ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

NULITE ILLUMINATED SIGNS LTD AND MERCURY NZ LTD

Prepared by: Steve Woods

Date audit commenced: 29 September 2020

Date audit report completed: 18 January 2022

Audit report due date: 01-Dec-21

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EXECUTIVE SUMMARY

This audit covers the **Nulite Illuminated Signs Limited (Nulite)** DUML database and processes and was conducted at the request of **Mercury NZ Limited (Mercury)** 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.

This audit found an improvement in the database accuracy recorded in previous audits with the field audit finding the database to be inside the allowable +/-5% threshold.

The spreadsheet contains a "Lamp Type/Description" field, and all lamps are recorded as Fluorescent tubes. There are three wattage fields, Wattage, Ballast and Total. The Wattage and Total fields are populated for all lamps and the Wattage is equal to the Total for all lamps. The Ballast field is recorded as "0" for all lamps. There is insufficient information recorded to determine the capacity of the items of load as the ballast wattages are not recorded in the database.

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current spreadsheet contains an "effective from" date and an "end date", but these fields are not populated. There is a "tracking changes" section that notes what changes have been made on what date and who made the change. The "tracking changes" section should remain, but I repeat the recommendation from the last audit that the "effective from date" and "end date" are also populated.

This audit found four non-compliances and makes one recommendation. The future risk rating indicates that the next audit be completed in 18 months. I have considered this in conjunction with Mercury's responses and agree with the 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
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	One item of load with insufficient details to locate it.	Strong	Low	1	Identified
Description and capacity of load	2.4	11(2)(c) of Schedule 15.3	There is insufficient information recorded to determine the capacity of the items of load as the ballast wattages are not recorded in the database.	Moderate	Low	2	Identified
All load recorded in the database	2.5	11(2A) of Schedule 15.3	One additional light found in the field.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	One item of load with insufficient details to locate it. There is insufficient information recorded to determine the capacity of the items of load as the ballast wattages are not recorded in the database.	Moderate	Low	2	Identified
Future Risk Rating						7	

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
Tracking of changes	3.2	Populate the “effective from date” and “end date” in the spreadsheet for changes.

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

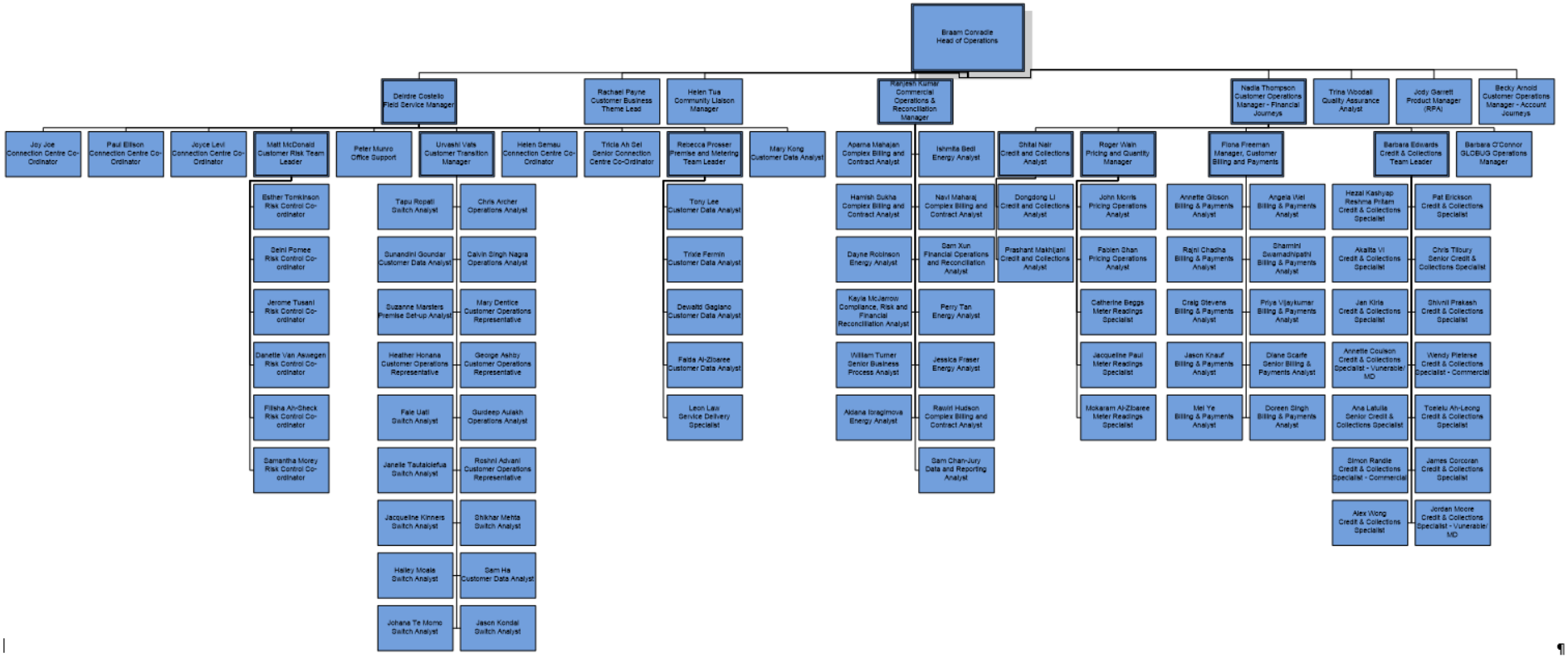
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

