

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

NZTA BOP WEST (WESTLINK)
AND TRUSTPOWER LIMITED

Prepared by: Steve Woods

Date audit commenced: 15 March 2021

Date audit report completed: 13 April 2021

Audit report due date: 09-Apr-21

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EXECUTIVE SUMMARY

This audit of the NZTA lights in the BOP West area (**NZTA BOP West**) DUML database and processes was conducted at the request of Trustpower Limited (**Trustpower**), in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

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

A RAMM database is managed by Westlink on behalf of NZTA and monthly reporting is provided to Trustpower. Westlink manage the maintenance contract, and the maintenance field work is carried out by Horizon. Any new work is managed by NZTA and once completed the information is passed to Westlink to update. Validation of this data occurs prior to being received by Westlink.

The main issue from the last audit was that the Te Puna roundabout lighting had not been updated in the database, despite being installed in late 2017 to early 2018. This matter is now resolved, and there were only minor errors identified.

The audit found three non-compliances and makes one recommendation. The future risk rating of six indicates that the next audit be completed in 18 months. Given the minor nature of the issues found, and that the Te Puna Roundabout issue is resolved, I recommend a 24-month audit period.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	The database data was 0.77% higher than the field data for Veritek's 100% field audit. This will result in over submission of 1,332 kWh per annum.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	The database data was 0.77% higher than the field data for Veritek's 100% field audit. This will result in over submission of 1,332 kWh per annum.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database data was 0.77% higher than the field data for Veritek's 100% field audit. This will result in over submission of 1,332 kWh per annum.	Moderate	Low	2	Identified
Future Risk Rating						6	

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
Tracking of load change	3.1	Review process to update new lights in RAMM to ensure database accuracy.

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

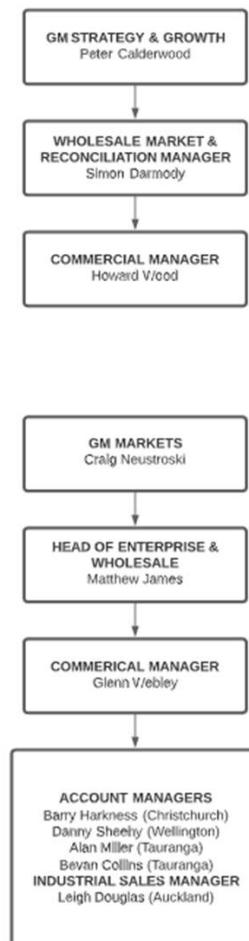
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Trustpower provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditor:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Phillip Barnes	Maintenance Manager	Westlink BOP
Robbie Diederer	Reconciliation Analyst	Trustpower

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”.

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

Systems used by the trader to calculate submissions are assessed as part of their reconciliation participant audits.

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

ICP Number	Description	Profile	Number of items of load	Database wattage (watts)
1000525040PC154	Western Bay NZTA - TGA0111	STL	16	3,018
1000525041PCD11	Western Bay NZTA - TGA0331	STL	206	31,420
1000525042PC1D1	Western Bay NZTA - TMI0331	STL	40	6,185
TOTAL			262	40,623

1.7. Authorisation Received

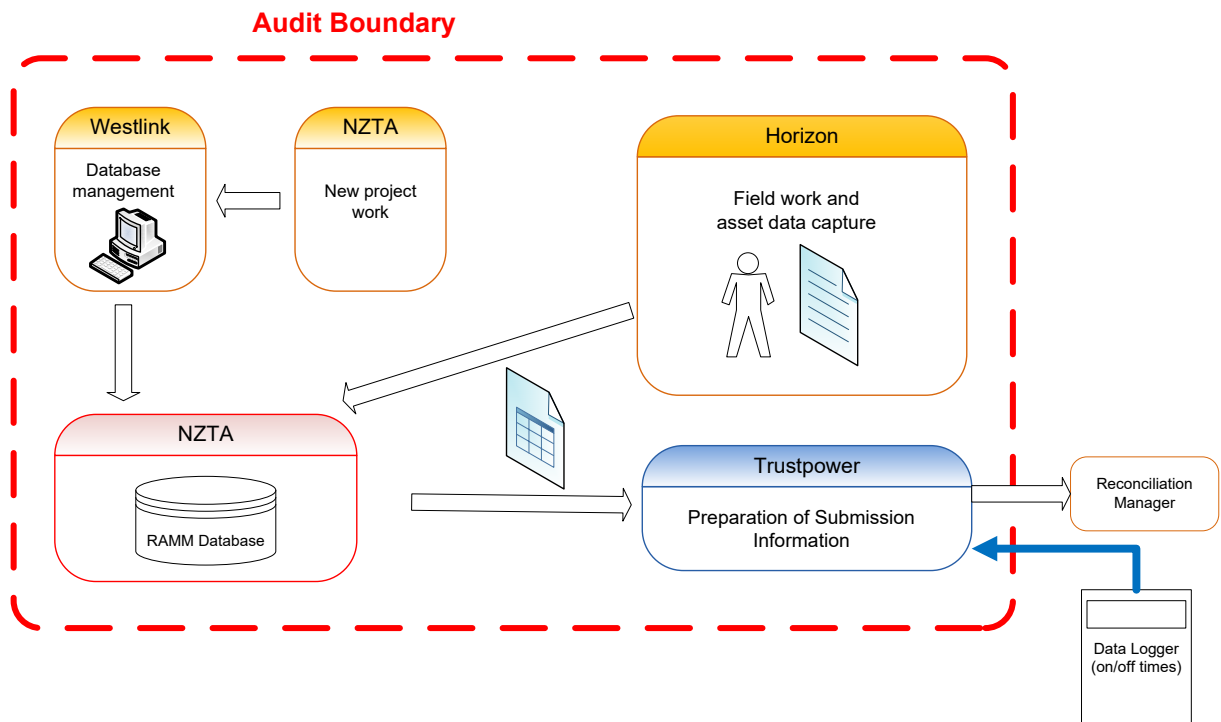
All information was provided directly by Trustpower and Westlink.

