

**ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT**

For

**RNZAF WOODBOURNE DUML
AND MERIDIAN
NZBN 9429037696863:**

Prepared by: Steve Woods

Date audit commenced: 20 September 2021

Date audit report completed: 27 October 2021

Audit report due date: 1 December 2021

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EXECUTIVE SUMMARY

This audit of the **RNZAF Woodbourne (Woodbourne)** DUMML 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 DUMML audits version 1.1.

An EAM database is managed by Marlborough Lines on behalf of RNZAF Woodbourne in relation to this load, with monthly reporting sent to Meridian. The field work, asset data capture, and database population is conducted by Marlborough Lines' staff.

Meridian reconciles this DUMML load using the DST profile.

Submission is based on a monthly database report derived from the Marlborough Lines EAM database. The values used in the monthly report are the nominal lamp wattage and the ballast value is added to this outside of the database for the monthly wattage report provided to Meridian. The values used in the monthly report were confirmed to be correct, so this has no impact on submission accuracy. Marlborough Lines have advised that they intend to use the raw data from EAM for reporting. The "burn time" is sourced from data loggers. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for the ICP and includes this in the relevant AV080 file.

The full field audit found one error as discussed in **section 2.5**. This resulted in a database accuracy of 99.2% which is within the +/-5% accuracy threshold therefore the database is deemed to be accurate.

As recorded in the last audit, examination of the EAM database found that when changes are made, only the record present at the time the report is run is recorded, not the historical information showing dates of changes is provided. This does not meet the code requirements.

The audit found four non-compliances and repeats one recommendation. The future risk rating of 12 indicates that the next audit be completed in 12 months. Due to the small number of lights associated with this database, there is no submission inaccuracy and the non-compliances have been cleared I recommend that the next audit be in 24 months.

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 monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot.	Weak	Low	3	Cleared
Tracking of load change	2.6	11(3) of Schedule 15.3	Changes not tracked.	Weak	Low	3	Cleared
Audit trails	2.7	11(4) of Schedule 15.3	Audit trail not visible.	Weak	Low	3	Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	The monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot.	Weak	Low	3	Cleared
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	Recommendation
Database accuracy	3.1	Apply wattage values from within the database.

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

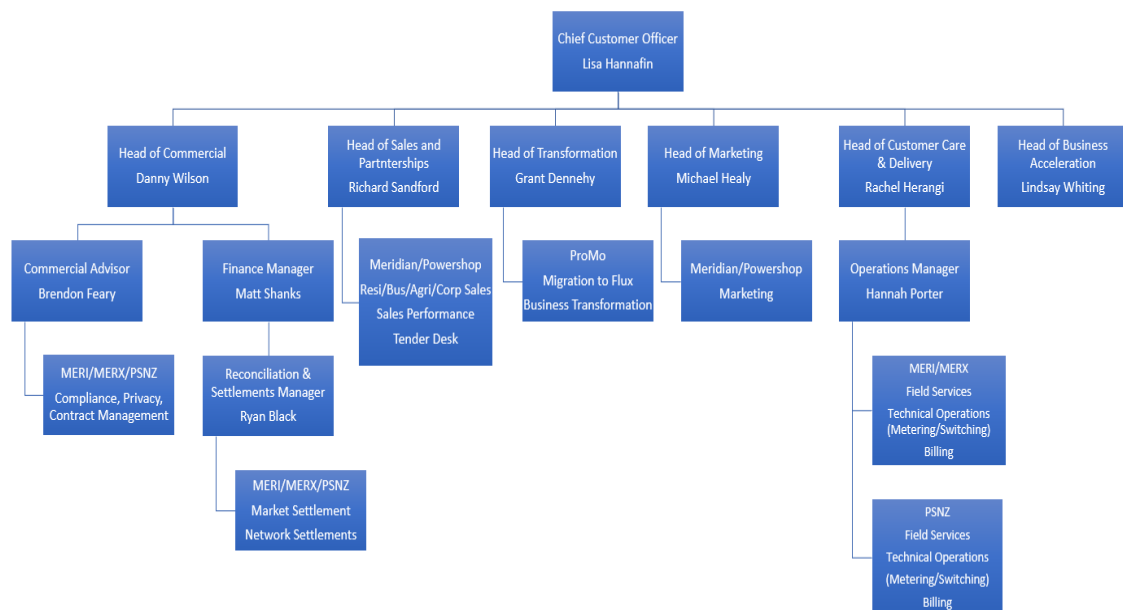
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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:

Name	Company	Role
Steve Woods	Veritek Limited	Lead Auditor
Claire Stanley	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Amy Cooper	Compliance Officer	Meridian
Danial Lau	Energy Data Analyst	Meridian
Sally King	Asset Records Clerk	Marlborough Lines

1.4. Hardware and Software

The 'Info EAM' database is used for the management of DUML and is managed by Marlborough Lines. The database back up is in accordance with standard industry procedures. Access to the database is restricted using a login and password.

