VERITEK

Electricity Industry Participation Code Audit Report

For

Contact Energy Limited

South Wairarapa 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 South Wairarapa District Council (SWDC) 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 joint street lighting contract is in place for SWDC, Carterton District Council (CDC), and Masterton District Council (MDC). Alf Downs manages the contract for these councils and sub-contracts the field work back to local contractors.

SWDC are in the process of migrating from their Access database to RAMM. SWDC data has been loaded into RAMM, but some issues with the data have prevented migration including difficulty loading some NZTA lights close to the border of other council regions, and some subdivision lights. Once these issues are resolved, and the update to LED lamps is complete, SWDC intends to stop using the Access database and rely on the RAMM data. It is expected the transition will be completed around March 2018.

Currently both databases are kept up to date; the Access database is maintained by SWDC, and the RAMM database is held by MDC on behalf of SWDC, and maintained by Alf Downs. The RAMM database is hosted by RAMM Software.

SWDC completes a monthly reconciliation between the two databases, and provides a report to Contact based on the RAMM data, which is modified to match what is recorded in the Access database.

The audit process included a field audit of all items of load, which found 99.81% accuracy. The two discrepancies found related to one missing lamp, and one lamp with incorrect wattage recorded. Review of the entire database found eight missing lamp wattages. The errors resulted in under reporting of approximately 1,431 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 0020906000WRDFA.	Moderate	Low	2	Identified
ICP number	2.2	11(2)(a) of Schedule 15.3	Two items of load do not have an ICP recorded.	Strong	Low	1	Identified

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Wattages	2.4	11(2)(c) & (d) of Schedule 15.3	Eight lamps have incorrect lamp wattage, and missing gear wattage.	Strong	Low	1	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	One lamp was missing from the database, and one lamp had an incorrect wattage recorded.	Strong	Low	1	Identified
Database accuracy	3.1	Clause 15.2 & 15.37(b)	One lamp was missing from the database, and nine lamps had incorrect wattages recorded.	Strong	Low	1	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
Dave Patten	Contractor	South Wairarapa District Council

Contents

Executive Summary 2

Table of Non-Compliance 2

Table of Recommendations 3

Persons Involved in This Audit: 4

Contents 5

1. Administrative 6

1.1 List of ICPs 6

1.2 Exemptions from Obligations to Comply With Code (Section 11 of Electricity Industry Act 2010) 6

1.3 Supplier List 6

1.4 Hardware and Software 6

1.5 Breaches or Breach Allegations 7

1.6 Distributed unmetered load audits (Clauses 16A.26 & 17.295F) 7

1.7 Separate distributed unmetered load audit (Clause 16A.8(4)) 7

1.8 Summary of Previous Audit 7

Table of Non-Compliance 8

1.9 Scope of Audit 8

1.10 Data Transmission (Clause 20 of Schedule 15.2) 9

2. DUML database requirements 9

2.1 Deriving Submission Information (Clause 11(1) of Schedule 15.3) 9

2.2 ICP Identifier (Clause 11(2)(a) of Schedule 15.3) 10

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

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

2.5 All load recorded in database (Clause 11(2A) of Schedule 15.3) 12

2.6 Tracking of Load Changes (Clause 11(3) of Schedule 15.3) 14

2.7 Audit Trail (Clause 11(4) of Schedule 15.3) 15

3. Accuracy of DUML database 15

3.1 Database Accuracy (Clause 15.2 & 15.37(b)) 15

3.2 Volume Information Accuracy (Clause 15.2 & 15.37(b)) 16

4. Conclusions 18

Table of Non-Compliance 18

Table of Recommendations 18

5. Contact Comments 19

1. Administrative

1.1 List of ICPs

The following ICP is relevant to the scope of this audit:

ICP	Description	NSP	No. of items of load
0020906000WRDFA	Featherston – Streetlighting	GYT0331	946
		TOTAL items of load	946

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

SWDC, 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 SWDC and between SWDC and Alf Downs. There is also an arrangement in place between SWDC and MDC. There is no direct contractual relationship between Contact and MDC or 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

Two databases are currently used for DUML information. SWDC are in the process of migrating from their Access database to RAMM. SWDC data has been loaded into RAMM, but some issues with the data have prevented migration including difficulty loading some NZTA lights close to the border of other council regions, and some subdivision lights. Once these issues are resolved, and the update to LED lamps is complete, SWDC intends to stop using the Access database and rely on the RAMM data. It is expected the transition will be completed around March 2018.