Mercury has no exemptions in place in relation to the ICPs covered by this audit report.

1.2. Structure of Organisation

Mercury provided an organisational structure:



1.3. Persons involved in this audit

Auditors:

Name	Title
Steve Woods	Lead Auditor
Brett Piskulic	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Kayla McJarrow	Compliance, Risk and Financial Reconciliation Analyst	Mercury NZ Ltd

1.4. Hardware and Software

The streetlight data for Nulite is held in an excel spreadsheet. This is backed up in accordance with standard industry procedures. Access to the spreadsheet is restricted by way of user log into the computer drive.

Systems used by the trader to calculate submissions are assessed as part of their reconciliation participant audits.

1.5. Breaches or Breach Allegations

There are no breach allegations relevant to the scope of this audit.

1.6. ICP Data

ICP Number	Customer	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0136264797LC7C9	NULITE	BULK UML NU LITE SIGNS	PAK0331	RPS	22	7,294
0586086117LC9FB		BULK UML NU LITE SIGNS	WIR0331	RPS	14	4,508
0825228433LCE38		BULK UML NU LITE SIGNS	TAK0331	RPS	3	996
0987953192LC3D8		NULITE BULK UML	PAK0331	RPS	6	1,752
TOTAL					45	14,550

1.7. Authorisation Received

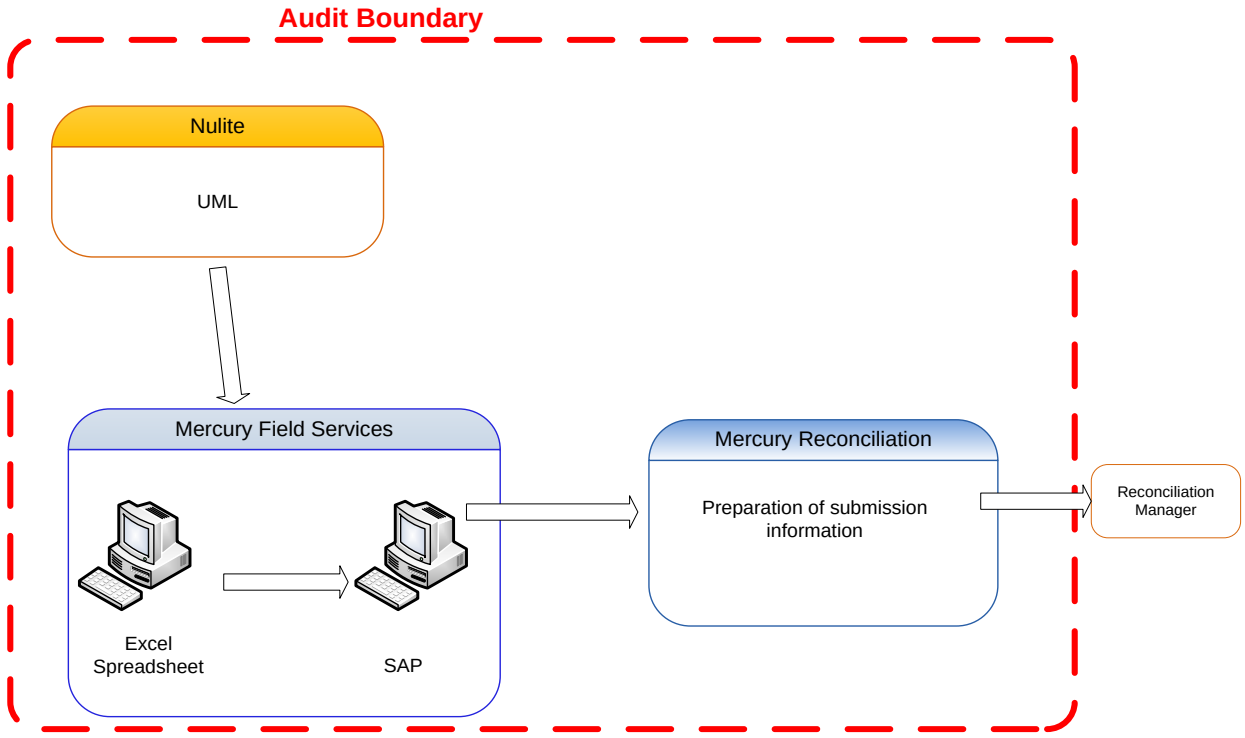
All information was provided directly by Mercury.

