs were previously part of the NZTA Hawkes Bay database, which was due for audit by 01/09/2022. The other two ICPs in the NZTA Hawkes Bay database (0000939905HB23E and 7012031000CH80C) switched to another trader on 01/03/2022, leaving the ICPs below. Prior to these ICPs becoming part of the NZTA Hawkes Bay database, they were part of Gisborne and Wairoa District Council databases, therefore this is effectively the first audit for these ICPs as part of this database.

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000934950WWBA3	HWY S/LIGHTS WAIROA REGION	TUI1101	DST	109	17,537
0000740571EN424	NZTA STREETLIGHTS GIS	TUI1101	DST	346	37,659

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

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

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, and*
- *methodology for deriving submission information complies with Schedule 15.5.*

Audit observation

The process for calculation of consumption was examined.

Audit commentary

Meridian reconciles this DUML load using the DST profile. The on and off times are derived from a data logger read by EMS and are used to create a shape file. 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 EMS's agent audit, and its accuracy and compliance was confirmed.

I compared the database output file to the capacity information Meridian supplied to EMS for June 2022 and found the totals matched.

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 report contains a lamp install date, but this is not used to re-calculate historic submissions.

The field audit found that the database accuracy was not confirmed as accurate with a 95% level of confidence resulting in an estimated annual under submission of 52,200 kWh. This is detailed in **section 3.1**.

Some database inaccuracies were found as detailed in **section 3.1** and summarised below:

Description	Items of load	Estimated annual kWh impact
Incorrect ballasts applied	6	51.25

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Mar-21 To: 30-Jun-22	The current monthly report is provided as a snapshot and is non-compliant. The report contains a lamp install date, but this is not used to re-calculate historic submissions. Database is not confirmed as accurate with a 95% level of confidence resulting in an estimated over submission of 52,200 kWh p.a. Six items of load with the incorrect ballast applied resulting in an estimated under submission of 51.25 kWh. Livening dates not recorded for new connections Potential impact: Low Actual impact: Low Audit history: Three 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 and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
NZTA has been advised of the inaccuracies and it has been requested for them to be corrected. We have assessed our processes and tools to account for historic lamp installations and changes to the database at a daily level. There are checks in place comparing month to month data to identify any changes. These are accounted for in monthly submission. Meridian will continue to work with NZTA to request that monthly data extracts include the detail of changes.	30/08/2022 30/04/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with The NZTA to complete the required corrections and to maintain the install updates and changes to the database.	30/11/2022	

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, and*
- *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

An ICP is recorded for each item of load. One item of load appears to have the incorrect ICP recorded. This is discussed further in **section 3.1**.

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 each item of load, and users in the office and field can view these locations on a mapping system.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

The DUML database must contain:

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

Audit observation

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

Audit commentary

The database contains fields for lamp make and model. There are three fields which record lamp wattage, gear wattage and total wattage. The fields were populated for all items of load.

I checked LED lamp wattages against available descriptions and found that four XSP1 3M lamps are incorrectly recorded in the database as 116W.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 01-Mar-21 To: 30-Jun-22	Four XSP1 3M model lamps are incorrectly recorded in the database as 116W. 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 they mitigate risk most of the time but 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
NZTA has been advised of the inaccuracies and it has been requested for them to be corrected.	30/08/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with The NZTA to complete the required corrections and to maintain the install updates and changes to the database.	30/11/2022	

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 264 items of load.

Audit commentary

The field audit discrepancies are detailed in the table below.

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Road ID 329	5	5	0	1	1 x 116W (P2) XSP2 T2 Med 102 LED recorded as 67W (P1) XSP1 T2 Med 52.
Road ID 331	37	39	+2	1	1 x new 67W? LED light CNR Tucker Rd. 1 x new 67W? LED light CNR College Rd. 1x150 watt GL600 recorded as Cree (P2) XSP2 T2 Med 102 116 W LED.
Road ID 363	20	20	0	20	20 x 67W XPS1 LED recorded as 116W (P2) XSP2 T2 Med 102 LEDs.
Road ID 364	11	11	0	11	11x 67W XPS1 LED recorded as 116W (P2) XSP2 T2 Med 102 LEDs.
Road ID 375	18	19	+1	1	1 x new LED light CNR Tahaenui Rd 1x L66A LED recorded as 150 watt HPS.
Road ID 449	23	23	0	2	1 x L18 MX1 LED recorded as 100W HPS GL600. 1 x 250W ORSAM B2227 recorded as 150W GLEC

The field audit found some errors. The database accuracy is detailed in **section 3.1**.

Three examples were found of additional lights in the field therefore non-compliance is recorded.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-Mar-21 To: 30-Jun-22	Three additional items of load identified by the field audit. 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 they mitigate risk most of the time but 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
NZTA has been advised of the inaccuracies and it has been requested for them to be corrected.	30/08/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with The NZTA to complete the required corrections and to maintain the install updates and changes to the database.	30/11/2022	

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.

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

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

Audit observation

The database was checked for audit trails.