SWDC uses an Access database for the management of DUML information. This data is hosted and managed by Dave Patten, and back-up is to an external hard drive each month. Access to the database is secure by way of password protection.

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 January 2017 by Allie Jones of Contact. Two non-compliances were found, and no recommendations were made. The current status of these non-compliances is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non compliance	Status
Tracking of Load	2.3	Clause 11(3) of schedule 15.3	Incorrect number of lights found in the field compared to the database.	Still existing. Refer to **section 2.5.**
Tracking of Load	2.3	Clause 11(3) of schedule 15.3	Poles being replaced and lamps not being installed.	Cleared. Refer to **section 2.6**.

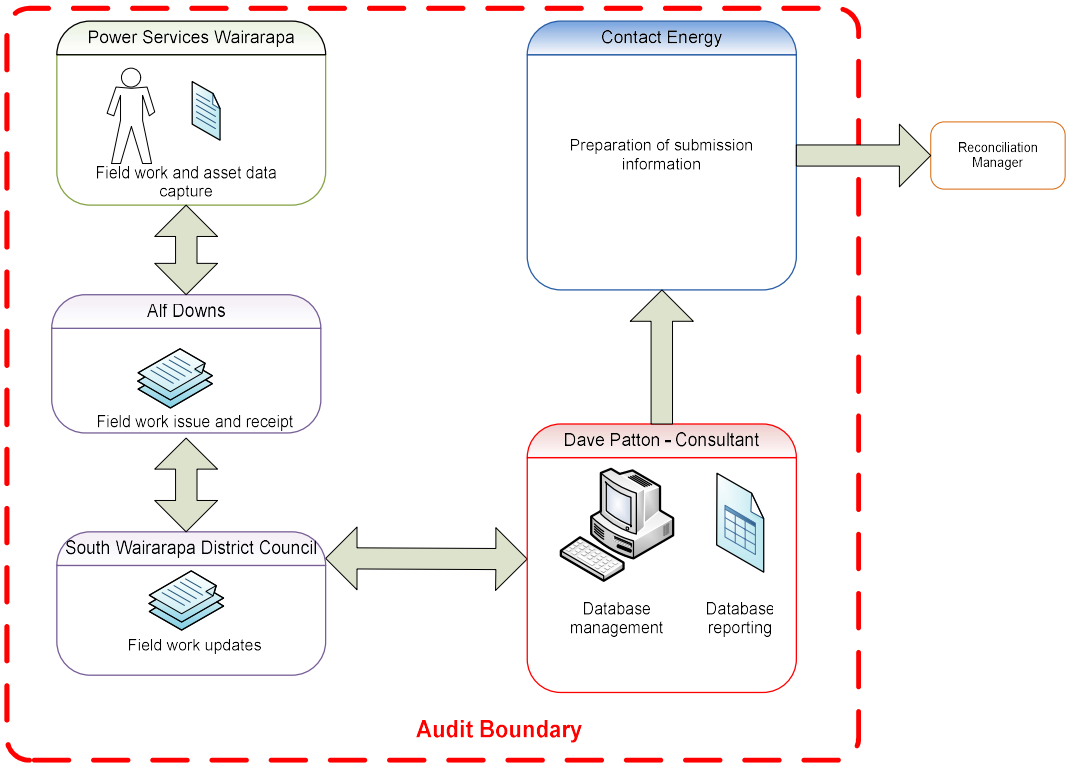
1.9 Scope of Audit

A joint street lighting contract is in place with CDC, MDC and SWDC. Alf Downs manages the contract for these councils and sub-contracts the field work back to local contractors.