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)
0004450017ML9D6	STREETLIGHTS UNMETERED STREETLIGHTING	BLN0331	DST	48	3,246

1.7. Authorisation Received

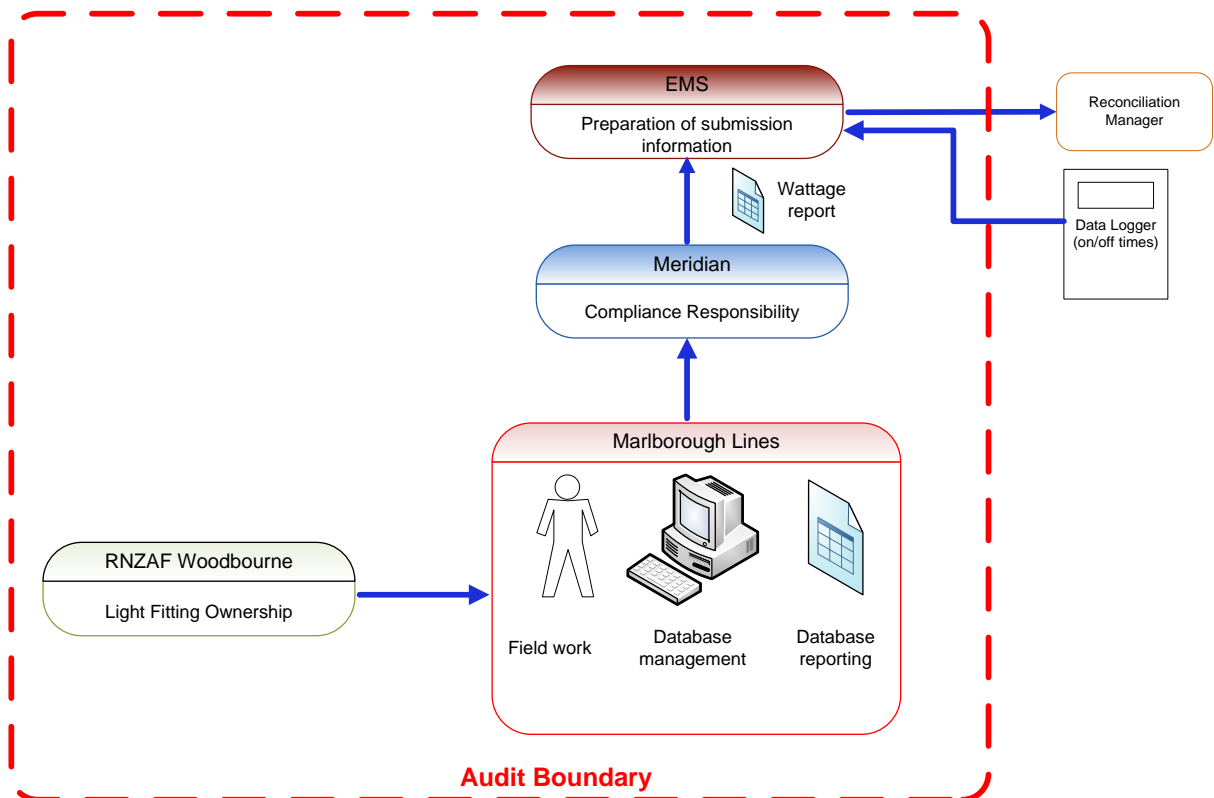
All information was provided directly by Meridian and Marlborough Lines.

1.8. Scope of Audit

This audit of the RNZAF Woodbourne database and Marlborough Lines 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.

Marlborough Lines manage the installation, maintenance and database management of the DUML for RNZAF Woodbourne. Reporting is provided to Meridian on a monthly basis. 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.