Audit commentary

The database contains a complete audit trail of all 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	Waka Kotahi Gisborne & Wairoa
Strata	The database contains items of load in the Napier urban area and Central Hawkes Bay. The processes for the management of all Waka Kotahi items of load are the same, and I decided to place the items of load into a single stratum as there are only 455 item of load present
Area units	I created a pivot table of the roads, and I used a random number generator in a spreadsheet to select a total of 13 sub-units.
Total items of load	178 items of load or 39% of the total database 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

A field audit was conducted of a statistical sample of 264 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	94.5	Wattage from survey is lower than the database wattage by 5.5%
R_L	77.8	With a 95% level of confidence, it can be concluded that the error could be between -22.2% and +1.3%
R_H	101.3	

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 A (detailed below) applies.

The conclusion from Scenario B is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between 22.2% and 1.3% 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 3.0 kW lower than the database indicates.

There is a 95% level of confidence that the installed capacity is between 12.0 kW lower and 1.0 KW higher to the same as the database.

In absolute terms, total annual consumption is estimated to be 13,100 kWh lower than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 52,200 kWh p.a. lower to 3,000 kWh 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 %.

Lamp description and capacity accuracy

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority, and the manufacturer's specifications. The following errors were found.

Make	Ballast applied	Correct ballast	No. of lights	Wattage difference
100W HP Sodium	12	14	6	-12
			Total	-12
			Total annual kWh	-51.25

Location accuracy

The field audit did not identify any location discrepancies.

ICP number and owner accuracy

The field audit did not identify any ICP or owner discrepancies

Change management process findings.

The processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance. All fault and maintenance work is controlled by Stantec and conducted by Pope Electrical. Once each job is completed the notification is provided in a template for Stantec to update RAMM.

For new installations, the database is updated once "as builts" are provided, however this can take a long time, sometimes many months or more than a year.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Mar-21 To: 30-Jun-22	Database is not confirmed as accurate with a 95% level of confidence resulting in an estimated over submission of 52,200 kWh p.a. Livening dates not recorded for new connections. 6 items of load have the incorrect ballast applied. Delays in updating the database for new connections. Potential impact: High Actual impact: High Audit history: Twice Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**

High	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The audit risk rating is high based on kWh variances

Actions taken to resolve the issue	Completion date	Remedial action status
NZTA has been advised of the inaccuracies and it has been requested for them to be corrected.	30/08/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with The NZTA to complete the required corrections and to maintain the install updates and changes to the database.	30/11/2022	

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, and*
- *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

Meridian reconciles this DUML load using the DST profile. The on and off times are derived from a data logger read by EMS and are used to create a shape file. 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 EMS's agent audit, and its accuracy and compliance was confirmed.

I compared the database output file to the capacity information Meridian supplied to EMS for June 2022 and found the totals matched.

The field audit found that the database accuracy was not confirmed as accurate with a 95% level of confidence resulting in an estimated annual over submission of 52,200 kWh. This is detailed in **section 3.1**.

Some database inaccuracies were found as detailed in **section 3.1** and summarised below:

Description	Items of load	Estimated annual kWh impact
Incorrect ballasts applied	6	-51.25

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 report contains a lamp install date, but this is not used to re-calculate historic submissions.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(b) From: 01-Mar-21 To: 30-Jun-22	Database is not confirmed as accurate with a 95% level of confidence resulting in an estimated over submission of 52,200 kWh p.a. Six items of load with the incorrect ballast applied resulting in an estimated under submission of 51.25 kWh. Livening dates not recorded for new connections. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The audit risk rating is high based on kWh variances

Actions taken to resolve the issue	Completion date	Remedial action status
NZTA has been advised of the inaccuracies and it has been requested for them to be corrected.	30/08/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Meridian will continue to follow up with The NZTA to complete the required corrections and to maintain the install updates and changes to the database.	30/11/2022	

CONCLUSION

The relevant ICPs were previously part of the NZTA Hawkes Bay database, which was due for audit by 01/09/2022. The other two ICPs in the NZTA Hawkes Bay database (0000939905HB23E and 7012031000CH80C) switched to another trader on 01/03/2022, leaving the ICPs below. The audit due date for the database remains at 01/09/2022.

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000934950WWBA3	HWY S/LIGHTS WAIROA REGION	TUI1101	DST	109	17,537
0000740571EN424	NZTA STREETLIGHTS GIS	TUI1101	DST	346	37,659

Database accuracy is described as follows:

Result	Percentage	Comments
The point estimate of R	94.5	Wattage from survey is lower than the database wattage by 5.5%
R_L	77.8	With a 95% level of confidence, it can be concluded that the error could be between -22.2% and +1.3%
R_H	101.3	

In absolute terms, total annual consumption is estimated to be 52,200 kWh lower than the DUML database indicates.

A small number of errors were identified by the database analysis.

This audit found five non-compliances and no recommendations were made. The future risk rating of 22 indicates that the next audit be completed in three months' time. I have considered this in conjunction with Meridian's response and the size of the database and recommend that the next audit be in nine months, reflecting that Waka Kotahi has demonstrated with similar databases that corrections are made quickly. Nine months also gives sufficient time to evaluate and correct other potential discrepancies.

PARTICIPANT RESPONSE