ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

TAUPO DISTRICT COUNCIL
AND MERIDIAN

Prepared by: Rebecca Elliot

Date audit commenced: 17 February 2021

Date audit report completed: 31 March 2021

Audit report due date: 1 April 2021

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EXECUTIVE SUMMARY

This audit of the **Taupo District Council (TDC)** 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.

TDC use a RAMM database to manage this DUML load. New connection, fault and maintenance work is completed by Horizons. Reports are received by Meridian on a monthly basis.

The next LED rollout is about to commence. Seftons have been engaged to undertake this work. The contract management process has been strengthened during the audit period, so controls are rated as strong for change to be managed going forward. The field audit found that this has not always been the case and I recommend a 100% field audit to be undertaken to correct this.

The field audit found that in absolute terms, total annual consumption is estimated to be 68,000 kWh lower than the DUML database indicates, meaning that over submission is occurring.

I found that the incorrect wattage has been recorded for 2,542 lamps. This will be resulting in an estimated over submission of 16,285 kWh per annum. TDC are in the process of correcting these.

The audit found four non-compliances and makes three recommendations. The future risk rating of ten indicates that the next audit be completed in 12 months. I have reviewed this in conjunction with Meridian's comments and 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 68,000 kWh lower than the DUML database indicates. Incorrect wattages recorded for 2,542 lamps resulting in an estimated over submission of 16,285 kWh per annum. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database.	Strong	High	3	Investigating
All load recorded in the database	2.5	11(2A) of Schedule 15.3	All load is not recorded in the database.	Strong	Low	1	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	In absolute terms, total annual consumption is estimated to be 68,000 kWh lower than the DUML database indicates. Incorrect wattages recorded for 2,542 lamps resulting in an estimated over submission of 16,285 kWh per annum.	Strong	High	3	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	15.2 and 15.37B(c)	In absolute terms, total annual consumption is estimated to be 68,000 kWh lower than the DUML database indicates. Incorrect wattages recorded for 2,542 lamps resulting in an estimated over submission of 16,285 kWh per annum. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database.	Strong	High	3	Investigating
Future Risk Rating						10	

Future risk rating	0	1-4	5-8	9-15	16-18	19+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Recommendation
Database Accuracy	3.1	Meridian to liaise with TDC and NZTA to ensure changes made in the field are updated in the database.
		Undertake 100% field audit to resolve historic data discrepancies.
		Liaise with the networks to ensure that streetlight electrical connections are notified to TDC.

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

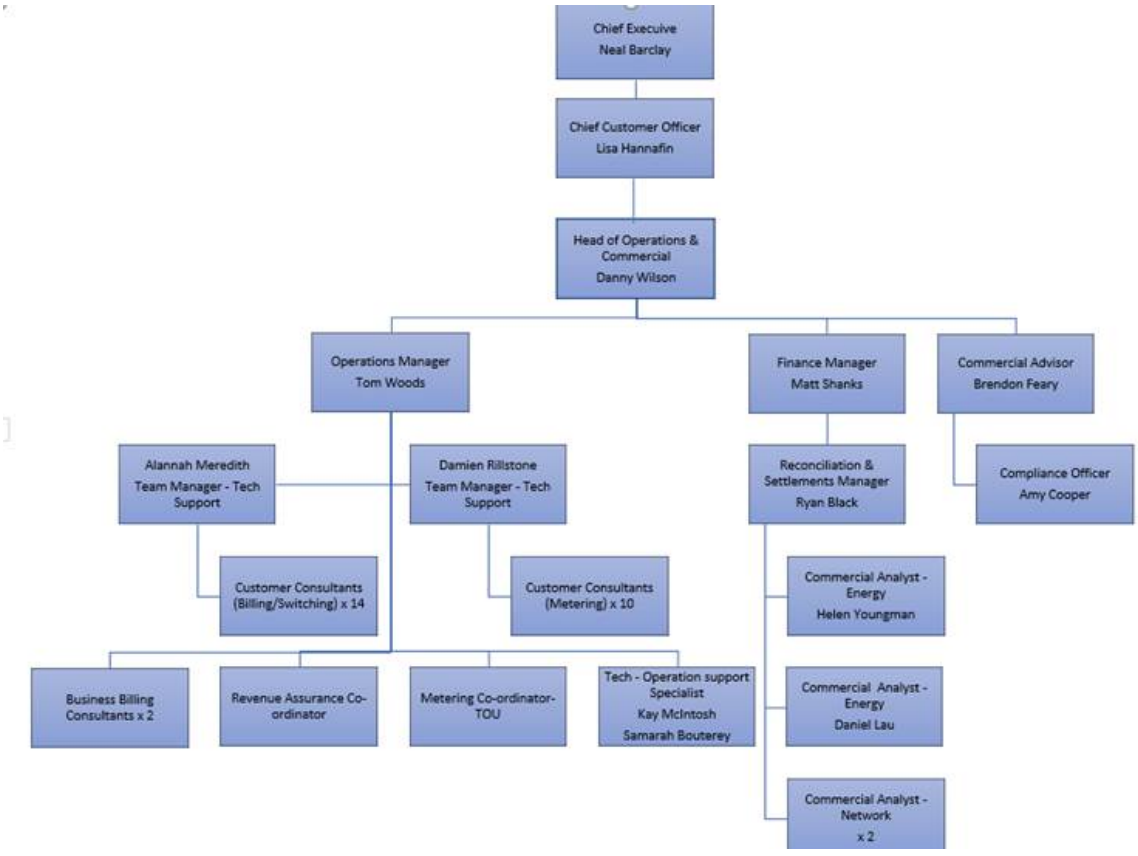
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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:

Rebecca Elliot

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Amy Cooper	Compliance Officer	Meridian
Pip Cameron	Asset Information Officer of Transport	Taupo District Council

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 specific module used for DUML is called RAMM Contractor.

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)
0000029279HR82A	Atiamuri Streetlights	ROT0111	DST	34	799
0000031514WEC89	Wharewaka Streetlights	WRK0331	DST	64	5,482
0001264720UN608	Taupo Streetlights	WRK0331	DST	3,286	210,415
0008807420WM161	Turangi Streetlights	TKU0331	DST	812	32,089
0008808341WM4B6	Mangakino Streetlights	HTI0331	DST	225	7,379
Total				4,421	256,164

I note that the overall volume of lights is similar, but the wattage values have reduced as the LED rollout progresses.

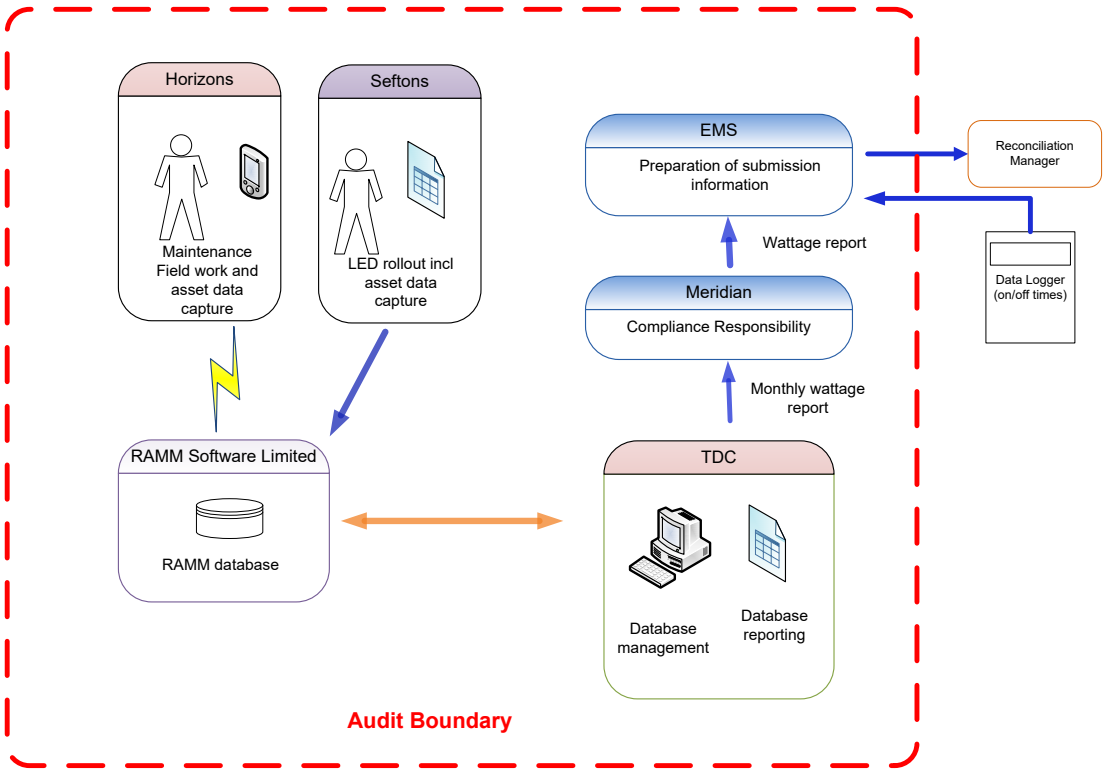
1.7. Authorisation Received

All information was provided directly by Meridian and TDC.

1.8. Scope of Audit

TDC use a RAMM database to manage this DUML load. New connection, fault and maintenance work is completed by Horizons. The first LED roll out is complete. A second roll out of the P category lights is about to get underway. TDC have engaged Seftons Limited to undertake this work. Monthly reports are received by Meridian.

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 308 items of load on 12 March 2021.

1.9. Summary of previous audit

The previous audit was completed in March 2020 by Steve Woods of Veritek Limited. The current statuses of that audit's findings are detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	1 item of load with the incorrect ballast recorded resulting in an estimated over submission of 55kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). In absolute terms, total annual consumption is estimated to be 39,300 kWh lower than the DUML database indicates.	Cleared Still existing
All load recorded in the database	2.5	11(2A) of Schedule 15.3	All load is not recorded in the database.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	1 item of load with the incorrect ballast recorded resulting in an estimated over submission of 55kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). In absolute terms, total annual consumption is estimated to be 39,300 kWh lower than the DUML database indicates.	Cleared Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	1 item of load with the incorrect ballast recorded resulting in an estimated over submission of 55kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). In absolute terms, total annual consumption is estimated to be 39,300 kWh lower than the DUML database indicates.	Cleared Still existing

