



VERITEK

Electricity Industry Participation Code Audit Report

For

Contact Energy Limited



**Masterton District Council
Distributed Unmetered Load**

Prepared by Tara Gannon – Veritek Ltd

Date of Audit: 08/09/17

Date Audit Report Complete: 25/09/17



Executive Summary

This audit of the Masterton District Council (MDC) DUML database and processes was conducted at the request of Contact Energy Limited (Contact), 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.

A RAMM database is held by MDC. This database is hosted by RAMM Software Limited and is managed by MDC. A joint street lighting contract is in place for MDC, Carterton District Council (CDC), and South Wairarapa District Council (SWDC). Alf Downs manages the contract for these councils and sub-contracts the field work back to local contractors.

The 2016 audit found 1037 records with no ICP allocated. This issue has now been cleared, and all items of load record the ICP.

No changes have occurred to systems and processes during the audit period and they remain robust and secure.

The audit process included a field audit of 278 items of load, which found 100% accuracy. Review of the entire database found six lamps had incorrect lamp wattage, and 305 lamps had incorrect gear wattage. This caused non-compliance with the requirement to record accurate wattage and for the database to be accurate. The errors resulted in under reporting of approximately 3,283 kWh per annum.

The future risk rating of six indicates that the next audit be completed in 24 months and I agree with this recommendation. The matters raised are detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Profiles	2.1	11(1) of Schedule 15.3	An incorrect profile is recorded on the registry for ICP 0020903000WRADA.	Moderate	Low	2	Identified
Wattages	2.4	11(2)(c) & (d) of Schedule 15.3	Six lamps have incorrect lamp wattage, and 305 lamps have incorrect gear wattage.	Moderate	Low	2	Identified
Database accuracy	3.1	Clause 15.2 & 15.37(b)	Six lamps have incorrect lamp wattage, and 305 lamps have incorrect gear wattage.	Moderate	Low	2	Identified
Future Risk Rating						6	

Table of Recommendations

Subject	Section	Recommendation	Description
	Nil		

Persons Involved in This Audit:

Auditor:

Tara Gannon
Veritek Limited
Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Allie Jones	HDM Team Analyst	Contact Energy
Warwick Potts	Roading Projects Engineer	Masterton District Council

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1. Administrative

1.1 List of ICPs

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

ICP	Description	NSP	No. of items of load
0020902000WRB7A	Masterton District Council – Streetlighting	MST0331	1,696
0020901000WR99A	MSTN DISTRICT COUNCIL (Rural) - Streetlighting	MST0331	945
TOTAL items of load			2,641

1.2 Exemptions from Obligations to Comply With Code (Section 11 of Electricity Industry Act 2010)

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.

Contact confirms that is an exemption is in place relevant to the scope of this audit:

Exemption No. 177: Exemption to clause 8(g) of schedule 15.3 of the Electricity Industry Participation Code 2010 (“Code”) in respect of providing half-hour (“HHR”) submission information instead of non half-hour (“NHH”) submission information for distributed unmetered load (“DUML”). This exemption expires at the close of 31 October 2023.

1.3 Supplier List

MDC, RAMM Limited and Alf Downs are considered agents under this clause and Contact clearly understands that the use of agents does not release them from their compliance obligations.

The relationship between Contact and the agents is complicated by the fact that the contractual relationship exists between Contact and MDC and between MDC and Alf Downs. There is no direct contractual relationship between Contact and Alf Downs.

This is not seen as an issue, as the processes for updating the database are robust and have appropriate validation controls in place. This is discussed further in **section 2.6**.

1.4 Hardware and Software

The SQL database used for the management of DUML is remotely hosted by Ramm Software Ltd. The database is commonly known as “RAMM” which stands for “Roading Asset and Maintenance Management”. The specific module used for DUML is called “SLIMM” which stands for “Streetlighting Inventory Maintenance Management”.

The database back-up is in accordance with standard industry procedures. Access to the database is secure by way of password protection.

