ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

NZTA WAIPUKURAU AND MERIDIAN ENERGY

Prepared by: Tara Gannon

Date audit commenced: 8 March 2019

Date audit report completed: 19 March 2019

Audit report due date: 1 March 2019

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EXECUTIVE SUMMARY

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

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

A RAMM database is held by NZTA. Field work is completed by NZTA's contractor Higgins Contractors Limited, and their contractor Pope Electrical. Beca is responsible for database maintenance, and updates the database when Higgins advises that changes have occurred.

There is no regular reporting from the database to Meridian. Meridian reconciles the unmetered load for ICP 7012031000CH80C as NHH using the DST profile. The capacity is estimated based on the results of the previous audit, which Meridian considered likely to be more accurate than the historic network company information which had been used previously, or the current database information.

The Central Hawke's Bay District Council DUML database was audited at the same time, and I found some items of load were recorded in both databases. I recommend that this be investigated to ensure that load is recorded against the correct ICP, and not double counted or missed.

NZTA is intending to complete LED upgrades for its highway lights, and as part of this process intends to review and update the RAMM records to ensure that they are correct. I was advised that this project is likely to take at least a year.

Six non-compliances were identified, and one recommendation was raised. The future risk rating of 15 indicates that the next audit be completed in 12 months. I recommend that the next audit be completed in at least 12 months, to allow time to complete the LED upgrade and update the database.

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	The DUML audit was not submitted to the EA by its due date, 01/03/2019.	Strong	Low	1	Identified
Deriving submission information	2.1	11(1) of Schedule 15.3	Four items of load have missing lamp or ballast wattages, and 84 items of load have incorrect lamp or ballast wattages. This will result in potential under recording of 381W or 1,627 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). Differences between the wattage used for submission, wattage recorded in the database could result in 4,189 kWh per annum of over submission.	Weak	Low	3	Identified
ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)	2.2	11(2)(a) and (aa) of Schedule 15.3	The ICP is not recorded in the database.	Weak	Low	3	Identified
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Three items of load have missing lamp wattages, and one item of load has a missing gear wattage.	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)	Four items of load have missing lamp or ballast wattages, and 84 items of load have incorrect lamp or ballast wattages. This will result in potential under recording of 381W or 1,627 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). None of the items of load have an ICP number recorded.	Weak	Low	3	Identified
Volume information accuracy	3.2	11(1) of Schedule 15.3	Four items of load have missing lamp or ballast wattages, and 84 items of load have incorrect lamp or ballast wattages. This will result in potential under recording of 381W or 1,627 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). Differences between the wattage used for submission, wattage recorded in the database could result in 4,189 kWh per annum of over submission.	Weak	Low	3	Identified
Future Risk Rating						15	

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
Tracking of load changes	2.6	Comparison between Central Hawke's Bay DC and NZTA Waipukurau RAMM records.	Compare the lights recorded against Central Hawke's Bay DC and NZTA Waipukurau in RAMM to ensure that all load is accounted for and recorded against the correct entity and ICP.