Table of Recommendations

Subject	Section	Recommendation	Status
Database Accuracy	3.1	TDC and the trader liaise with NZTA to ensure changes made in the field are updated in the database. Liaise with the networks to ensure that streetlight electrical connections are notified to TDC.	Still existing 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 confirms that the requirement to conduct an audit has been met for this database within the required timeframe.

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

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

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

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

Audit observation

The process for calculation of consumption was examined and the application of profiles was checked. The database was checked for accuracy.

Audit commentary

Meridian reconciles this DUML load using the DST profile. The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM and the "burn time" which is sourced from a data logger. 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 February 2021 were checked and confirmed to be the same as the database.

The issue of static dimming was checked and as reported in the last audit the dimming functionality is not yet being used. If it is used in the future, there will need to be a different set of reporting to cater for this.

The field audit against the database quantities found that the database is not confirmed as accurate with a 95% level of confidence. This will be resulting in an estimated over submission of 68,000 kWh per annum. This is detailed in **section 3.1**.

Incorrect wattages are recorded for 2,542 lamps due to the design wattage being recorded instead of the actual wattage. This will be resulting in an estimated annual over submission of 16,285 kWh. The effect of this is also reflected in the field audit results above. TDC are in the process of correcting these in the database. This is detailed in **section 3.1**.

