

ELECTRICITY INDUSTRY PARTICIPATION CODE  
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

BURNHAM MILITARY CAMP  
AND MERIDIAN ENERGY LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 1 April 2021

Date audit report completed: 15 April 2021

Audit report due date: 01-Jun-21

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## EXECUTIVE SUMMARY

This audit of the Burnham Military Camp (**Burnham**) Unmetered Streetlights DUML database and processes was conducted at the request of Meridian Energy Limited (**Meridian**), in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

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

The Burnham Military Camp is on the Orion Network. Orion manage their database for Burnham. Monthly reporting is supplied to Meridian by Orion.

New connection, fault and maintenance work is managed by Spotless at Burnham.

The field audit was undertaken of the entire Burnham Military Camp DUML database, consisting of 85 items of load on 7<sup>th</sup> April 2021. The field audit found confirmed the database was accurate.

Meridian reconciles this DUML load using the DST profile. I compared the database provided to the capacity information Meridian supplied to EMS for the month of February 2021 and found it matched.

The database accuracy is assessed to be 100% indicating no submission issues. Overall, Orion have robust controls and management in place.

The audit identified two non-compliances in relation to use of a database snapshot rather than tracking load change at a daily basis. This database has very few changes and accounts for only a small number of lights. The audit risk rating indicates that the next audit be in 24 months. I have considered this in conjunction with Meridians comments and I recommend that the next audit be in 36 months.

## 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 data used for submission does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Identified
<b>Future Risk Rating</b>						<b>4</b>	

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

### RECOMMENDATIONS

Subject	Section	Description	Recommendation
		Nil	

### 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.

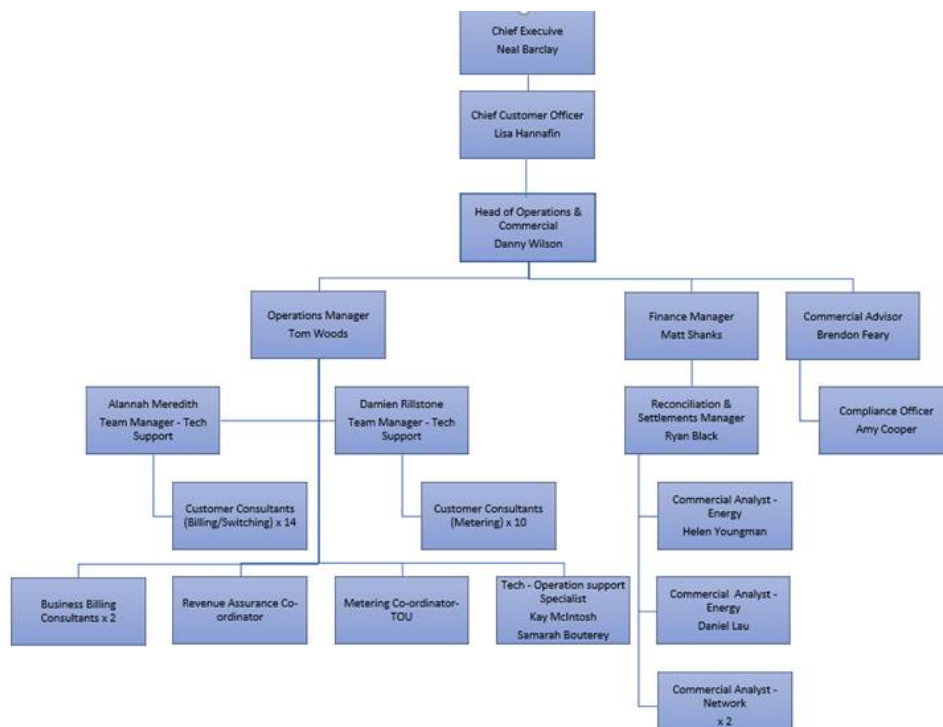
There are no exemptions in place relevant to the scope of this audit.

#### Audit commentary

Compliance is confirmed.

### 1.2. Structure of Organisation

Meridian Energy provided a copy of their organisational structure.



### 1.3. Persons involved in this audit

Auditor:

Name	Company	Role
Rebecca Elliot	Veritek Limited	Lead Auditor
Claire Stanley	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Danial Lau	Energy Data Analyst	Meridian Energy
Penny Lawrence	Operations Services	Orion

### 1.4. Hardware and Software

Orion use a purpose-built Oracle system for the management of the DUML information. Backup and restoration procedures are in accordance with normal industry protocols.

### 1.5. Breaches or Breach Allegations

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

### 1.6. ICP Data

The following ICPs are relevant to the scope of this audit:

ICP Number	Description	Profile	Number of items of load	Database wattage (watts)
0006432514RNA15	Orion NZ Army GXP street light ICP	DST	85	6,891

### 1.7. Authorisation Received

All information was provided directly by Meridian or Orion.