SWDC maintains an Access database of streetlight information, and a RAMM database is held by MDC on behalf of CDC. SWDC are in the process of migrating from Access to RAMM, and the cut over is expected to be completed at the end of March 2018. In the meantime, data is maintained in both databases.

SWDC completes a monthly reconciliation between the two databases, and provides a report to Contact based on the RAMM data, which is modified to match what is recorded in the Access database.

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 201 lights using the statistical sampling methodology. The Access database did not contain sufficient information to allow division into population groups.

Review of the population did not find any streets where all lamps were added or updated in 2017. Four lamps updated in 2017 were selected as part of the sample.

201 lamps in total were selected.

1.10 Data Transmission (Clause 20 of Schedule 15.2)

A password protected report from SWDC is sent to Contact Energy monthly. I viewed this spreadsheet and confirmed that a password is required.

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 ICP 0020906000WRDFA. 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: 11(1) of Schedule 15.3 From: entire audit period	An incorrect profile is recorded on the registry for ICP 0020906000WRDFA. 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. 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 two items of load did not have the ICP number recorded. This is recorded as non-compliance below.

Non-compliance	Description
Audit Ref: 2.2 With: Clause 11(2)(a) of Schedule 15.3 From: July 2017	Two items of load do not have an ICP recorded. 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 strong, as they are sufficient to mitigate the risk most of the time. All items of load relate to the same ICP. Only two items of load did not have the ICP number recorded.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will follow up with SWDC to ensure ICP numbers are populated for these 2 lights as part of their migration to RAMM	July 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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 and GPS coordinates are being updated as part of the migration to RAMM and LED upgrade process. 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. SWDC intend to update their records.

Lamp	Quantity	Lamp Wattage	Expected Lamp Wattage
37w LED	8	0	37

Lamp	Quantity	Gear Wattage	Expected Gear Wattage
37w LED	8	Blank	0

Non-compliance	Description
Audit Ref: 2.4 With: 11(2)(c) & (d) of Schedule 15.3 From: July 2017	Eight lamps have incorrect lamp wattage, and missing gear wattage. 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 strong, as they are sufficient to mitigate the risk most of the time. The missing gear wattages have no impact, because the gear wattage should be zero. The incorrect lamp wattages come to a total of 296W, or under submission of 1,296kWh per annum.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will follow up with SWDC to ensure wattage values are populated for these lights as part of their migration to RAMM	July 2018	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 201 lights using the statistical sampling methodology. The database did not contain sufficient information to allow division into population groups.

Review of the population did not find any streets where all lamps were added or updated in 2017. Four lamps updated in 2017 were selected as part of the sample.

Audit Commentary

The field audit findings are detailed in the table below:

Street	Database Count	Field Count	Light Count Differences	Wattage Differences	Comments
MOLE STREET	4	4	-	-	
CARD CRES	2	2	-	-	
HICKSON STREET	6	6	-	-	
WOODSIDE ROAD	1	1	-	-	
WOODWARD STREET	13	12	1	1	One 23W LED listed as 27W in database, and one 23W LED missing from database
MASSEY STREET	3	3	-	-	
COTTER STREET	5	5	-	-	
BETHUNE STREET	6	6	-	-	
ESTHER STREET	5	5	-	-	
REGENT STREET	18	18	-	-	
WEST STREET	27	27	-	-	
CORK STREET	6	6	-	-	
FARRIER GROVE	2	2	-	-	
CHURCH STREET	1	1	-	-	
KERERU GROVE	3	3	-	-	
DUBLIN STREET	17	17	-	-	
REVANS STREET	16	16	-	-	
SKIPAGE GROVE	2	2	-	-	
SACKVILLE STREET	6	6	-	-	
BIRDIE WAY	3	3	-	-	
CLIFFORD SQUARE	6	6	-	-	
HART STREET	1	1	-	-	
KEMPTON STREET	10	10	-	-	
KENWARD CRES	2	2	-	-	
GREENAWAY PLACE	2	2	-	-	
DONALD STREET	4	4	-	-	
JELLICOE STREET	30	30	-	-	
Total	**201**	**202**	**1**	**1**	