1.8. Scope of Audit

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

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

The spreadsheet is maintained by Mercury and the customer is expected to advise Mercury of any changes that occur.



The 100% field audit of all 45 items of load was carried out on January 7th, 2022.

1.9. Summary of previous audit

The previous audit was completed in December 2020 by Steve Woods of Veritek Limited. The current status of that audit's findings is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Under submission of 1,131 kWh due to the ICP 0825228433LCE38 being recorded as decommissioned on the registry and not subsequently submitted for R14 July & August 2019. Database discrepancies found in the field resulting in an estimated annual under submission of 7,708.08 kWh.	Cleared
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	One item of load with insufficient details to locate it.	Still existing
Description and capacity of load	2.4	11(2)(c) of Schedule 15.3	Incomplete lamp descriptions recorded and no ballast wattage, only a total wattage is recorded.	Still existing
All load recorded in the database	2.5	11(2A) of Schedule 15.3	Five additional lights found in the field.	Still existing for one additional light
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit found five additional lights resulting in an estimated under submission of 7,708.08 kWh per annum. One item of load with insufficient details to locate it. Incomplete lamp descriptions recorded and no ballast wattage, only a total wattage is recorded.	Cleared Still existing Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	Under submission of 1,131 kWh due to the ICP 0825228433LCE38 being recorded as decommissioned on the registry and not subsequently submitted for R14 July & August 2019. Database discrepancies found in the field resulting in an estimated annual under submission of 7,708.08 kWh.	Cleared

Table of Recommendations

Subject	Section	Recommendation	Status
Database accuracy	3.1	The current spreadsheet contains an "effective from" date and an "end date", but these fields are not populated. There is a "tracking changes" section that notes what changes have been made on what date and who made the change. The changes flow through to submission, which was confirmed for ICP 0987953192LC3D8. The "tracking changes" section should remain, but I recommend the "effective from date" and "end date" are also populated.	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

Mercury has requested Veritek to undertake this DUML audit.

Audit commentary

This audit report confirms that the requirement to conduct an audit has been met for this database. The field audit was delayed due to the effect of the Covid-19 lockdown in Auckland which was outside of Mercury's control.

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

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information. Mercury reconciles this DUML load using the RPS profile. I checked the accuracy of the submission information from the database with the submission for the month of September 2021. This confirmed the volume was calculated correctly.

The field audit found discrepancies in the database resulting in an estimated annual over submission of 2,820.72 kWh, which is inside the allowable +/-5% threshold. Compliance is recorded. This is discussed further in **section 3.1.**

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current spreadsheet contains an "effective from" date and an "end date", but these fields are not populated. There is a "tracking changes" section that notes what changes have been made on what date and who made the change. The "tracking changes" section should remain, but I repeat the recommendation from the last audit that the "effective from date" and "end date" are also populated. This recommendation is in **section 3.2**.

Audit outcome

Compliant

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 spreadsheet was checked to confirm an ICP was recorded for all items of load.

