ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

ARDMORE AIRPORT DUML AND MERCURY NZ LTD

Prepared by: Rebecca Elliot

Date audit commenced: 18 May 2022

Date audit report completed: 20 May 2022

Audit report due date: 25-May-22

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EXECUTIVE SUMMARY

This audit covers the **Ardmore Airport** 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. A field audit was undertaken of all items of load recorded in the spreadsheet.

The spreadsheet is maintained by Mercury and the customer is expected to advise Mercury of any changes that occur. The field audit found a number of lights have been replaced with LEDs resulting in the field being 20% less than that recorded in the database resulting in an estimated over submission of 6,031 kWh per annum. The updating of the database does not appear to be being carried out.

I found one pole with an Auckland Transport pole identifier at the entrance to the airport, so I checked the Auckland Transport database and found that four lights are duplicated between the two databases. I recommend that Mercury work with Ardmore Airport to confirm which database these lights should be reconciled to. This will be resulting in an estimated 2,140 kWh per annum of over submission to the market.

The audit found three non-compliances and makes one recommendation. The future risk rating indicates that the next audit be completed in 12 months. I have considered this in conjunction with poor accuracy of the database and Mercury's comments and recommend that the next audit is in nine months time to ensure that the database has been updated and revisions undertaken from the time that the LED lights were installed.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	The database has an accuracy rate of 80% and will be resulting in an estimated over submission of 6,031 kWh per annum. Four lights reported in both the Auckland Transport and Ardmore Airport database resulting in an estimated 2,140 kWh per annum of over submission to the market.	Weak	Low	3	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	The database has an accuracy rate of 80% and will be resulting in an estimated over submission of 6,031 kWh per annum. Four lights reported in both the Auckland Transport and Ardmore Airport database resulting in an estimated 2,140 kWh per annum of over submission to the market.	Weak	Low	3	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database has an accuracy rate of 80% and will be resulting in an estimated over submission of 6,031 kWh per annum. Four lights reported in both the Auckland Transport and Ardmore Airport database resulting in an estimated 2,140 kWh per annum of over submission to the market.	Weak	Low	3	Investigating
Future Risk Rating						9	

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	Work with Ardmore Airport to determine which database that the duplicated lights should be reconciled to.

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

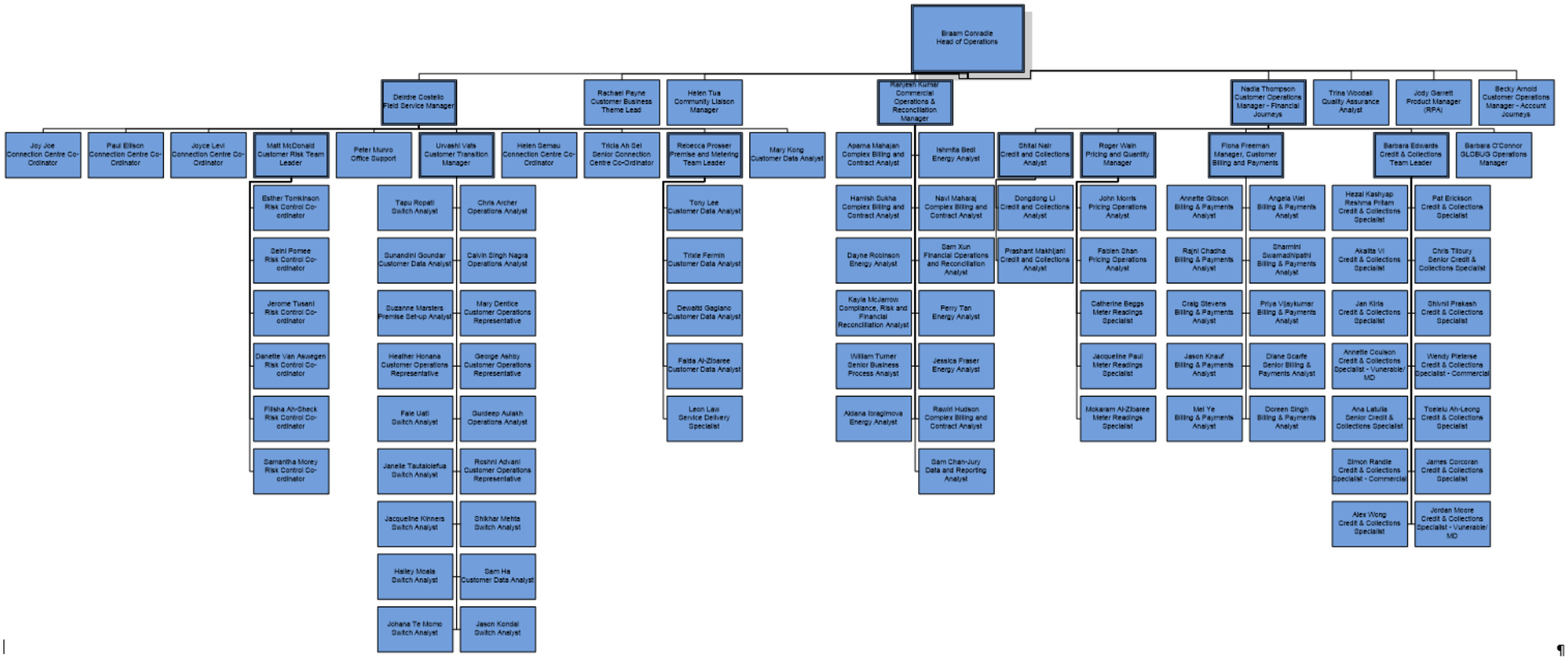
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Mercury provided an 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
Chris Posa	Compliance Reconciliation Analyst	Mercury NZ Ltd