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

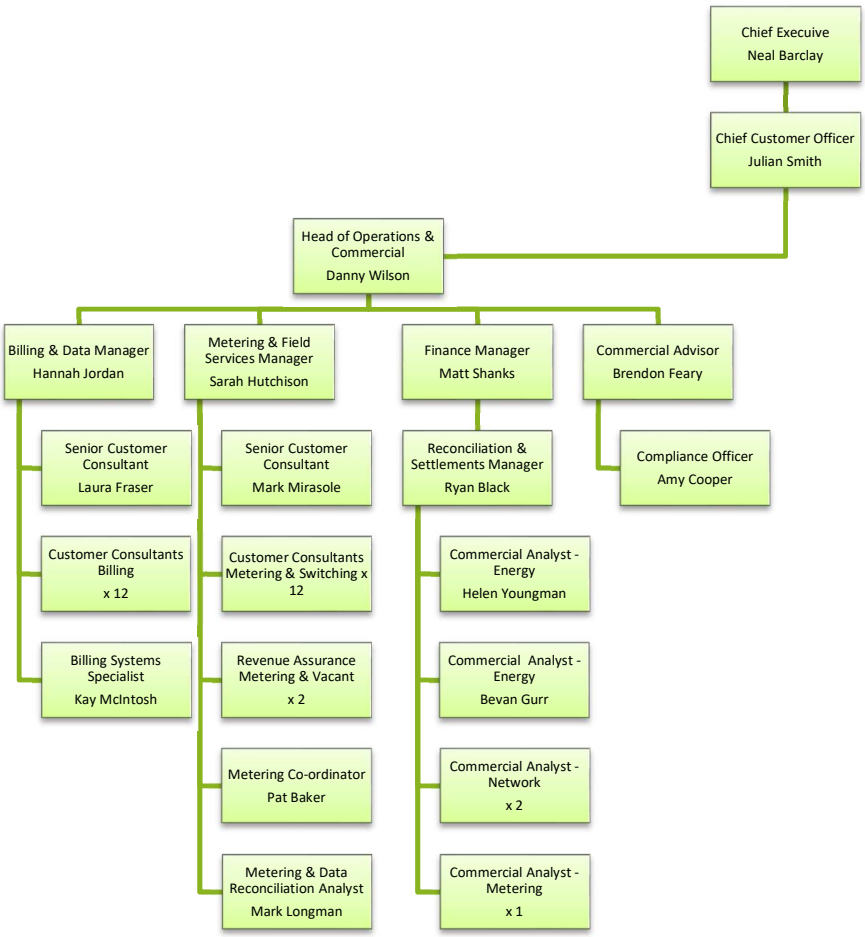
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided a copy of their organisational structure:



1.3. Persons involved in this audit

Auditor:

Tara Gannon

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Amy Cooper	Compliance Officer	Meridian Energy
Mike Janus	Key Account Manager	Meridian Energy

Name	Title	Company
Ronan Galvin	Streetlight Manager	Pope Electrical
Sid Christy	Roading Engineer	Beca Ltd
Kara Atkinson	Lighting and Electricity Specialist	NZStreetlighting

1.4. Hardware and Software

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

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)
7012031000CH80C	STREET LIGHTING TRANSIT NZ WAIPUKURAU	WPW0331	DST	154	24,955
			Total	154	24,955

1.7. Authorisation Received

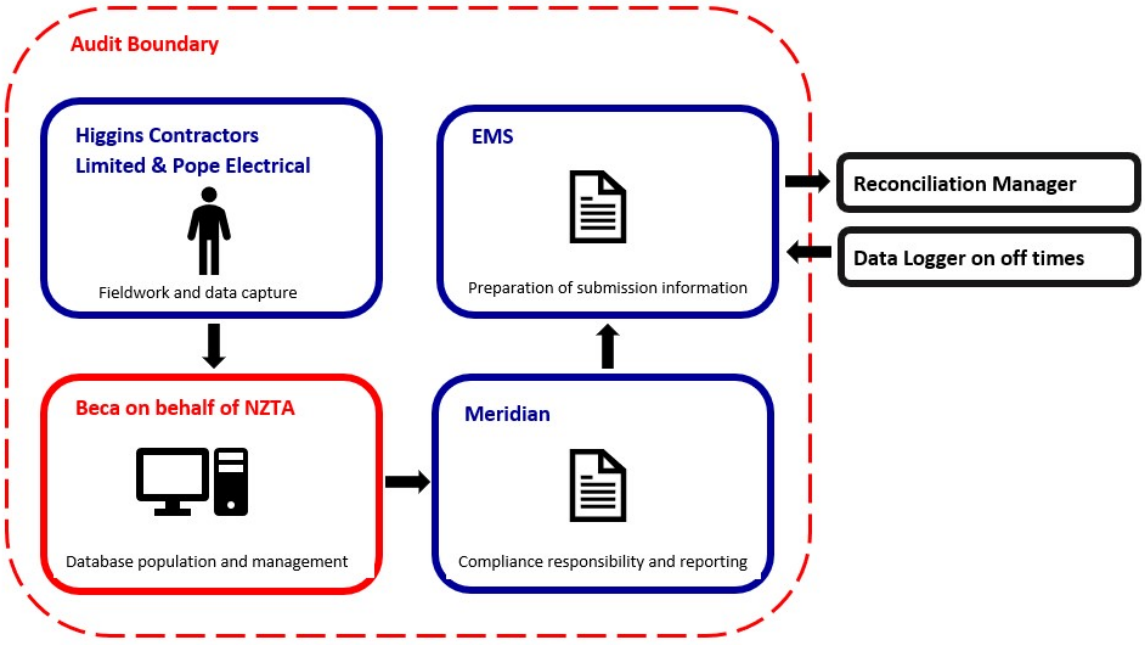
All information was provided directly by Meridian, Beca and Pope Electrical.