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: July 2017	One lamp was missing from the database, and one lamp had an incorrect wattage recorded. 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 strong, as they are sufficient to mitigate the risk most of the time. One lamp was missing from the database, and one lamp had an incorrect wattage recorded. The difference was 31W, approximately 135kWh per annum.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will follow up with SWDC to ensure these lights are updated as part of their migration to RAMM	July 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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.

Data is maintained in the Access database maintained by SWDC, and the RAMM database is maintained by Alf Downs.

Changes or upgrades to lamps are initiated by SWDC, by raising a service request with Alf Downs. Alf Downs updates RAMM as part of their field work, and provides a work completion notice to SWDC, which is used to update the Access database.

The entire network is patrolled every two months by Alf Downs. Where repairs or maintenance is required that does not involve replacing a lamp with another the same, service requests are raised by SWDC and the work is carried out within 10 working days. Alf Downs updates RAMM as part of their field work, and provides a work completion notice to SWDC, which is used to update the Access database.

In addition, Alf Downs provides an end of month RAMM report, a report of lamp changes and a summary of work done. These are checked against the Access database monthly to ensure that it is complete and up to date.

For new Connections, SWDC 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. SWDC monitors new subdivisions and keeps in close contact with Powerco to ensure that they are aware quickly when the lights are connected.

During the 2016 audit, an issue where poles were being replaced by the network and the lights were not being reinstalled was identified. The affected poles have lamps reinstalled and the databases have been updated.

Compliance is confirmed.

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

SWDC demonstrated a complete audit trail of all additions and changes to the database information for both RAMM and the Access database. 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 except one missing lamp. There was one incorrect wattage. I therefore estimate the database accuracy at 99.81% accuracy (based on two errors over 201 items of load checked, with a difference of 31W).

The review of the database information also found eight missing lamp wattages totalling 296W.

Non-compliance	Description
Audit Ref: 3.1 With: 15.2 & 15.37(b) From: July 2017	One lamp was missing from the database, and nine missing or incorrect lamp wattages were recorded. 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 strong, as they are sufficient to mitigate the risk most of the time. The incorrect wattages and missing lamp have resulted in under reporting of approximately 1,431kWh per annum..

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will follow up with SWDC to ensure these lights are updated as part of their migration to RAMM	July 2018	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

ICP 0020906000WRDFA has profile HHR.

For July 2017, I compared the total submission to the reconciliation manager 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

The audit process included a field audit of all items of load, which found 99.81% accuracy. The two discrepancies found related to one missing lamp, and one lamp with incorrect wattage recorded. Review of the entire database found eight missing lamp wattages. The errors resulted in under reporting of approximately 1,431 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 0020906000WRDFA.	Moderate	Low	2	Identified
ICP number	2.2	11(2)(a) of Schedule 15.3	Two items of load do not have an ICP recorded.	Strong	Low	1	Identified
Wattages	2.4	11(2)(c) & (d) of Schedule 15.3	Eight lamps have incorrect lamp wattage, and missing gear wattage.	Strong	Low	1	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	One lamp was missing from the database, and one lamp had an incorrect wattage recorded.	Strong	Low	1	Identified
Database accuracy	3.1	Clause 15.2 & 15.37(b)	One lamp was missing from the database, and nine lamps had incorrect wattages recorded.	Strong	Low	1	Identified
Future Risk Rating						6	

Table of Recommendations

Subject	Section	Recommendation	Description
	Nil		

Tara Gannon
Veritek Limited
Electricity Authority Approved Auditor

5. Contact Comments

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