1.4. Hardware and Software

The streetlight data for Ardmore Airport 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)
0904114678LC7E9	Ardmore Airport	ARDMORE AERODROME BULK UML	TAK0331	RPS	20	2,935

1.7. Authorisation Received

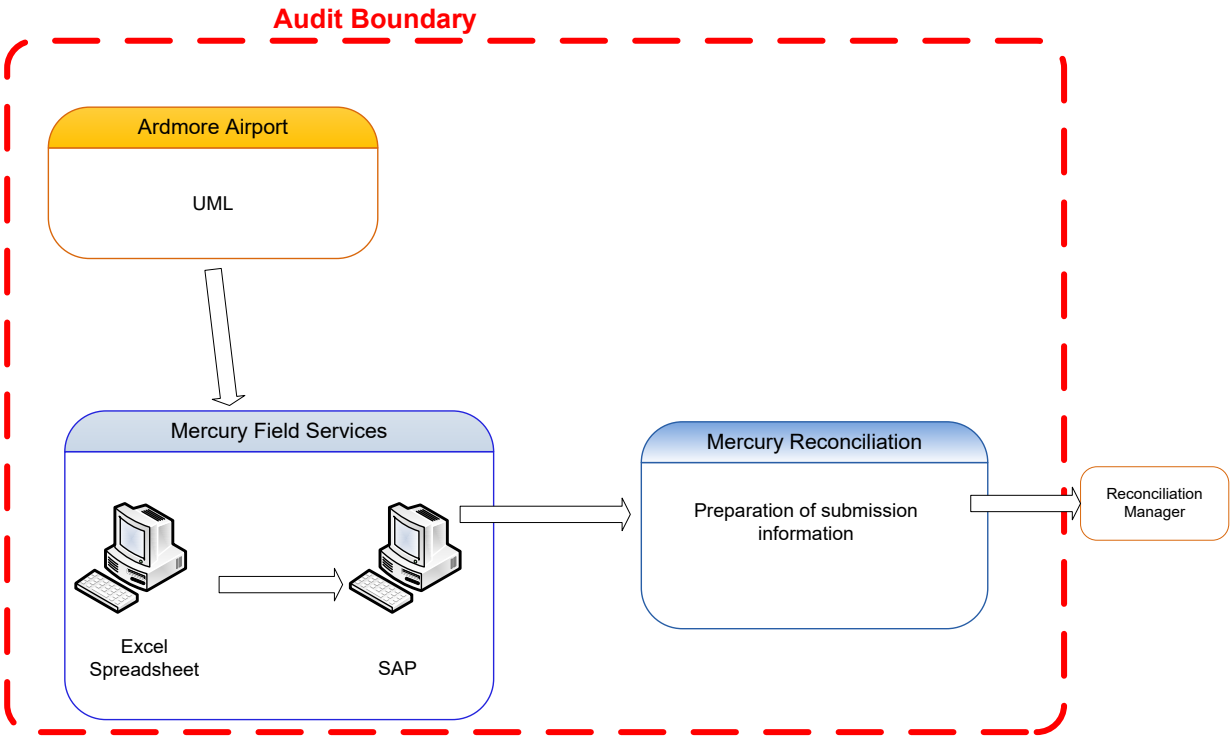
All information was provided directly by Mercury.

1.8. Scope of Audit

This audit covers the Ardmore Airport DUML database and processes 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. A field audit was undertaken of all items of load recorded in the spreadsheet.