1.5 Breaches or Breach Allegations

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

1.6 Distributed unmetered load audits (Clauses 16A.26 & 17.295F)

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

Contact 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. Compliance is confirmed.

1.7 Separate distributed unmetered load audit (Clause 16A.8(4))

Retailers must ensure that DUML audits are reported in a separate audit report.

Audit Observation

Contact have requested Veritek to undertake this streetlight audit.

Audit Commentary

The audit report for this DUML database is separate from other audit reports. Compliance is confirmed.

1.8 Summary of Previous Audit

Contact provided a copy of the report of the previous audit conducted in 2016 by Rebecca Elliot of Veritek Limited. One non-compliance was found, and one recommendation was made. The current status of these matters is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
ICP Identifier	2.2.1	11(2)(a) of schedule 15.3	1037 items of loads without an ICP identifier in RAMM.	Cleared, all items of load have the ICP recorded. Refer to section 2.2.

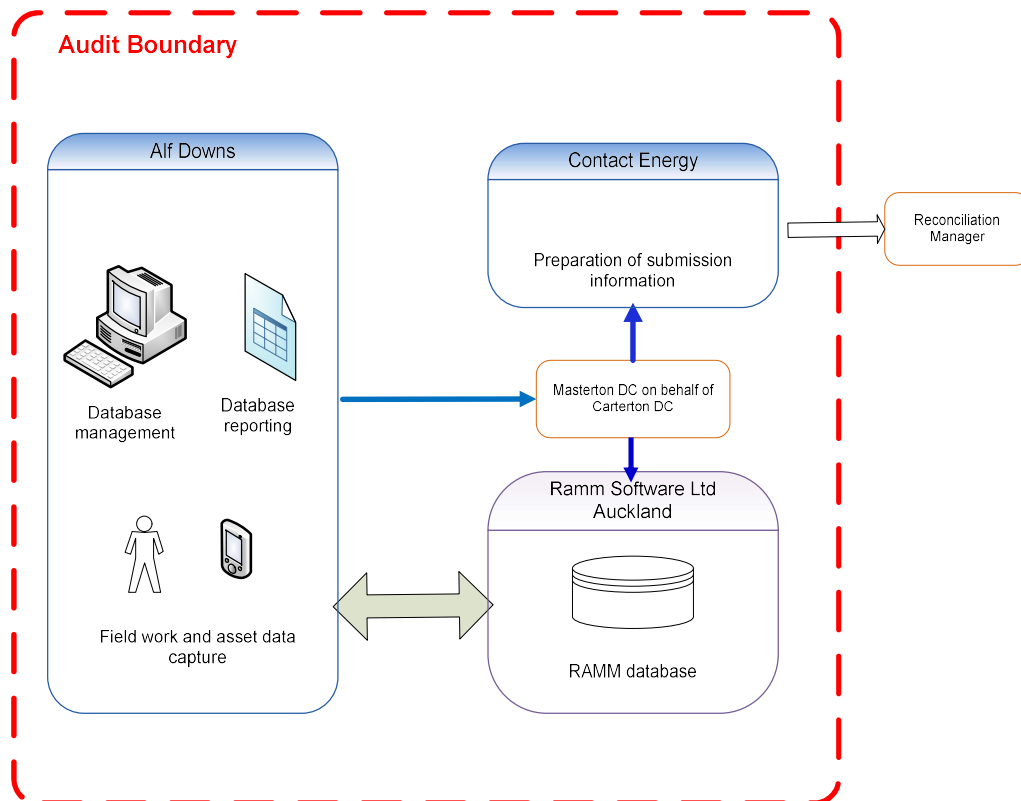
Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Remedial Action
Data transmission	1.9	20 of schedule 15.2	Introduce password security to the monthly report.	Cleared. Refer to section 1.10.

1.9 Scope of Audit

A RAMM database is held by MDC, who is Contact's customer. This database is hosted by RAMM Software Limited and is managed by MDC. A joint street lighting contract is in place with Carterton, Masterton and South Wairarapa District Councils. Alf Downs manages the contract for these councils and sub-contracts the field work back to local contractors.