1.9. Summary of previous audit

Meridian provided a copy of the last audit report undertaken by Rebecca Elliot of Veritek Limited in April 2020. 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	Two incorrect wattage values recorded in the database. These are reported correctly in the monthly wattage report sent to Meridian therefore this has no impact on submission. The monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot.	Cleared Still existing
Tracking of load change	2.6	11(3) of Schedule 15.3	Changes not tracked.	Still existing
Audit trails	2.7	11(4) of Schedule 15.3	Audit trail not visible.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	Two incorrect wattage values recorded in the database, but these are reported correctly in the monthly wattage report, therefore this has no impact on submission.	Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	Two incorrect wattage values recorded in the database. These are reported correctly in the monthly wattage report sent to Meridian therefore this has no impact on submission. The monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot.	Cleared Still existing

Recommendations

Subject	Section	Recommendation	Status
Database accuracy	3.1	Apply wattage values from within the database.	Still existing

1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F)

Code reference

Clause 16A.26 and 17.295F

Code related audit information

Retailers must ensure that DUML database audits are completed:

- 1. by 1 June 2018 (for DUML that existed prior to 1 June 2017)*
- 2. within three months of submission to the reconciliation manager (for new DUML)*
- 3. within the timeframe specified by the Authority for DUML that has been audited since 1 June 2017.*

Audit observation

Meridian have requested Veritek to undertake this streetlight audit.

Audit commentary

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. Submission is based on a monthly database report derived from the Marlborough Lines EAM database and the “burn time” which is sourced from data loggers. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for the 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 September 2021 were checked and confirmed to be correct.

The values used in the monthly report are the nominal lamp wattage and the ballast value is added to this outside of the database for the monthly wattage report provided to Meridian. The values used in the monthly report were confirmed to be correct, so this has no impact on submission accuracy. Marlborough Lines have advised that they intend to use the raw data from EAM for reporting.

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 monthly report is provided as a snapshot and this practice is non-compliant. The database contains a “Commission date”. When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes is provided.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Apr-20 To: 20-Sep-21	The monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot. Potential impact: None Actual impact: None Audit history: Twice Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as weak as whilst the processes for updating the database are robust, it was not proven that the database is able to meet the requirements of the code. The impact is assessed to be low/none as this database is relatively static and the correct volumes are being submitted to the market.		
Actions taken to resolve the issue		Completion date	Remedial action status
A change log has been implemented outside the database to record changes made to database records including the date of any changes made. This log is provided to Meridian with the database extract monthly and enables comparison with prior months extracts to confirm before and after values for the record.		Nov 2021	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	

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

Code reference

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

Code related audit information

The DUMML database must contain:

- *each ICP identifier for which the retailer is responsible for the DUMML*
- *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 DUMML database must contain the location of each DUMML 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 for each item of load, GPS locations are also recorded for all items of load.

Audit outcome

Compliant

2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)

Code reference

Clause 11(2)(c) and (d) of Schedule 15.3

Code related audit information

The DUMML 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 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 database contains fields for fitting type and lamp type in addition to a nominal lamp wattage and circuit wattage fields and all were populated for each item of load.

The ballasts recorded in EAM are not used for submission and Marlborough Lines add the ballasts outside of the database as part of the monthly wattage report sent to Meridian. Marlborough Lines have advised that they intend to use the raw data from EAM for reporting. The accuracy of the ballast wattages is discussed in **sections 3.1 and 3.2.**

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 DUMML for which it is responsible is recorded in this database.

Audit observation

A field audit of all items of load was undertaken on 18th October 2021.

Audit commentary

The field audit findings for the lamps was accurate with the exception of the one lamp detailed in the table below:

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
31B Woodward (KB7665)	12	12		1	1 x 50W Fluoro Tube recorded in the database, but 1 x 25W LED located in the field.

Compliance is confirmed for this section as there were no additional lights identified in the field. 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 DUMML 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 contains a "Commission date". When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, and not the historical information showing dates of changes. The audit trail may be able to be retrieved but this is not visible as required by this clause. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.6 Clause 11(3) of Schedule 15.3 From: 01-Apr-20 To: 20-Sep-21	Changes not tracked. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3
Audit risk rating	Rationale for audit risk rating

Low	The controls are rated as weak as whilst the processes for updating the database are robust, it was not proven that the database is able to meet the requirements of the code.		
	The audit risk rating is low as the volume of changes is not high.		
Actions taken to resolve the issue		Completion date	Remedial action status
A change log has been implemented outside the database to record changes made to database records including the date of any changes made. This log is provided to Meridian with the database extract monthly and enables comparison with prior months extracts to confirm before and after values for the record.		Nov 2021	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	

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 DUMML 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 contains a "Commission date". When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, and not the historical information showing dates of changes. The audit trail may be able to be retrieved but this is not visible as required by this clause. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.7 Clause 11(4) of Schedule 15.3 From: 01-Apr-20 To: 20-Sep-21	Audit trail not visible. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as weak as whilst the processes for updating the database are robust, it was not proven that the database is able to meet the requirements of the code. The audit risk rating is low as the volume of changes is not high.		
Actions taken to resolve the issue		Completion date	Remedial action status
A change log has been implemented outside the database to record changes made to database records including the date of any changes made. This log is provided to Meridian with the database extract monthly and enables comparison with prior months extracts to confirm before and after values for the record.		Nov 2021	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	

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 field audit was conducted of all 48 lights.

