ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

CLUTHA DISTRICT COUNCIL AND MERIDIAN ENERGY LIMITED

Prepared by: Steve Woods

Date audit commenced: 3 August 2020

Date audit report completed: 16 August 2020

Audit report due date: 11 August 2020

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EXECUTIVE SUMMARY

This audit of the **Clutha District Council (CDC)** 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 CDC, who is Meridian's customer. There is currently no streetlight contractor in place for maintenance. McKay Electrical is the contractor for the LED rollout.

The NZTA data is now populated in the RAMM database.

The field audit identified that the lamp count is quite accurate, but the wattages are not accurate. There were 49 discrepancies out of 230 items of load checked. It appears that the first round of LED upgrades (24 watt LEDs) are mostly accurate, but the second round is a lot less accurate.

Some gear wattages are incorrectly recorded and need to be updated.

A monthly report from the database is provided to Meridian and is used to calculate submissions. Meridian submits the DUML load as NHH 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 Meridian's reconciliation participant audit and EMS' agent audit.

Three non-compliances were identified. The future risk rating of 12 indicates that the next audit be completed in 12 months. I agree with this recommendation.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	In absolute terms, total annual consumption is estimated to be 29,900 kWh higher than the DUML database indicates. Submission is based on a snapshot and does not consider historic adjustments. The database contains incorrect ballast wattage leading to under submission of 2,300 kWh per annum.	Moderate	Medium	4	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	In absolute terms, total annual consumption is estimated to be 29,900 kWh higher than the DUML database indicates. The database contains incorrect ballast wattage leading to under submission of 2,300 kWh per annum.	Moderate	Medium	4	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	In absolute terms, total annual consumption is estimated to be 29,900 kWh higher than the DUML database indicates. Submission is based on a snapshot and does not consider historic adjustments. The database contains incorrect ballast wattage leading to under submission of 2,300 kWh per annum.	Moderate	Medium	4	Identified
Future Risk Rating							12

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
Location of items of load	2.3	GPS coordinates need updating.	Populate GPS coordinates for 42 items of load.

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

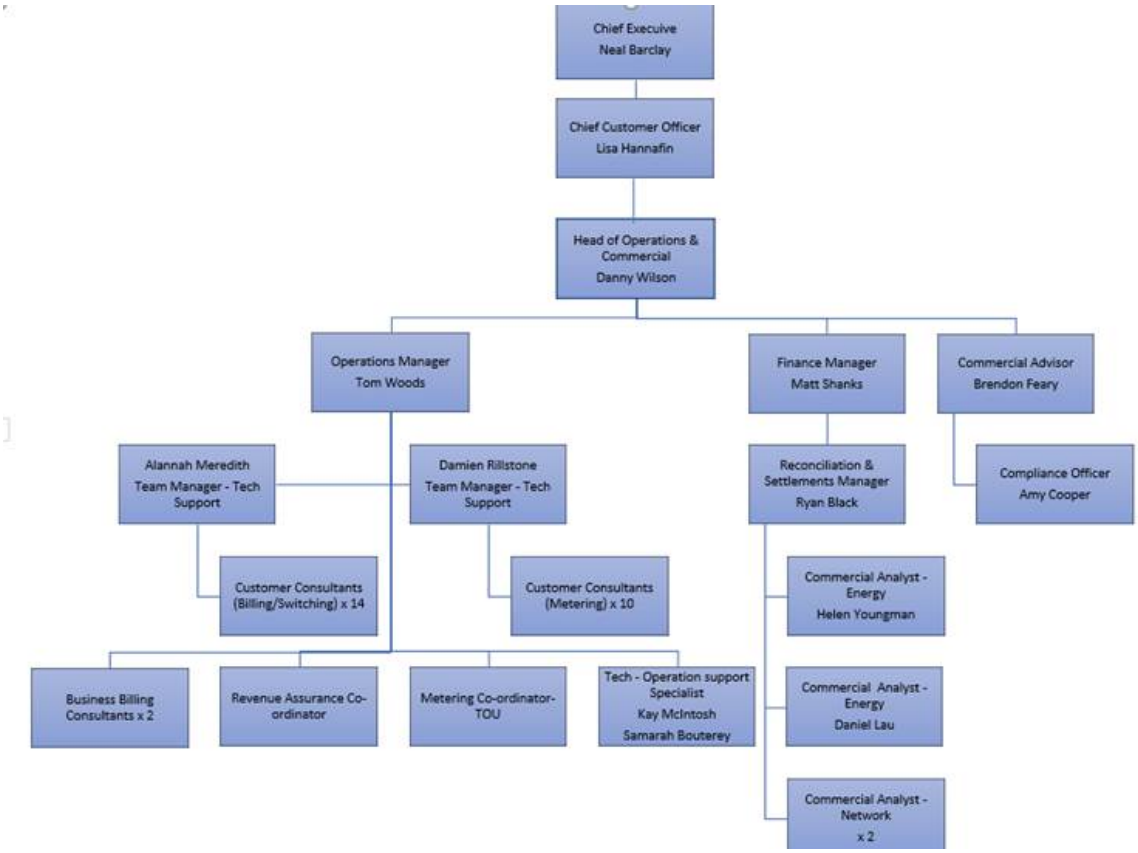
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided a copy of their organisational structure:



1.3. Persons involved in this audit

Auditor:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Amy Cooper	Compliance Officer	Meridian Energy
Rhonda Barlow	Transportation Technician	Stantec New Zealand
Chris Bopp	Senior Infrastructure Engineer	Clutha DC

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".

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)
0000207893DE37B	Waipori Falls	WPV0661	DST	10	240
0001982479TGE75	CDC Streetlights	BAL0331	DST	1,587	86,877
0008801005TPE67	CDC Lights Urban	GOR0331	DST	120	5,408
0008801015TP4CA	CDC Lights Rural	GOR0331	DST	49	3,848

1.7. Authorisation Received

All information was provided directly by Meridian and CDC.

1.8. Scope of Audit

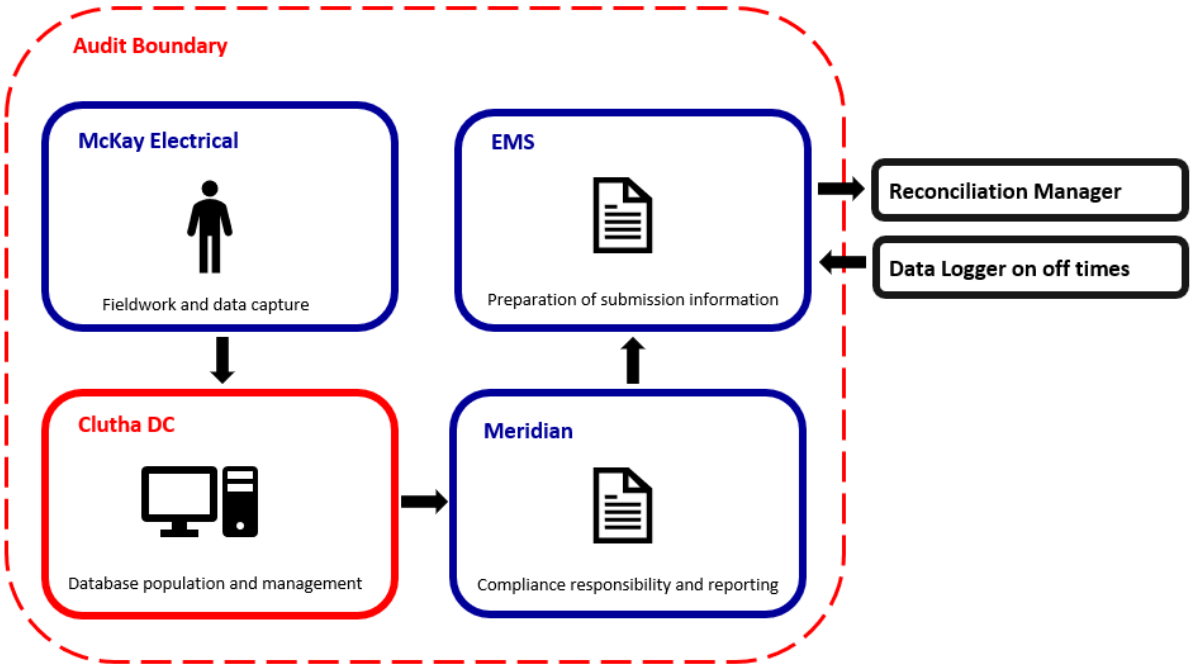
This audit of the CDC DUML database and processes was conducted at the request of Meridian in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