Monthly reporting from the database is provided to Contact. The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the database reporting. The diagram below shows the audit boundary for clarity.



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

The field audit was undertaken of 278 lights using the statistical sampling methodology. The field selection included the following population groups.

ICP	Groups
0020901000WR99A	New MDC urban NZTA Under verandah Other
0020902000WRB7A	MDC urban NZTA Other

278 lamps in total were selected across the eight population groups.

1.10 Data Transmission (Clause 20 of Schedule 15.2)

A password protected report from RAMM is sent to Contact Energy monthly. Compliance is confirmed.

2. DUML database requirements

2.1 Deriving Submission Information (Clause 11(1) of Schedule 15.3)

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.

Audit Commentary

Contact receives hours of operation information using a data logger for ICPs 0020902000WRB7A and 0020901000WR99A. The consumption volume is calculated and submitted using the HHR profile. Contact has a Code exemption (No 177) to perform this calculation. While submissions are correct, the profiles on the registry are listed as RPS HHR. The incorrect registry data is recorded as non-compliance below.

I checked the accuracy of Contact's submission calculations by comparing my manual calculation using the DUML database and the data logger information, to the submission to the reconciliation manager. My calculation matched Contact's submission. Compliance is confirmed.

Database accuracy is discussed in **section 3.1**.

Non-compliance	Description		
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: October 2017	Incorrect profiles are recorded on the registry for ICPs 0020902000WRB7A and 0020901000WR99A. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. Submissions are recorded with the correct profile, only the profile recorded on the registry is incorrect.		
Actions taken to resolve the issue		Completion date	Remedial action status
The incorrect profile on the registry issue is a result of a system defect – currently a fix is underway to prevent this issue from occurring. A manual work around is currently in place to update the registry where required		July 2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
As above		As above	

2.2 ICP Identifier (Clause 11(2)(a) of Schedule 15.3)

The DUML database must contain:

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

Audit Observation

The database was checked to confirm all ICPs were recorded against each item of load.

Audit Commentary

The analysis found that all items of load had the correct ICPs recorded. Compliance is confirmed.

2.3 Location of Each Item of Load (Clause 11(2)(b) of Schedule 15.3)

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

Audit Observation

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

Audit Commentary

Road names are recorded for all items of load. Displacement is recorded for 2,626 items of load (99.5%) and GPS coordinates are recorded for 662 items of load (25.1%). Compliance is confirmed.

2.4 Description of Load Type (Clause 11(2)(c) & (d) of Schedule 15.3)

The DUML database must contain:

- a description of load type for each item of load and any assumptions regarding the capacity
- the capacity of each item in watts.

Audit Observation

The database was checked to confirm that it contained a field for lamp type and wattage capacity, and included any ballast or gear wattage. Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority.

Audit Commentary

The database contains a field for lamp type and this is populated appropriately. The database contains two fields for wattage, firstly the manufacturers rated wattage and secondly the gear wattage. The “total wattage” reported to Contact is calculated as the total rated wattage plus the gear wattage.

Lamp and gear wattages were checked against the Authority’s standardised streetlight wattages table. There were some differences in lamp wattages and missing gear wattages. This is recorded as non-compliance below. The standardised wattage table was provided to MDC and they intend to update their records.

Lamp	Quantity	Lamp Wattage	Expected Lamp Wattage
70W HPS	1	0	70
GL500 70W HPS with Ignitor	1	0	70
Italo STA1 4.7-2M/700mA	3	35.5	35
Single 58W Magnetic Ballast	1	57	58

Lamp	Quantity	Gear Wattage	Expected Gear Wattage
Single 36W Magnetic ballast	5	8	10
Single 58W Magnetic Ballast	300	12	14