Submission continues to be based on a snapshot of the database at the end of the month 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-Apr-20 To: 01-Mar-21	In absolute terms, total annual consumption is estimated to be 68,000 kWh lower than the DUML database indicates. Incorrect wattages recorded for 2,542 lamps resulting in an estimated over submission of 16,285 kWh per annum. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Strong Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as strong as the change management process is robust and the risks are managed to an acceptable level. The impact is assessed to be high based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Taupo DC has corrected the incorrect wattages for the lamps identified. The recommendation for a full field audit to resolve historic inaccurate data capture has been raised with the council.	March 2021 Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
A new contractor and better controls are expected to improve accuracy of data capture for the next stages of the LED roll out.	Ongoing	

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

Code reference

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

Code related audit information

The DUML database must contain:

- *each ICP identifier for which the retailer is responsible for the DUML*
- *the items of load associated with the ICP identifier.*

Audit observation

The database was checked to confirm that an ICP is recorded for each item of load.

Audit commentary

All items of load have an ICP recorded.

Audit outcome

Compliant

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

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

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

Audit observation

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

Audit commentary

The database contains the nearest street address, displacement from end of road and/or Global Positioning System (GPS) coordinates for each item of load. 22 items of load do not have GPS coordinates, but all have a street name and number to allow them to be located.

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 two fields for wattage, firstly the manufacturers rated wattage and secondly the "ballast wattage". The ballast wattage is expected to be a calculated figure which accounts for any variation from the input wattage and includes losses associated with ballasts. Examination of the database confirmed all fields were populated.

The accuracy of the ballast wattages used for submission are 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 308 items of load on 12 March 2021.

Audit commentary

The field audit found 217 incorrect wattages and two additional lights. The majority of the incorrect wattages relate to the incorrect lamp wattage being recorded for two light types. This is detailed in **section 3.1**. Below I have recorded where the light is different to that recorded in the database and all extra lights found in the field:

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
ERNEST KEMP RISE	8	10	+2	0	2x extra 70W HPS lamps found
KONINI STREET	5	5		1	1x 23.5W LED recorded in the database but 19.9WLED found in the field
ROBERTS STREET	25	25		1	1x 150W HPS recorded in the database but 35.5W LED found in the field
SH 32	4	4		1	1x 70W HPS recorded in the database but 35.5W LED found in the field
MOUNTVIEW CLOSE ST# 43-57	2	2		1	1x 23.5W LED recorded in the database but 19.9W LED found in the field
SERVICE LANE NO 15	1	1		1	1x 19.9W LED recorded in the database but 35.5W LED found in the field
STONEFLY PLACE	2	2		1	1x 45W LED recorded in the database but 58W found in the field
HAURAKI TERRACE	6	6		6	All 22W LED found in the field recorded as 3x 37W LED and 3x 19.9W LED in the database

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
KOKOPU STREET	4	4		2	2x 23.5W LED recorded in the database but 35.5W LEDs found in the field
NGAPERA WAY	2	2		1	1x 37W LED recorded in the database but 22W LED found in the field
RAUKURA STREET	8	8		1	1x 23.5W LED recorded in the database but 19.9WLED found in the field
TE HEI PLACE	8	8		4	4x 37W LED recorded in the database but 22W LEDs found in the field

The two additional lights found in the field are recorded as non-compliance.

The accuracy of the database is detailed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-Apr-20 To: 01-Mar-21	All load is not recorded in the database. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong, as the processes to capture change has been improved during the audit period. The impact is assessed to be low as the majority of the volume of additional lighting found in the sample was small.

Actions taken to resolve the issue	Completion date	Remedial action status
Taupo DC has been provided the details of missing lights to correct the database. The recommendation for a full field audit to resolve historic inaccurate data capture has been raised with the council.	30 April 2021 Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
A new contractor and better controls are expected to improve accuracy of data capture for the next stages of the LED roll out.	Ongoing	

2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

The DUML database must track additions and removals in a manner that allows the total load (in kW) to be retrospectively derived for any given day.

Audit observation

The process for tracking of changes in the database was examined.

Audit commentary

The database tracks additions and removals as required by this clause.

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

A complete audit trail exists 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	Taupo district
Strata	The database contains items of load in Taupo area. The area has three distinct sub-groups of urban, rural, NZTA. The processes for the management of TDC items of load are the same, but I decided to place the items of load into four strata, as follows: 1. A-K 2. L-R 3. Rural 4. S-W 5. Turangi
Area units	I created a pivot table of the roads in each area, and I used a random number generator in a spreadsheet to select a total of 62 sub-units or 5% of the database wattage.
Total items of load	308 items of load were checked.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority.