Audit commentary

The spreadsheet contains a sheet per ICP. All items of load have an ICP associated with them.

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

Audit commentary

The spreadsheet contains the road intersection for each sign. The location for one light is incorrectly recorded. The database records the light is at the intersection of East Tamaki Rd and Ti Rakau Drive, these roads do not intersect so I was unable to locate this light.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: 03-Feb-20 To: 07-Jan-22	One item of load with insufficient details to locate it. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as strong as location details are recorded correctly for all but one item of load. The impact is assessed to be low as only one item of load is affected.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
We will investigate and make the necessary changes to the database and within SAP.		Feb 22	Identified
Preventative actions taken to ensure no further issues will occur		**Completion date**	
We rely on accurate information from the customer to maintain the DUML database. We will continue to work with the customer to ensure the database is accurate and up to date.		Ongoing	

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 spreadsheet was checked to confirm that it contained a field for lamp type and wattage capacity and included any ballast or gear wattage and that each item of load had a value recorded in these fields.

Audit commentary

The spreadsheet contains a "Lamp Type/Description" field and all lamps are recorded as Fluorescent tubes. There are three wattage fields, Wattage, Ballast and Total. The Wattage and Total fields are populated for all lamps and the Wattage is equal to the Total for all lamps. The Ballast field is recorded as "0" for all lamps. There is insufficient information recorded to determine the capacity of the items of load as the ballast wattages are not recorded in the database. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: 11(2)(c) of Schedule 15.3 From: 01-Jun-17 To: 07-Jan-22	There is insufficient information recorded to determine the capacity of the items of load as the ballast wattages are not recorded in the database. Potential impact: Low Actual impact: Unknown Audit history: Three times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls in place are rated as moderate as this information has been requested from the customer but has not been provided as yet. The impact is assessed to be low as the volume of lights associated with this database are small.

Actions taken to resolve the issue	Completion date	Remedial action status
We will endeavour to obtain these details from the customer and will make the necessary changes to the database and within SAP.	Apr 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We rely on accurate information from the customer to maintain the DUML database. We will continue to work with the customer to ensure the database is accurate and up to date.	Ongoing	

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 was undertaken of all 45 items of load.

Audit commentary

The findings from the field audit are detailed below:

ICP	Database Count	Field Count	Field count differences	Wattage differences	Comments
0136264797LC7C9	22	22			

ICP	Database Count	Field Count	Field count differences	Wattage differences	Comments
Pakuranga					
0987953192LC3D8 East Tamaki	6	4	-2		No sign at CNR Kerwyn Ave and Arwyn Pl Unable to locate sign at intersection of Ti Rakau Dr and East Tamaki Rd, these roads do not intersect.
0825228433LCE38 Manurewa Takanini	3	4	+1		1 x extra sign CNR Gt South and Spartan Rds
0586086117LC9FB Wiri	14	13	-1		No sign at CNR of Gt South Rd & Ryan Pl
TOTAL	**45**	**43**	**+1, -3**		

One extra light was found in the field. The additional light found in the field is recorded as non-compliance below. The accuracy of the database is detailed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: 11(2A) of Schedule 15.3 From: 01-Jun-17 To: 07-Jan-22	One additional light found in the field. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls in place are rated as moderate as there have been improvements in the management of the database since the last audit. The impact is assessed to be low, based on the kWh differences detailed in **section 3.1**.

Actions taken to resolve the issue	Completion date	Remedial action status
We will investigate and make the necessary changes to the database and within SAP.	Apr 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We rely on accurate information from the customer to maintain the DUML database. We will continue to work with the customer to ensure the database is accurate and up to date.	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 spreadsheets was examined.

Audit commentary

The spreadsheet contains a separate tab for each ICP. A change log is included for each ICP which records the dates of any 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 spreadsheet was checked for audit trails.

Audit commentary

The spreadsheet includes a change log for each ICP which records the date of any change, action taken, person making the change and the details.

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

A full field audit of all 45 items of load was undertaken to confirm the accuracy of the spreadsheet.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority against the database or in the case of LED lights against the LED light specification.

The change management process and timeliness of database updates was evaluated.