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

The full field audit found one error as discussed in **section 2.5**. This resulted in a database accuracy of 99.2% which is within the +/-5% accuracy threshold therefore the database is deemed to be accurate.

Lamp description and capacity accuracy

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority. As discussed in **section 2.4**, all lights have a lamp and gear wattage recorded. All wattages and ballasts were recorded correctly.

The values used in the monthly report are the nominal lamp wattage and the ballast value is added to this outside of the database for the monthly wattage report provided to Meridian. Marlborough Lines have advised that they intend to use the raw data from EAM for reporting.

The values used in the monthly report were confirmed to be correct, so this has no impact on submission accuracy. I repeat the recommendation from the last audit that the wattage values are corrected and derived from within the database.

Recommendation	Description	Audited party comment	Remedial action
Database accuracy	Apply wattage values from within the database.	Ballast wattages from EAM are now being used in the monthly report. A full database extract is also being provided.	Cleared

Location accuracy

The location details are accurate and complete.

Change management process findings

There have been no new connections made during the audit period and there are none expected as this is an RNZAF air base, and no new housing is planned.

The fieldwork is now done on a laptop in the field, rather than paperwork, the technician is provided with access to all relevant information for the lamp and location details in the field. The work order comes directly from the EAM database and requires the field technician to indicate if any discrepancies are found in the field and provide the correct information. The updates in EAM are completed manually on a daily basis, and all updates are completed by the end of the month.

There are no festive lights are connected into the unmetered circuits.

Audit outcome

Compliant

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

Meridian reconciles this DUML load using the DST profile. Submission is based on a monthly database report derived from the Marlborough Lines EAM database and the “burn time” which is sourced from data loggers. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for the 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 September 2021 were checked and confirmed to be correct.

The values used in the monthly report are the nominal lamp wattage and the ballast value is added to this outside of the database for the monthly wattage report provided to Meridian. The values used in the monthly report were confirmed to be correct, so this has no impact on submission accuracy. Marlborough Lines have advised that they intend to use the raw data from EAM for reporting.

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 monthly report is provided as a snapshot and this practice is non-compliant. The database contains a “Commission date”. When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes is provided.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.2</p> <p>With: Clause 15.2 and 15.37B(c)</p> <p>From: 01-Apr-20</p> <p>To: 20-Sep-21</p>	<p>The monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot.</p> <p>Potential impact: None</p> <p>Actual impact: None</p> <p>Audit history: Twice</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls are rated as weak as whilst the processes for updating the database are robust it was not proven that the database is able to meet the requirements of the code.</p> <p>The impact is assessed to be low/none as this database is relatively static and the correct volumes are being submitted to the market.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
A change log has been implemented outside the database to record changes made to database records including the date of any changes made. This log is provided to Meridian with the database extract monthly and enables comparison with prior months extracts to confirm before and after values for the record.		Nov 2021	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	

CONCLUSION

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

An EAM database is managed by Marlborough Lines on behalf of RNZAF Woodbourne in relation to this load, with monthly reporting sent to Meridian. The field work, asset data capture, and database population is conducted by Marlborough Lines' staff.

Meridian reconciles this DUMML load using the DST profile. Submission is based on a monthly database report derived from the Marlborough Lines EAM database. The values used in the monthly report are the nominal lamp wattage and the ballast value is added to this outside of the database for the monthly wattage report provided to Meridian. The values used in the monthly report were confirmed to be correct, so this has no impact on submission accuracy. Marlborough Lines have advised that they intend to use the raw data from EAM for reporting. The "burn time" which is sourced from data loggers. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for the ICP and includes this in the relevant AV080 file.

The full field audit found one error as discussed in **section 2.5**. This resulted in a database accuracy of 99.2% which is within the +/-5% accuracy threshold therefore the database is deemed to be accurate.

As detailed in the last audit, examination of the EAM database found that when changes are made, only the record present at the time the report is run is recorded, not the historical information showing dates of changes is provided. This does not meet the code requirements.

The audit found four non-compliances and repeats one recommendation. The future risk rating of 12 indicates that the next audit be completed in 12 months. Due to the small number of lights associated with this database, there is no submission inaccuracy and the non-compliances have been cleared I recommend that the next audit be in 24 months.

PARTICIPANT RESPONSE