Non-compliance	Description
<p>Audit Ref: 2.4</p> <p>With: 11(2)(c) & (d) of Schedule 15.3</p> <p>From: July 2017</p>	<p>Six lamps have incorrect lamp wattage, and 305 lamps have incorrect gear wattage.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>
Audit risk rating	Rationale for audit risk rating
<p>Low</p>	<p>Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement.</p> <p>The incorrect gear wattages total 610W and the incorrect lamp wattages total 140W. The total under reported is approximately 3,283 kWh per annum.</p>

Actions taken to resolve the issue	Completion date	Remedial action status
Masterton CC have updated these affected records	Resolved	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
As above	As above	

2.5 All load recorded in database (Clause 11(2A) of Schedule 15.3)

The retailer must ensure that each item of DUML for which it is responsible is recorded in this database.

Audit Observation

The field audit was undertaken of 278 lights using the statistical sampling methodology. The field selection included eight population groups:

ICP	Groups
0020901000WR99A	New MDC urban NZTA Under verandah Other
0020902000WRB7A	MDC urban NZTA Other

278 lights in total were selected across the eight population groups.

Audit Commentary

The field audit findings are detailed in the table below:

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
0020902000WRB7A New/Updated					
AKURA ROAD	1	1	-	-	
ASHWOOD GR	1	1	-	-	
MARGARET STREET	1	1	-	-	
MCGREGOR CRESCENT	1	1	-	-	
PATEA PLACE	1	1	-	-	
0020902000WRB7A Masterton District Council Urban					
ALBERT STREET	9	9	-	-	
BEETHAM STREET	5	5	-	-	
CASHMERE OAKS DRIVE	1	1	-	-	
COLOMBO ROAD	44	44	-	-	
ELMWOOD GR	1	1	-	-	
FREYBERG STREET	4	4	-	-	

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
HEREWINI STREET	4	4	-	-	
HINAU PLACE	2	2	-	-	
MANUKA STREET	4	4	-	-	
RIMU STREET	4	4	-	-	
ROBERTS ROAD	14	14	-	-	
SOLWAY STREET	5	5	-	-	
SUSSEX STREET	5	5	-	-	
TUI STREET	1	1	-	-	
WEKA PLACE	1	1	-	-	
0020902000WRB7A NZTA					
CORNWALL STREET	1	1	-	-	
CRAYNE STREET	1	1	-	-	
DIXON STREET	1	1	-	-	
ESSEX STREET	1	1	-	-	
LINCOLN ROAD	1	1	-	-	
OPAKI ROAD (SH2)	10	10	-	-	
RENALL STREET	3	3	-	-	
TE ORE ORE ROAD	1	1	-	-	
WALTONS AVE	1	1	-	-	
WRIGLEY STREET	1	1	-	-	
0020902000WRB7A Other					
PERRY STREET	13	13	-	-	
0020902000WRB7A Under Verandah					
CRAYNE STREET	8	8	-	-	
DIXON STREET	1	1	-	-	
LINCOLN ROAD	11	11	-	-	
OPAKI ROAD (SH2)	6	6	-	-	
PARK STREET	2	2	-	-	
RENALL STREET	2	2	-	-	
0020901000WR99A NZTA					
OPAKI ROAD (SH2)	23	23	-	-	
0020901000WR99A Masterton District Council Urban					
ALBERT STREET	2	2	-	-	
BENTLEY STREET	1	1	-	-	
BRUCE STREET	20	20	-	-	One set of 4 lights is metered at New World
COOPER STREET	1	1	-	-	
HOBSON PLACE	2	2	-	-	
MARGARET STREET	7	7	-	-	
MASTERS CRESCENT	10	10	-	-	
MILLARD AVE	5	5	-	-	
OXFORD STREET	13	13	-	-	
PAPAWAI PLACE	3	3	-	-	
PRAGNELL STREET	2	2	-	-	
RATA PLACE	1	1	-	-	
WALTONS AVE	4	4	-	-	
0020901000WR99A Other					
CRAYNE STREET	2	2	-	-	
JOHNSTONE STREET	1	1	-	-	
LOWES PLACE	1	1	-	-	

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
PARK AVE	2	2	-	-	
QUEEN STREET	5	5	-	-	
Total	278	278	-	-	

Compliance is confirmed.