1.8. Scope of Audit

A RAMM database is held by NZTA. Field work is completed by NZTA's contractor Higgins Contractors Limited, and their contractor Pope Electrical. Beca is responsible for database maintenance, and updates the database when Higgins advises that changes have occurred.

There is no regular reporting from the database to Meridian. Meridian reconciles the unmetered load for ICP 7012031000CH80C as NHH using the DST profile. The capacity is estimated based on the results of the previous audit, which Meridian considered likely to be more accurate than the historic network company information which had been used previously, or the current database information.

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.

A field audit of a statistical sample of 109 items of load recorded in the database was undertaken on 8 March 2019.

1.9. Summary of previous audit

The previous audit was completed in March 2018 by Tara Gannon of Veritek Limited. Six non-compliances were identified, and no recommendations were made. The statuses of the non-compliances are described below.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Submissions are not based upon the RAMM database.	Still existing
ICP identifier and items of load	2.2	11(2)(a) and (aa) of Schedule 15.3	ICP is not recorded in the database.	Still existing
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Six lamps do not have make, model or wattage information recorded. No lamps have gear or ballast wattage information recorded.	Partially cleared Some lamps still have missing make, model, gear and wattage information.

Subject	Section	Clause	Non-compliance	Status
All load recorded in database	2.5	11(2A) of Schedule 15.3	One floodlight was not recorded in the database.	Cleared This lamp is recorded in the database. It is metered and correctly recorded with zero wattage.
Database accuracy	3.1	15.2 and 15.37B(b)	The database has some missing information.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	Submissions are not based upon the RAMM database.	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

Meridian have requested Veritek to undertake this streetlight audit.

Audit commentary

The audit was not conducted within the required timeframe, due to a delay in receiving the database information. This is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 1.10 With: Clause 16A.26 and 17.295F From: 01-Mar-19 To: 15-Mar-19	The DUML audit was not submitted to the EA by its due date, 01/03/2019. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as strong, audits are started early to ensure that they are completed on time, but there was a delay in obtaining database information. The impact is assessed to be low, because the audit was completed soon after it was due.

Actions taken to resolve the issue	Completion date	Remedial action status
We acknowledge this non-compliance. The audit was undertaken as soon as possible once database information was made available.	19 March 2019	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Meridian has reconciled the unmetered load for 7012031000CH80C as NHH using the DST profile since 01/10/18. Prior to 01/10/18 the RPS profile was applied.

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 Meridian's reconciliation participant audit and EMS' agent audit. Compliance was confirmed for both parties.

There is no regular reporting from the database to Meridian. The capacity is estimated based on the results of the previous audit, which Meridian considered likely to be more accurate than the historic network company information which had been used previously, or the current database information.

Wattage applied for submission	Wattage recorded in database
25,936W	24,955W

Volume inaccuracy is present as follows:

Issue	Estimated volume information impact (annual kWh)
Four items of load have missing lamp or ballast wattages, and 84 items of load have incorrect lamp or ballast wattages	1,627 kWh per annum of under submission if the database were used directly for reconciliation
Differences between the wattage used for submission and database wattage	4,189 kWh of over submission based on the wattage recorded in the database[1]

Audit outcome

Non-compliant

[1] 25,936W used for submission less 24,955W recorded in the database, converted to kWh based on 4,271 burn hours per annum.