## 1.8. Scope of Audit

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

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1, which became effective on 1 June 2017.

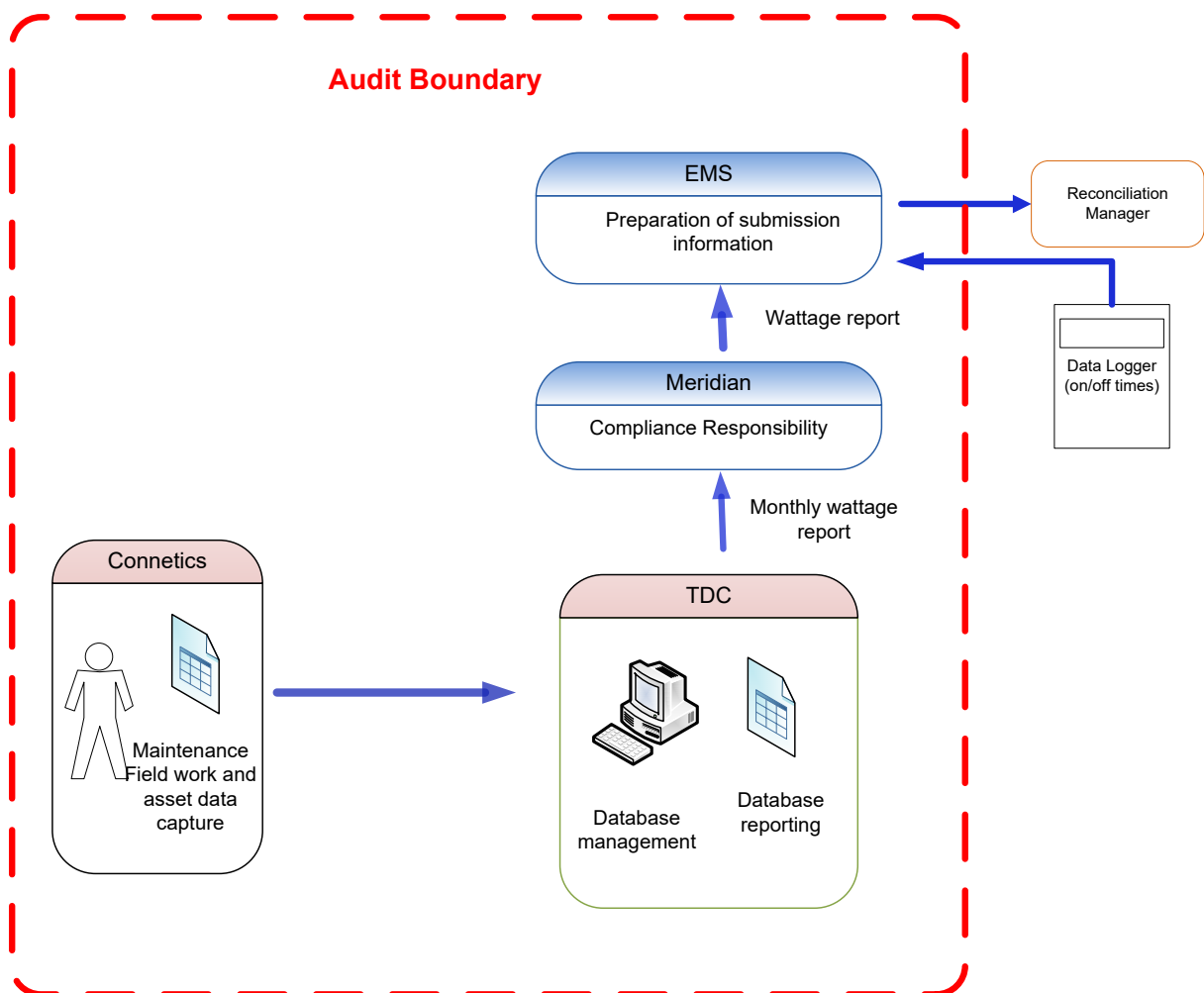
The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the database reporting.

ICP 0006432514RNA15 switched from Contact to Meridian on 1/07/2019, this was during the audit period.

The Burnham Military Camp is on the Orion Network. Orion manage their database for Burnham. Monthly reporting is supplied to Meridian by Orion.

Spotless are responsible for the Network maintenance at Burnham, and they engage Connetics as the contractor to undertake the maintenance.

The diagram below shows the audit boundary for clarity.



The field audit was undertaken of the entire database of 85 items of load on 7th April 2021.