Audit commentary

Field Audit Findings

The field audit findings are detailed in **section 2.5**. The discrepancies found in the field indicate that the database is over reporting kWh by 4.63%:

ICP	Daily Database kWh	Daily Field kWh calculation	Daily kWh difference	Annualised kWh variance
0136264797LC7C9 Pakuranga	87.528	87.528	0	0
0987953192LC3D8 East Tamaki	21.024	14.016	7.008	2,557.92
0825228433LCE38- Takanini	11.952	15.456	-3.504	-1278.96
0586086117LC9FB Wiri	54.096	49.872	4.224	1,541.76
Sub totals	174.6	166.872	7.728	2,820.72
			TOTAL ANNUALISED OVER SUBMISSION	**2,820.72**

This is inside the allowable +/-5% threshold and will be resulting in an estimated annual over submission of 2,820.72 kWh. Compliance is recorded.

Light description and capacity accuracy

The check of database wattage alignment with the standardised wattage table was unable to be confirmed as there is insufficient information recorded to determine the capacity of the items of load as the ballast wattages are not recorded in the database.

This is recorded as non-compliance in **section 2.4** and below.

Load location

As detailed in **section 2.4**, one item of load had insufficient details to be located.

Change Management

An annual audit is expected to be carried out by the property owner to confirm that the database is correct. The customer is expected to advise if any changes occur so that the database can be updated accordingly, and notes of the light type, wattage and ballast and the date of change are recorded.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: 15.2 and 15.37B(b) From: 01-Jun-17 To: 07-Jan-22	One item of load with insufficient details to locate it. There is insufficient information recorded to determine the capacity of the items of load as the ballast wattages are not recorded in the database. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls in place are rated as moderate as there have been improvements in the management of the database since the last audit. The impact is assessed to be low, based on the kWh differences identified.

Actions taken to resolve the issue	Completion date	Remedial action status
One item of load with insufficient details to locate it. We will investigate and make the necessary changes to the database and within SAP. **There is insufficient information recorded to determine the capacity of the items of load as the ballast wattages are not recorded in the database.** We will endeavour to obtain these details from the customer and will make the necessary changes to the database and within SAP.	Feb 22 Apr 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We rely on accurate information from the customer to maintain the DUML database. We will continue to work with the customer to ensure the database is accurate and up to date.	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 the ICP has the correct profile and submission flag, and
- checking the expected kWh against the submitted figure to confirm accuracy.

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. Mercury reconciles this DUML load using the RPS profile. I checked the accuracy of the submission information from the database with the submission for the month of September 2021. This confirmed the volume was calculated correctly.

The field audit found discrepancies in the database resulting in an estimated annual over submission of 2,820.72 kWh, which is inside the allowable +/-5% threshold. Compliance is recorded. This is discussed further in **section 3.1.**

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current spreadsheet contains an "effective from" date and an "end date", but these fields are not populated. There is a "tracking changes" section that notes what changes have been made on what date and who made the change. The "tracking changes" section should remain, but I repeat the recommendation from the last audit that the "effective from date" and "end date" are also populated.

Recommendation	Description	Audited party comment	Remedial action
Regarding 15.2 and 15.37B(c)	Populate the "effective from date" and "end date" in the spreadsheet for changes.	We will endeavour to obtain these details from the customer and will make the necessary changes to the database and within SAP.	Identified

Audit outcome

Compliant

CONCLUSION

This audit found an improvement in the database accuracy recorded in previous audits with the field audit finding the database to be inside the allowable +/-5% threshold.

The spreadsheet contains a "Lamp Type/Description" field, and all lamps are recorded as Fluorescent tubes. There are three wattage fields, Wattage, Ballast and Total. The Wattage and Total fields are populated for all lamps and the Wattage is equal to the Total for all lamps. The Ballast field is recorded as "0" for all lamps. There is insufficient information recorded to determine the capacity of the items of load as the ballast wattages are not recorded in the database.

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current spreadsheet contains an "effective from" date and an "end date", but these fields are not populated. There is a "tracking changes" section that notes what changes have been made on what date and who made the change. The "tracking changes" section should remain, but I repeat the recommendation from the last audit that the "effective from date" and "end date" are also populated.

This audit found four non-compliances and makes one recommendation. The future risk rating indicates that the next audit be completed in 18 months. I have considered this in conjunction with Mercury's responses and agree with the recommendation.

PARTICIPANT RESPONSE

Mercury will continue to work with the customer to address the non-compliances raised in the audit and to ensure ongoing maintenance and accuracy.