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: unknown To: 25-Feb-19	Four items of load have missing lamp or ballast wattages, and 84 items of load have incorrect lamp or ballast wattages. This will result in potential under recording of 381W or 1,627 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). Differences between the wattage used for submission, wattage recorded in the database could result in 4,189 kWh per annum of over submission. Potential impact: Low Actual impact: Unknown Audit history: Twice Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as weak, because the database contains some inaccurate information and is not used for submission. The impact is assessed to be low based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
NZTA are undertaking an LED upgrade program in the Hawkes Bay area. As part of the upgrade they will be ensuring that all lights in the database have the correct ICP, owner and wattage assigned. We have been advised that this program is likely to take at least a year to complete. This program will resolve all inaccuracy identified with current database information. The wattage we are currently using for submission is based on an estimate of the correct database wattage that was included in the last audit report for this database. We consider that this is likely more accurate than using the current database information that is also not accurate due to the missing and incorrect wattage information noted in this report.	01 June 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Code reference

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

Code related audit information

The 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 whether an ICP is recorded for each item of load.

Audit commentary

The ICP is not populated in the database, as NZTA does not require it to be recorded. I note that all items of load relate to ICP 7012031000CH80C.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.2 With: Clause 11(2)(a) and (aa) of Schedule 15.3 From: unknown To: 08-Mar-19	The ICP is not recorded in the database. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as weak, as the ICP number is not recorded for any item of load. The impact is low, because all items of load relate to the same ICP.

Actions taken to resolve the issue	Completion date	Remedial action status
NZTA are undertaking an LED upgrade program in the Hawkes Bay area. As part of the upgrade they will be ensuring that all lights in the database have the correct ICP, owner and wattage assigned. We have been advised that this program is likely to take at least a year to complete. This program will resolve all inaccuracy identified with current database information.	01 June 2020	Identified

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

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

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

The 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

All items of load had highway number and displacement distances recorded. The information was sufficient to locate each item 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 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

Three lamps had missing lamp wattages and one lamp had a missing gear wattage:

Model	Quantity	Recorded lamp wattage	Correct lamp wattage	Total difference
80w Mercury Vapour	3	Blank	80	+240W

Model	Quantity	Recorded gear wattage	Correct gear wattage	Total difference
OSRM (250H, 250 watts)	1	Blank	28	+28W

A further 84 items of load had incorrect lamp or gear wattages recorded, and are recorded as non-compliance in **section 3.1**.

Three items of load did not have any lamp make, model or wattage information recorded in the database. All were checked and confirmed to be metered, but recorded in the database for completeness. This is compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: unknown To: 25-Feb-19	Three items of load have missing lamp wattages, and one item of load has a missing gear wattage. Potential impact: High Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as they are sufficient to ensure that most items of load have make, model, lamp and wattage recorded. The impact is low, because the database is not currently used for submission, and 268W are missing from the database.

Actions taken to resolve the issue	Completion date	Remedial action status
NZTA are undertaking an LED upgrade program in the Hawkes Bay area. As part of the upgrade they will be ensuring that all lights in the database have the correct ICP, owner and wattage assigned. We have been advised that this program is likely to take at least a year to complete. This program will resolve all inaccuracy identified with current database information.	01 June 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Code reference

Clause 11(2A) of Schedule 15.3

Code related audit information

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

Audit observation

A field audit of a statistical sample of 109 items of load recorded in the database was undertaken on 8 March 2019.

Audit commentary

The field audit findings are detailed in the table below.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Ongaonga	3	3	-	3	Three ballast wattage differences.
Takapau	12	12	-	6	Six ballast wattage differences.
Tikokino	7	7	-	5	Five ballast wattage differences.
Waipawa	54	54	-	26	25 ballast wattage difference. One lamp wattage difference for a metered light which was recorded in the database with a wattage.
Waipukurau	33	33	-	26	15 ballast wattage differences. 11 lamp wattage differences.
Total	**109**	**109**	**-**	**66**	

All lamps checked in the field were present in the database. The wattage differences are recorded as non-compliance in **section 3.1**.