The ICP is managed in an excel spreadsheet held by Mercury.



1.9. Summary of previous audit

The previous audit was completed in May 2020 by Steve Woods of Veritek Limited. Five non-compliances were identified. The current status of the non-compliances in relation to the Ardmore Airport lights are detailed below.

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The field audit results indicate under submission by 709 kWh per annum	Still existing
Location of each item of load	2.3	11(2A) of Schedule 15.3	Locations of four Items of load do not have street number, or GPS locations to make them individually locatable.	Cleared
All load recorded in the database	2.5	11(2A) of Schedule 15.3	Five additional lights found in the field.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	Five additional lights found in the field. Three lights in the database not found in the field.	Still existing

Subject	Section	Clause	Non-compliance	Status
Volume information accuracy	3.2	15.2 and 15.37B(c)	The field audit results indicate under submission by 709 kWh per annum.	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 street lighting 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

Mercury reconciles this DUML load using the RPS profile. The daily kWh figure recorded in SAP (which is derived from the spreadsheet) is used for submission. The registry was checked and confirmed that the ICP has the correct profile and submission flag.

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. The daily kWh figure recorded in SAP, which is derived from the spreadsheet is used for submission. I checked the accuracy of the submission information by multiplying the daily kWh by the number of hours in the month and comparing it to the figure in the registry for the month of May 2022. This confirmed the calculation methodology was correct.

A 100% field audit was undertaken and found that the database accuracy was calculated to be 20% less than the database. This was due to LEDs having replaced a number of old high pressure sodium lights. This will be resulting in an estimated over submission of 6,031 kWh per annum. This is recorded as non-compliance below and in **sections 3.1** and **3.2**.

I found one pole with an Auckland Transport pole identifier at the entrance to the airport, so I checked the Auckland Transport database and found that four lights are duplicated between the two databases. I recommend in **section 3.1**, the Mercury work with Ardmore Airport to confirm which database these lights should be reconciled to. This will be resulting in an estimated 2,140 kWh of over submission to the market.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: 11(1) of Schedule 15.3 From: 31-Mar-21 To: 20-May-22	The database has an accuracy rate of 80% and will be resulting in an estimated over submission of 6,031 kWh per annum. Four lights reported in both the Auckland Transport and Ardmore Airport database resulting in an estimated 2,140 kWh per annum of over submission to the market. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls in place are rated as weak as the database is not being maintained as expected. The impact is assessed to be low, based on the minor kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
We are liaising with Ardmore Airport to investigate and update the database as required.	June 2022	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Our customer is aware of the requirements to provide accurate and timely database updates. We will remind our customer of the importance of this and will continue to work with them to improve database maintenance processes.	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 spreadsheets were checked to confirm an ICP was recorded correctly for the load.

Audit commentary

The spreadsheet records the correct ICP relative to the load.

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 spreadsheets were checked to confirm the location is recorded for all items of load.

Audit commentary

The spreadsheets contain the street name, location of each item of load and the pole number if available.

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 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 has been changed during the audit period to be pole based and no Each item of load contains the lamp type, wattage and ballast in the spreadsheet.

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

I conducted a field audit of all items of load and checked each road for additional fittings.

Audit commentary

The table below shows the field audit findings.

Street/Area	Database Count	Field Count	Field count differences	Wattage differences	Comments
Harvard Lane (O/S Oceania)	2	2		2	2x 55W LED recorded as 70W HPS in the database
Harvard Lane (in front vacant airside land)	1	1		1	1x 55W LED recorded as 150W HPS in the database
Harvard Lane (Corner Auckland Aero Club)	1	1		1	1x 55W LED recorded as 150W HPS in the database
Harvard Lane (in front of Planespace)	1	1		1	1x 55W LED recorded as 150W HPS in the database
Harvard Lane (Bondary Airline Flying Club)	2	0	-	2	2x 55W LED recorded as 150W HPS in the database
Harvard Lane (Opp Airbus Helicopters)	1	1		1	1x 55W LED recorded as 150W HPS in the database
Harvard Lane (Opp Dehavilland Lane)	1	1		1	1x 55W LED recorded as 150W HPS in the database
McBride Lane (Near gates at bottom of lane)	2	2		1	1x 55W LED recorded as 70W HPS in the database
TOTAL	22	22	-	10	

The field count was accurate but almost half the lights have been changed to LED. The accuracy of the database is detailed 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 spreadsheets was examined.

Audit commentary

Any changes that are made during any given month take effect from the beginning of that month. The information is available which would allow for the total load in kW to be retrospectively derived for any day.