Audit commentary

Database accuracy based on the field audit

A field audit was conducted of a statistical sample of 308 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	93.8	Wattage from survey is lower than the database wattage by 3.6%
R_L	88.8	With a 95% level of confidence, it can be concluded that the error could be between -11.2% and -1.3%
R_H	98.7	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 1 February 2019. The table below shows that Scenario B (detailed below) applies, and the database has poor accuracy, demonstrated with statistical significance to conclude that the database is accurate within ±5.0%.

In absolute terms the installed capacity is estimated to be 16.0 kW lower than the database indicates.

There is a 95% level of confidence that the installed capacity is between 29 kW to 3kW lower than the database.

In absolute terms, total annual consumption is estimated to be 68,000 kWh lower than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 122,800 kWh to 14,100 kWh p.a. lower 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 table produced by the Electricity Authority and found the ballasts recorded have been corrected in RAMM.

The field audit noted that the lights recorded in the database as 23.5W were labelled in the field as 22W and lights recorded as 37W were labelled in the field as 35.5W. This was checked with TDC and found that the design wattage was recorded instead of the actual wattage. This volume of lights affected are detailed in the table below:

Light type	Volume	Difference	Wattage difference
23.5w - LED STA4.57 (570 mA)- should be 22W	1,489	-1.5	-2,234
37w - LED STA4.90 (900 mA)- should be 35.5W	1,053	-1.5	-1,580
Total wattage difference			-3,813

This will be resulting in an estimated annual over submission of 16,285 kWh. The effect of this is also reflected in the field audit results above. TDC are in the process of correcting these in the database.

NZTA lighting

NZTA lighting is included in the database for all NZTA lights within the 70km speed limit. All NZTA lighting outside of these speed zones are expected to be managed by NZTA.

ICP accuracy

All items of load appear to have the correct ICPs recorded.

Location accuracy

The location details are accurate and complete.

Change management process findings

TDC use a RAMM database to manage this DUML load. New connections, fault and maintenance work is completed by Horizons. Nightly patrols are included in this contract and the whole network is expected to be covered every three months.

As detailed above, TDC record the NZTA load for all lights within the 70km speed zone. NZTA carry out the maintenance of these lights. TDC are not advised of changes to the field as there is no mechanism for them to get this information. I repeat the last audit's recommendation that Meridian liaise with TDC and NZTA to ensure changes made to the database are passed to TDC.

Description	Recommendation	Audited party comment	Remedial action
Database accuracy	Meridian to liaise with TDC and NZTA to ensure changes made in the field are updated in the database.	We will raise again formalisation of a notification process with TDC to manage changes to NZTA lights	Investigating

Downers have completed the first LED rollout. The updating of those changes were carried out by the contractor into RAMM and included in the monthly reports provided to Meridian. The field audit findings indicate that these changes have not been accurately captured resulting in errors in the database. I recommend that a 100% field audit be undertaken to resolve these historic errors.

Description	Recommendation	Audited party comment	Remedial action
Database accuracy	Undertake 100% field audit to resolve historic data discrepancies.	We have raised the issue of historic inaccurate data capture with TDC and recommended a field audit to resolve	Investigating

Seftons have been engaged to undertake the category P LED Light replacement (this includes decorative lights). This rollout is about to begin. All changes made during a month are expected to be included in the monthly report provided to Meridian for submission.

The TDC Engineer is responsible for checking all claims for work carried out prior to the claim by the contractor being approved for payment. This process has been reviewed and tightened during the audit period. The process for the connection of streetlights in new subdivisions was discussed. TDC have strict requirements for all relevant asset information to be provided prior to the signing off the section 224C that is required before the subdivision is vested to council. This includes a check of all of the "as-builts". The sign off will not be granted before the council is satisfied that the information required is complete. Once the subdivision is vested the assets are added to RAMM. This is expected to happen promptly after the 224C has been issued. Titles cannot be issued prior to this therefore the building of houses is unlikely to occur (and this is the usually the trigger for streetlights to go on). The field contractor is now contacting TDC to ask for the correct ICP for new lights to be allocated to. TDC do not receive any notification of streetlights being connected from Unison or the Lines Company, therefore there is a possibility that streetlight assets are added to RAMM prior to being electrically connected. I repeat the last audit's recommendation that Meridian liaise with TDC, Unison and the Lines Company to ensure that the process is well mapped between the parties.