Audit outcome

Compliant

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

On 20th September 2012 the Authority sent a memo to Retailers and auditors advising that tracking of load changes at a daily level was not required as long as the database contained an audit trail. I have interpreted this to mean that the production of a "snapshot" report is sufficient to achieve compliance. The database tracks additions and removals as required by this clause.

A RAMM database is held by NZTA. Field work is completed by NZTA's contractor Higgins Contractors Limited, and their contractor Pope Electrical. Beca is responsible for database maintenance, and updates the database when Higgins advises that changes have occurred.

Changes to the database are infrequent. Pope Electrical advised that all new connections during the audit period were metered, or solar. Where lamps were replaced, they were mostly replaced with the same lamp type, apart from six lights which were upgraded to LEDs near Lindsay Road in Waipukurau. These lights were checked as part of the sample, and I found that the wattages differed from the expected values. This is recorded as non-compliance in **section 3.1**.

The Central Hawke's Bay District Council DUML database was audited at the same time, and I found some items of load were recorded in both databases. I recommend that this investigated to ensure that load is recorded against the correct ICP, and not double counted or missed.

Description	Recommendation	Audited party comment	Remedial action
Comparison between Central Hawke's Bay DC and NZTA Waipukurau RAMM records	Compare the lights recorded against Central Hawke's Bay DC and NZTA Waipukurau in RAMM to ensure that all load is accounted for and recorded against the correct entity and ICP.	The upgrade program is expected to identify the correct light owner and ICP for all lights in the database.	Identified

Night and day inspections are performed by Pope Electrical in accordance with their contractual terms.

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 has a complete audit trail.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

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

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

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

Audit observation

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

Plan Item	Comments
Area of interest	NZTA lights around the wider Waipukurau region, encompassing Central Hawke's Bay.
Strata	The database contains 154 NZTA items of load located in the Central Hawke's Bay. All lights in the database have the same owner, and the management process is the same. Due to this and the small size of the population, I created one stratum.
Area units	I converted the database road name and displacement information to GPS coordinates, then mapped the coordinates. I divided the map into seven geographical areas, and selected five at random using a random number generator to give a total of 109 items of load to be checked.
Total items of load	109 items of load were checked, making up approximately 70% of the entire database wattage.

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

Audit commentary

Database accuracy based on the field audit

The database was found to contain some inaccuracies and missing data. The field audit found:

- 12 lamp wattage differences
- 54 ballast wattage differences.

The field data was 102.7% of the database data for the sample checked. This is within the required database accuracy of 5%+/-. The statistical sampling tool reported with 95% confidence the precision of the sample was 9.3%, and the true load in the field will be between 99.7% to 109.0% of the load recorded in the database. The sample is not sufficiently precise to be able to determine the database accuracy but indicates that the database is likely to fall within the required database accuracy.

The tool indicated that there is potentially 2800 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool) of under submission. The statistical sampling tool reported with 95% confidence that there is a potential estimated submission variance range of between 300 and 9,600 kWh of under submission but as the accuracy is within the 5% threshold compliance is recorded.

Wattage accuracy

The database was checked against the published standardised wattage table, and manufacturer's specifications where available.

Four lamps had incorrect or missing lamp wattages:

Model	Quantity	Recorded lamp wattage	Correct lamp wattage	Total difference
80w Mercury Vapour	3	Blank	80	+240W
100w High Pressure Sodium	1	150	100	-50W
			Total	**+190W**

84 lamps had incorrect or missing gear wattages:

Model	Quantity	Recorded gear wattage	Correct gear wattage	Total difference
OSRM (250H, 250 watts)	1	Blank	28	+28W
100w High Pressure Sodium	80	12	14	+160W
80w Mercury Vapour	3	9	10	+3W
			Total	**+191W**

As discussed in **section 2.4**, three items of load did not have any lamp make, model or wattage information recorded in the database. All were checked and confirmed to be metered, but recorded in the database for completeness. This is compliant.