A RAMM database is held by CDC, who is Meridian's customer. There is currently no streetlight contractor in place for maintenance. McKay Electrical was the contractor for the LED rollout.

The previous audit report recorded that the NZTA data was contained in a spreadsheet ad was not held in RAMM. This is now resolved and all NZTA data is in RAMM and formed part of the audit.

Meridian submits the DUML load as NHH 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 Meridian's reconciliation participant audit and EMS' agent audit.

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



The field audit was undertaken of a statistical sample of 230 items of load.

1.9. Summary of previous audit

The previous audit was conducted in August 2019 by Steve Woods of Veritek. The table below shows four of the seven matters are resolved.

Subject	Section	Clause	Non-Compliance	Status
Database audit	1.10	16A.26 and 17.295F	Audit conducted late.	Cleared
Deriving submission information	2.1	11(1) of Schedule 15.3	In absolute terms, total annual consumption is estimated to be 16,800 kWh higher than the DUML database indicates. Submission is based on a snapshot and does not consider historic adjustments.	Still existing
ICP identifier and items of load	2.3	11(2)(b) of Schedule 15.3	2 items of load with insufficient location details.	Cleared
Description and capacity of load.	2.4	11(2)(c) and (d) of Schedule 15.3	22 items of load with blank lamp wattage, gear wattage and description of load.	Cleared
All load recorded in database	2.5	Clause 11(2A) of Schedule 15.3	2 lights in the field not recorded in the database.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	In absolute terms, total annual consumption is estimated to be 16,800 kWh higher than the DUML database indicates. The database contains incorrect ballast wattage, but these are corrected prior to submission. 22 items of load do not have make, model, lamp wattage or gear wattage recorded. Two items of load do not have GPS coordinates and there is insufficient detail in the address field to locate them.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	In absolute terms, total annual consumption is estimated to be 16,800 kWh higher than the DUML database indicates. Submission is based on a snapshot and does not consider historic adjustments.	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

This audit report demonstrates that the audit was conducted as required by this clause.

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

- *DUML database is up to date*
- *methodology for deriving submission information complies with Schedule 15.5.*

Audit observation

The process for calculation of consumption was examined.

Audit commentary

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information.

A monthly report from the database is provided to Meridian and is used to calculate submissions. The NZTA lighting is now included in the database. Meridian submits the DUML load as NHH 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 Meridian's reconciliation participant audit and EMS' agent audit.

The capacities supplied to EMS for May 2020 were checked and confirmed to be accurate.

The field audit found that the total annual consumption is estimated to be 29,900 kWh higher than the DUML database indicates.

The lamp install date is used as the date lights are installed or changed, but submission is based on a snapshot and does not consider historic adjustments.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Sep-19 To: 04-Aug-20	In absolute terms, total annual consumption is estimated to be 29,900 kWh higher than the DUML database indicates. Submission is based on a snapshot and does not consider historic adjustments. The database contains incorrect ballast wattage leading to under submission of 2,300 kWh per annum. Potential impact: Medium Actual impact: Medium Audit history: Once 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. The impact on settlement and participants is moderate; therefore, the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
CDC are checking lights for the last round of LED upgrades completed to confirm the correct information and will amend the database. Meridian will liaise with CDC so that these corrections are accounted for in revision of submission information.	31 Dec 2020	Identified
Incorrect ballasts identified are attributable to the NZTA lights recently added to the database and will be corrected.	30 Sept 2020	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Processes for ongoing maintenance of lights and update of the database will be reviewed once the LED roll out in completed.	July 2021	

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 analysis found that all items of load had an ICP number recorded.