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 database contains the details of all changes including the person making the change.

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

I conducted a field audit of all items of load.

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

Audit commentary

The field audit findings are detailed in **section 2.5**. The database accuracy was calculated to be 20% less than the database. This was due to LEDs having replaced almost half of the old high pressure sodium lights. This will be resulting in an estimated over submission of 6,031 kWh per annum. This is recorded as non-compliance below and in **sections 2.1** and **3.2**.

I found one pole with an Auckland Transport pole identifier at the entrance to the airport, so I checked the Auckland Transport database and found that four lights are duplicated between the two databases. I recommend that Mercury work with Ardmore Airport to confirm which database these lights should be reconciled to. This will be resulting in an estimated 2,140 kWh of over submission to the market.

Recommendation	Description	Audited party comment	Remedial action
Database accuracy	Work with Ardmore Airport to determine which database that the duplicated lights should be reconciled to.	We are liaising with Ardmore Airport to investigate and update the database as required.	Investigating

The check of wattages and ballasts confirmed compliance.

As reported in the last audit, an annual audit is expected to be carried out by the property owner to confirm that the database is correct. The customer is also 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. This process is not being followed.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: 15.2 and 15.37B(b) From: 31-Mar-21 To: 20-May-22	The database has an accuracy rate of 80% and will be resulting in an estimated over submission of 6,031 kWh per annum. Four lights reported in both the Auckland Transport and Ardmore Airport database resulting in an estimated 2,140 kWh per annum of over submission to the market. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls in place are rated as weak as the database is not being maintained as expected. 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
We are liaising with Ardmore Airport to investigate and update the database as required.	June 2022	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Our customer is aware of the requirements to provide accurate and timely database updates. We will remind our customer of the importance of this and will continue to work with them to improve database maintenance processes.	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

Mercury reconciles this DUML load using the RPS profile. The daily kWh figure recorded in SAP (which is derived from the spreadsheet) is used for submission. The registry was checked and confirmed that the ICP has the correct profile and submission flag.

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. The daily kWh figure recorded in SAP, which is derived from the spreadsheet is used for submission. I checked the accuracy of the submission information by multiplying the daily kWh by the number of hours in the month and comparing it to the figure in the registry for the month of May 2022. This confirmed the calculation methodology was correct.

A 100% field audit was undertaken and found that the database accuracy was calculated to be 20% less than the database. This was due to LEDs having replaced a number of old high pressure sodium lights. This will be resulting in an estimated over submission of 6,031 kWh per annum. This is recorded as non-compliance below and in **sections 2.1** and **3.1**.

I found one pole with an Auckland Transport pole identifier at the entrance to the airport, so I checked the Auckland Transport database and found that four lights are duplicated between the two databases. I recommend in **section 3.1**, the Mercury work with Ardmore Airport to confirm which database these lights should be reconciled to. This will be resulting in an estimated 2,140 kWh of over submission to the market.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: 15.2 and 15.37B(c) From: 01-Jun-17 To: 20-May-22	The database has an accuracy rate of 80% and will be resulting in an estimated over submission of 6,031 kWh per annum. Four lights reported in both the Auckland Transport and Ardmore Airport database resulting in an estimated 2,140 kWh per annum of over submission to the market. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls in place are rated as weak as the database is not being maintained as expected. The impact is assessed to be low, based on the minor kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
We are liaising with Ardmore Airport to investigate and update the database as required.	June 2022	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Our customer is aware of the requirements to provide accurate and timely database updates. We will remind our customer of the importance of this and will continue to work with them to improve database maintenance processes.	Ongoing	

CONCLUSION

The spreadsheet is maintained by Mercury and the customer is expected to advise Mercury of any changes that occur. The field audit found a number of lights have been replaced with LEDs resulting in the field being 20% less than that recorded in the database resulting in an estimated over submission of 6,031 kWh per annum. The updating of the database does not appear to be being carried out.

I found one pole with an Auckland Transport pole identifier at the entrance to the airport, so I checked the Auckland Transport database and found that four lights are duplicated between the two databases. I recommend that Mercury work with Ardmore Airport to confirm which database these lights should be reconciled to. This will be resulting in an estimated 2,140 kWh per annum of over submission to the market.

The audit found three non-compliances and makes one recommendation. The future risk rating indicates that the next audit be completed in 12 months. I have considered this in conjunction with poor accuracy of the database and Mercury's comments and recommend that the next audit is in nine months time to ensure that the database has been updated and revisions undertaken from the time that the LED lights were installed.

PARTICIPANT RESPONSE

Mercury have reviewed this audit and no further comments were provided.