Description	Recommendation	Audited party comment	Remedial action
Tracking of load change	Liaise with the networks to ensure that streetlight electrical connections are notified to TDC.	We will raise again the formalisation of a notification process with TDC and network companies to manage connection of new lights	Investigating

Festive lights are connected into the unmetered circuits and these are added and removed for the relevant months.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Apr-20 To: 01-Mar-21	In absolute terms, total annual consumption is estimated to be 68,000 kWh lower than the DUML database indicates. Incorrect wattages recorded for 2,542 lamps resulting in an estimated over submission of 16,285 kWh per annum. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Strong Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as strong as the change management process is robust and the risks are managed to an acceptable level. The impact is assessed to be high based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Taupo DC has corrected the incorrect wattages for the lamps identified.	March 2021	Investigating
The recommendation for a full field audit to resolve historic inaccurate data capture has been raised with the council.	Ongoing	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
A new contractor and better controls are expected to improve accuracy of data capture for the next stages of the LED roll out.	Ongoing	

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

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

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

Audit observation

The submission was checked for accuracy for the month the database extract was supplied. This included:

- checking the registry to confirm that 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 issue of static dimming was checked, and as reported in the last audit the dimming functionality is not yet being used. If it is used in the future, there will need to be a different set of reporting to cater for this.

The field audit against the database quantities found that the database is not confirmed as accurate with a 95% level of confidence. This will be resulting in an estimated over submission of 68,000 kWh per annum. This is detailed in **section 3.1**.

Incorrect wattages are recorded for 2,542 lamps due to the design wattage was recorded instead of the actual wattage. This will be resulting in an estimated annual over submission of 16,285 kWh. The effect of this is also reflected in the field audit results above. TDC are in the process of correcting these in the database. This is detailed in **section 3.1**.

Submission continues to be based on a snapshot of the database at the end of the month 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-Apr-20 To: 01-Mar-21	In absolute terms, total annual consumption is estimated to be 68,000 kWh lower than the DUML database indicates. Incorrect wattages recorded for 2,542 lamps resulting in an estimated over submission of 16,285 kWh per annum. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Strong Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as strong as the change management process is robust and the risks are managed to an acceptable level. The impact is assessed to be high based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Taupo DC has corrected the incorrect wattages for the lamps identified.	March 2021	Investigating
The recommendation for a full field audit to resolve historic inaccurate data capture has been raised with the council.	Ongoing	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
A new contractor and better controls are expected to improve accuracy of data capture for the next stages of the LED roll out.	Ongoing	

CONCLUSION

TDC use a RAMM database to manage this DUML load. New connection, fault and maintenance work is completed by Horizons. Reports are received by Meridian on a monthly basis.

The next LED rollout is about to commence. Seftons have been engaged to undertake this work. The contract management process has been strengthened during the audit period, so controls are rated as strong for change to be managed going forward. The field audit found that this has not always been the case and I recommend a 100% field audit to be undertaken to correct this.

The field audit found that in absolute terms, total annual consumption is estimated to be 68,000 kWh lower than the DUML database indicates, meaning that over submission is occurring.

I found that the incorrect wattage has been recorded for 2,542 lamps. This will be resulting in an estimated over submission of 16,285 kWh per annum. TDC are in the process of correcting these.

The audit found four non-compliances and makes three recommendations. The future risk rating of ten indicates that the next audit be completed in 12 months. I have reviewed this in conjunction with Meridian's comments and agree with this recommendation.

PARTICIPANT RESPONSE

Meridian have reviewed this audit. Their comments are recorded in the body of the report. No further comments were provided.