ICP accuracy

As discussed in **section 2.2,** ICP is not populated in the database. I note that all items of load relate to ICP 7012031000CH80C.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: unknown To: 25-Feb-19	Four items of load have missing lamp or ballast wattages, and 84 items of load have incorrect lamp or ballast wattages. This will result in potential under recording of 381W or 1,627 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). None of the items of load have an ICP number recorded. Potential impact: High 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 are not sufficient to ensure that database wattage is accurate. The impact is assessed to be low based on the wattage differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
NZTA are undertaking an LED upgrade program in the Hawkes Bay area. As part of the upgrade they will be ensuring that all lights in the database have the correct ICP, owner and wattage assigned. We have been advised that this program is likely to take at least a year to complete. This program will resolve all inaccuracy identified with current database information. The wattage we are currently using for submission is based on an estimate of the correct database wattage that was included in the last audit report for this database. We consider that this is likely more accurate than using the current database information that is also not accurate due to the missing and incorrect wattage information noted in this report.	01 June 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

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

Audit observation

Submission data was checked for accuracy, including:

- 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

The process for calculation of consumption was examined.

Audit commentary

Meridian has reconciled the unmetered load for 7012031000CH80C as NHH using the DST profile since 01/10/18. Prior to 01/10/18 the RPS profile was applied. The profiles and submission types are correctly recorded on the registry.

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 Meridian's reconciliation participant audit and EMS' agent audit. Compliance was confirmed for both parties.

There is no regular reporting from the database to Meridian. The capacity is estimated based on the results of the previous audit, which Meridian considered likely to be more accurate than the historic network company information which had been used previously, or the current database information.

Wattage applied for submission	Wattage recorded in database
25,936W	24,955W

Volume inaccuracy is present as follows:

Issue	Estimated volume information impact (annual kWh)
Four items of load have missing lamp or ballast wattages, and 84 items of load have incorrect lamp or ballast wattages	1,627 kWh per annum of under submission if the database were used directly for reconciliation
Differences between the wattage used for submission and database wattage	4,189 kWh of over submission based on the wattage recorded in the database[2]

Audit outcome

Non-compliant

[2] 25,936W used for submission less 24,955W recorded in the database, converted to kWh based on 4,271 burn hours per annum.

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: unknown To: 25-Feb-19	Four items of load have missing lamp or ballast wattages, and 84 items of load have incorrect lamp or ballast wattages. This will result in potential under recording of 381W or 1,627 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). Differences between the wattage used for submission, wattage recorded in the database could result in 4,189 kWh per annum of over submission. Potential impact: Low Actual impact: Unknown Audit history: Twice Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as weak, because the database contains some inaccurate information and is not used for submission. The impact is assessed to be low based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
NZTA are undertaking an LED upgrade program in the Hawkes Bay area. As part of the upgrade they will be ensuring that all lights in the database have the correct ICP, owner and wattage assigned. We have been advised that this program is likely to take at least a year to complete. This program will resolve all inaccuracy identified with current database information. The wattage we are currently using for submission is based on an estimate of the correct database wattage that was included in the last audit report for this database. We consider that this is likely more accurate than using the current database information that is also not accurate due to the missing and incorrect wattage information noted in this report.	01 June 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

CONCLUSION

A RAMM database is held by NZTA. Field work is completed by NZTA's contractor Higgins Contractors Limited, and their contractor Pope Electrical. Beca is responsible for database maintenance, and updates the database when Higgins advises that changes have occurred.

There is no regular reporting from the database to Meridian. Meridian reconciles the unmetered load for ICP 7012031000CH80C as NHH based on historic data, which is recorded in the trader unmetered load fields on the registry.

The Central Hawke's Bay District Council DUML database was audited at the same time, and I found some items of load were recorded in both databases. I recommend that this investigated to ensure that load is recorded against the correct ICP, and not double counted or missed.

NZTA is intending to complete LED upgrades for its highway lights, and as part of this process intends to review and update the RAMM records to ensure that they are correct. I was advised that this project is likely to take at least a year.

Six non-compliances were identified, and one recommendation was raised. The future risk rating of 15 indicates that the next audit be completed in 12 months. I recommend that the next audit be completed in at least 12 months, to allow time to complete the LED upgrade and update the database.

PARTICIPANT RESPONSE

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