2.6 Tracking of Load Changes (Clause 11(3) of Schedule 15.3)

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

Audit Observation

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

Audit Commentary

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. On 20 September 2012, the Authority sent a memo to Retailers and auditors advising that tracking of load changes at a daily level was not required if the database contained an audit trail. I have interpreted this to mean that the production of a monthly “snapshot” report is sufficient to achieve compliance.

For new connections, MDC is only responsible once the subdivision is “vested” in council. The council require the developer to advise of the street light livening date as soon as it is known. Once advised this is included in the relevant monthly report. The street lighting team liaise closely with the planning team to ensure new connections are identified promptly.

Repairs and maintenance of existing connections are completed by Alf Downs. When carrying out repairs or maintenance, they check and update the RAMM records for the affected lamps.

Outage patrols are conducted on a periodic basis by Alf Downs.

Festive lights are used. These are switched on and off by Alf Downs, who updates the database accordingly.

2.7 Audit Trail (Clause 11(4) of Schedule 15.3)

The DUML database must incorporate an audit trail of all additions and changes that identify:

- *the before and after values for changes*
- *the date and time of the change or addition*
- *the person who made the addition or change to the database.*

Audit Observation

The database was checked for audit trails.

Audit Commentary

MDC demonstrated a complete audit trail of all additions and changes to the database information. Compliance is confirmed.

3. Accuracy of DUML database

3.1 Database Accuracy (Clause 15.2 & 15.37(b))

The Audit must verify that the information recorded in the retailer's DUML database is complete and accurate.

Audit Observation

The audit findings were used to determine if the information contained in the database is complete and accurate.

Audit Commentary

The field audit found that all items of load were recorded with correct wattages. I therefore estimate the database accuracy at 100% accuracy, based on no errors over 278 items of load checked.

Six lamps have incorrect lamp wattage and 305 have incorrect gear wattage, which has resulted in some incorrect submission information. This is discussed further in **section 2.4**, and recorded as non-compliance below.

Non-compliance	Description		
Audit Ref: 3.1 With: 15.2 & 15.37(b) From: July 2017	Six lamps have incorrect lamp wattage, and 305 lamps have incorrect gear wattage. 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 they are sufficient to mitigate the risk most of the time but there is room for improvement. The incorrect gear wattages total 610W and the incorrect lamp wattages total 140W. The total under reported is approximately 3,283 kWh per annum.		
Actions taken to resolve the issue		Completion date	Remedial action status
Masterton CC have updated these affected records		Resolved	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
As above		As above	

3.2 Volume Information Accuracy (Clause 15.2 & 15.37(b))

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
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit Commentary

ICPs 0020902000WRB7A and 0020901000WR99A both have profile HHR.

For July 2017, I compared the total submission to the reconciliation manager for each ICP to a manual calculation based on the database information provided, and burn hours. The manual calculation matched the data submitted, and compliance is confirmed.

4. Conclusions

No changes have occurred to systems and processes during the audit period and they remain robust and secure.

The audit process included a field audit of 278 items of load, which found 100% accuracy. Review of the entire database found six lamps had incorrect lamp wattage, and 305 lamps had incorrect gear wattage. This caused non-compliance with the requirement to record accurate wattage and for the database to be accurate. The errors resulted in under reporting of approximately 3,283 kWh per annum.

The future risk rating of six indicates that the next audit be completed in 24 months and I agree with this recommendation. The matters raised are detailed below:

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Database accuracy	3.1	Clause 15.2 & 15.37(b)	Six lamps have incorrect lamp wattage, and 305 lamps have incorrect gear wattage.	Moderate	Low	2	Identified
Future Risk Rating						6	

Table of Recommendations

Subject	Section	Recommendation	Description
	Nil		

TGannon

Tara Gannon
Veritek Limited
Electricity Authority Approved Auditor

5. Contact Comments

Contact have reviewed this report and their comments are contained within its body.