## 1.9. Summary of previous audit

The previous audit was conducted for Contact in May 2018 by Steve Woods of Veritek Ltd. The findings are shown in the table below.

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Incorrect profiles are recorded on the registry.	Cleared
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	One lamp has incorrect lamp wattage recorded. The expected wattage is 77 and expected under reporting is 8.5 kWh per annum.	Cleared

## 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 3 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 the Orion database within the required timeframe.

### Audit outcome

Compliant



## 2. DUMML 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:*

- *DUMML 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 DUMML load using the DST profile. I compared the database provided to the capacity information Meridian supplied to EMS for the month of February 2021 and found it matched.

Meridian is using the Orion database for reconciliation. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit. Compliance was confirmed for both parties.

The field audit confirmed that the database is up to date.

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 DUMML load and volumes.

The current data used is a snapshot and this practice is non-compliant.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3  From: 01-Aug-20 To: 08-Apr-21	The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate as the processes overall are robust but the change is not tracked at a daily level.  The impact is assessed to be low as there are very few changes made to this database and the field audit confirmed the database to be accurate based on the estimated database errors found.		
Actions taken to resolve the issue		Completion date	Remedial action status
			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Processes are in place to account for historical database corrections that have a material impact on settlement volumes.			

## 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 the correct ICP was recorded against each item of load.

### Audit commentary

All Orion items of load have an ICP recorded against 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 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 Orion database contains fields for the street address and GPS coordinates for each item 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 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**

Orion's database contains the manufacturers rated wattage and the ballast wattage. The extract provided has a field for 'Lamp Type' and an additional table was provided which contained more detail for each lamp type – description, amps, wattage (incl ballast) & lamp type category.

#### **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**

The field audit was undertaken of the entire database of 85 items of load on 7th April.

### **Audit commentary**

I found no lamp type or wattage differences in the Burnham field audit.

### **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 Orion database functionality achieves compliance with the code.

### **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 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**

Orion demonstrated a complete audit trail 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	Burnham Military Camp
Strata	The database contains 85 items of load for the Burnham Military Camp.  The processes for the management of all Burnham items of load is the same.
Area units	I completed a field audit of the entire database.
Total items of load	All 85 items of load were checked.

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

###### Database Accuracy and Lamp accuracy

The Orion field audit found zero lamp type and wattage differences.

A full field data was undertaken was 100%. The total wattage recorded in the database was 6,891 watts. The field audit confirmed that the database was 100% accurate. Compliance is confirmed.

###### Change Management

The process was reviewed for new lamp connections and the tracking of load changes due to faults and maintenance. Spotless are responsible for the Network maintenance at Burnham, they engage Connetics to undertake the maintenance. Outage patrols are conducted on a regular basis. Lamp outages are notified to Spotless at Burnham and passed to Connetics.

The population and infrastructure is fairly static at Burnham resulting in very infrequent changes to the network. If a load change were made, Orion would be advised.

##### 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 the ICP has the correct profile and submission flag
- 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. I compared the database provided to the capacity information Meridian supplied to EMS for the month of February 2021 and found it matched.

Meridian is using the Orion database for reconciliation. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit. Compliance was confirmed for both parties.

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 data used is a snapshot and this practice is non-compliant.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c)  From: 01-Aug-20 To: 08-Apr-21	The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as moderate as the processes overall are robust, but the change is not tracked at a daily level.  The impact is assessed to be low as there are very few changes made to this database and the field audit confirmed the database to be accurate medium based on the estimated database errors found.		
Actions taken to resolve the issue		Completion date	Remedial action status
[Participant comment]		Proposed or actual date	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Processes are in place to account for historical database corrections that have a material impact on settlement volumes.			

## CONCLUSION

Orion use a purpose-built Oracle system for the management of the DUML information.

The Burnham boundary is part of the Orion Network. Orion manage their database for Burnham. Monthly reporting is supplied to Meridian by Orion.

New connection, fault and maintenance work is managed by Spotless at Burnham.

The field audit was undertaken of the entire Burnham Military Camp DUML database, consisting of 85 items of load on 7<sup>th</sup> April 2021. The field audit found confirmed the database was accurate.

Meridian reconciles this DUML load using the DST profile. I compared the database provided to the capacity information Meridian supplied to EMS for the month of February 2021 and found it matched.

The database accuracy is assessed to be 100% indicating no submission issues. Overall, Orion have robust controls and management in place.

The audit identified two non-compliances in relation to use of a database snapshot rather than tracking load change at a daily basis. This database has very few changes and accounts for only a small number of lights. The audit risk rating indicates that the next audit be in 24 months. I have considered this in conjunction with Meridians comments and I recommend that the next audit be in 36 months.



## PARTICIPANT RESPONSE

Meridian has reviewed this report and their comments are contained within the report.