Audit outcome

Compliant

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

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

The DUML database must contain the location of each DUML item.

Audit observation

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

Audit commentary

The database contains street addresses, pole numbers and GPS coordinates.

42 items of load do not have GPS coordinates but there is sufficient detail in the address field to locate them. I still recommend the GPS coordinates are plotted and added to the database.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 11(2)(b) of Schedule 15.3.	Populate GPS coordinates for 42 items of load.	CDC are investigating the lights with blank GPS co-ordinates	Identified

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

All items of load have the lamp make, model and associated wattages populated.

The accuracy of the recorded wattages is discussed in **section 3.1**.

Audit outcome

Compliant

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

Code reference

Clause 11(2A) of Schedule 15.3

Code related audit information

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

Audit observation

The field audit was undertaken of a statistical sample of 230 items of load.

Audit commentary

The following differences were identified during the field audit.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Castle St	1	1	-	1	1 x 150W HPS recorded as 70W HPS
NORTHUMBERLAND STREET (SH90)	7	7	-	2	1 x 24W LED recorded as 70W HPS 1 x 24W LED recorded as 150W HPS
WILSON ROAD	1	1	-	1	1 x LED recorded as 250W HPS
CHARLES STREET	3	3	-	1	1 x 76W LED recorded as 39.5W LED
CLYDE TERRACE	26	26	-	26	1 x 57W LED recorded as 52W LED 13 x 57W LED recorded as 39.5W LED 12 x 76W LED recorded as 39.5W LED
FRANCIS STREET (TAIERI MOUTH)	1	0	-1	0	1 light not found
FYALL DRIVE	6	5	-1	0	1 light not found
HIGH STREET (BALCLUTHA)	5	5	-	3	2 x 52W LED recorded as 24W LED 1 x 76W LED recorded as 24W LED
LOWESTOFT STREET	7	7	-	3	2 x 39.5W LED recorded as 24W LED 1 x 150W HPS recorded as 24W LED
RENFREW STREET	15	15	-	11	2 x 46W LED recorded as 39.5W LED 1 x 52W LED recorded as 39.5W LED 3 x 52W LED recorded as 24W LED 3 x 57W LED recorded as 24W LED 1 x 76W LED recorded as 39.5W LED 1 x 76W LED recorded as 24W LED

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
ROSS STREET (BALCLUTHA)	2	2	-	1	1 x 52W LED recorded as 24W LED
Total			**-2**	**49**	

The field audit did not identify any lights which were present in the field but not recorded in the database.

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

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 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	Streetlights in the Clutha region
Strata	The database contains items of load located in the Clutha region owned by CDC. The management process is the same for all lights. The total population was divided into three strata: Roads starting with A-E Roads starting with F–N Roads starting with O-Z NZTA
Area units	I created a pivot table of the roads in the stratum, and I used a random number generator in a spreadsheet to select a total of 59 sub-units making up 11% of the total database wattage.
Total items of load	230 items of load were checked.

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

A field audit was conducted of a statistical sample of 230 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	107.3	Wattage from survey is higher than the database wattage by 7.3%
R_L	100	With a 95% level of confidence it can be concluded that the error could be between 0% and 18.3%
R_H	118.3	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 01/02/19 and the table below shows that Scenario C (detailed below) applies.

The conclusion from Scenario C is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between 5.9% lower and 19.6% higher than the wattage recorded in the DUML database. Non-compliance is recorded because the potential error is greater than 5.0%.

In absolute terms the installed capacity is estimated to be 7.0 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 0 kW to 18 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 29,900 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 0 kWh p.a. lower to 75,000 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 %

Lamp description and capacity accuracy

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

31 items of load have incorrect gear wattage recorded in the database resulting in 2,300 kWh per annum under submission.

NZTA lighting

NZTA lighting is now in the database and was included as a stratum.

ICP accuracy

No ICP discrepancies were identified.

Location accuracy

42 items of load do not have GPS coordinates but there is sufficient detail in the address field to locate them**.**

Change management process findings

Processes to track changes to the database were reviewed.

The lamp count appears to be reasonably accurate, but many wattages are incorrect. For the LED upgrade process, CDC provides the "work orders" as hard copy, which are then returned, and the database is populated. The discrepancies found during the field audit are believed to be due to the contractor not returning all of the paperwork as required. McKay Electrical is the LED upgrade contractor but there is currently no maintenance contractor.

The lamp install date is used as the date lights are installed or changed.

When the planned NZTA LED rollout occurs, it is not clear whether the CDC RAMM database will be used or the NZTA RAMM database. The timeframe for this rollout is unknown.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Sep-19 To: 04-Aug-20	In absolute terms, total annual consumption is estimated to be 29,900 kWh higher than the DUML database indicates. The database contains incorrect ballast wattage leading to under submission of 2,300 kWh per annum. Potential impact: High Actual impact: Medium Audit history: Once 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. The impact on settlement and participants is moderate; therefore, the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
CDC are checking lights for the last round of LED upgrades completed to confirm the correct information and will amend the database. Meridian will liaise with CDC so that these corrections are accounted for in revision of submission information.	31 Dec 2020	Identified
Incorrect ballasts identified are attributable to the NZTA lights recently added to the database and will be corrected.	30 Sept 2020	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Processes for ongoing maintenance of lights and update of the database will be reviewed once the LED roll out in completed.	July 2021	

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

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information.

A monthly report from the database is provided to Meridian and is used to calculate submissions. The NZTA lighting is held in a spreadsheet and is added to the report prior to it being sent. Meridian submits the DUML load as NHH 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 Meridian's reconciliation participant audit and EMS' agent audit.

The capacities supplied to EMS for May 2020 were checked and confirmed to be accurate.

The field audit found that the total annual consumption is estimated to be 29,900 kWh higher than the DUML database indicates.

The lamp install date is used as the date lights are installed or changed, but submission is based on a snapshot and does not consider historic adjustments.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Sep-19 To: 04-Aug-20	In absolute terms, total annual consumption is estimated to be 29,900 kWh higher than the DUML database indicates. Submission is based on a snapshot and does not consider historic adjustments. The database contains incorrect ballast wattage leading to under submission of 2,300 kWh per annum. Potential impact: Medium Actual impact: Medium Audit history: Once 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. The impact on settlement and participants is moderate; therefore, the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
CDC are checking lights for the last round of LED upgrades completed to confirm the correct information and will amend the database. Meridian will liaise with CDC so that these corrections are accounted for in revision of submission information.	31 Dec 2020	Identified
Incorrect ballasts identified are attributable to the NZTA lights recently added to the database and will be corrected.	30 Sept 2020	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Processes for ongoing maintenance of lights and update of the database will be reviewed once the LED roll out in completed.	July 2021	

CONCLUSION

A RAMM database is held by CDC, who is Meridian's customer. There is currently no streetlight contractor in place for maintenance. McKay Electrical is the contractor for the LED rollout.

The NZTA data is now populated in the RAMM database.

The field audit identified that the lamp count is quite accurate, but the wattages are not accurate. There were 49 discrepancies out of 230 items of load checked. It appears that the first round of LED upgrades (24 watt LEDs) are mostly accurate, but the second round is a lot less accurate.

Some gear wattages are incorrectly recorded and need to be updated.

A monthly report from the database is provided to Meridian and is used to calculate submissions. Meridian submits the DUML load as NHH 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 Meridian's reconciliation participant audit and EMS' agent audit.

Three non-compliances were identified. The future risk rating of 12 indicates that the next audit be completed in 12 months. I agree with this recommendation.

PARTICIPANT RESPONSE