1.8. Scope of Audit

This audit of the NZTA lights in the BOP West area (**NZTA BOP West**) DUMML database and processes was conducted at the request of Trustpower Limited (**Trustpower**), 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.

The database is remotely hosted by RAMM Software Ltd. The asset data capture and database population are conducted by Westlink. The maintenance field work is carried out by Horizon. New project work is carried out by NZTA who pass the information to Westlink to load once the project is complete. 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 field audit was undertaken of all 262 items of load on 14 March 2021.

1.9. Summary of previous audit

The previous audit was conducted in August 2020 by Steve Woods of Veritek Limited. The findings from that audit are shown in the tables below.

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The database data was 7.2% lower than the field data for Veritek's 100% field audit. This will result in under submission of 12,398 kWh per annum.	Largely cleared, minor database inaccuracy still present.
All load recorded in database	2.5	11(2A) of Schedule 15.3	22 additional light found in the field audit.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	The database data was 7.2% lower than the field data for Veritek's 100% field audit. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Largely cleared, minor database inaccuracy still present.
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database data was 7.2% lower than the field data for Veritek's 100% field audit. This will result in under submission of 12,398 kWh per annum.	Largely cleared, minor database inaccuracy still present.

Subject	Section	Recommendation	Status
Tracking of load change	2.6	Review process to update new lights in RAMM to ensure database accuracy.	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

Trustpower 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.

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

Trustpower reconciles this DUMML load using the STL profile. Trustpower receive monthly wattage reports. Submissions are based on the monthly wattage report, with on and off times derived from data logger information.

I recalculated the submissions for January 2021 using the data logger and database information. I confirmed that the calculation method and result was correct. Trustpower conducted revisions for the 14 month period for the addition of the lights that were missing during the previous audit.

As detailed in **sections 2.5** and **3.1**, the database data was 0.77% higher than the field data for Veritek's 100% field audit. This will result in over submission of approx. 1,332 kWh per annum. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 Clause 11(1) of Schedule 15.3 From: 01-Sep-20 To: 21-Mar-21	The database data was 0.77% higher than the field data for Veritek's 100% field audit. This will result in over submission of 1,332 kWh per annum. Potential impact: Medium Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status

Westlink is not responsible for capital works and these updates can take several months, even several years.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Trustpower will initiate talks with NZTA Tga to be informed on new capital works. The new Powerco connection process will be initiated with NZTA capital works contractors.	ASAP	

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

Audit commentary

The database contains fields for the street address, the displacement from the end of the road and GPS coordinates.

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 the manufacturers rated wattage and the ballast wattage. The extract provided has fields for lamp and gear make and model. All fields were complete and accurate.

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.

Audit commentary

The field audit did not identify any additional lights. The table below shows the field audit findings.

Road Name	Database Count	Field Count	Count differences	Wattage differences	Comments
SH2 / BRIDGEMAN LN INT	1	1	-	1	1 x LED (80W estimate) recorded as 150W HPS
SH2 / WILLOUGHBY RD INT	1	1	-	1	1 x 222W LED (2x111) recorded as 150W HPS
Katikati Bus Co	1	0	-1	-	1 x 150w HPS removed
GRAND TOTAL			-1	2	

Audit outcome

Compliant

2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

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

Audit observation

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

Audit commentary

The database tracks additions and removals as required by this clause. The “light install date” is used to identify the data lights are installed and the date lights are changed.

Audit outcome

Compliant

2.7. Audit trail (Clause 11(4) of Schedule 15.3)

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

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

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

Audit observation

The database was checked for audit trails.

Audit commentary

The database has a complete audit trail.

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

A field audit was conducted of all 262 lights.

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

Audit commentary

Field Audit Findings

As detailed in **sections 2.5 and 3.1**, the database data was 0.77% higher than the field data for Veritek's 100% field audit. This will result in over submission of approx. 1,332 kWh per annum. This is recorded as non-compliance.

Wattage and ballast accuracy findings

The database was checked against the published standardised wattage table and confirmed that ballasts applied, and lamp descriptions were correct.

Change management process findings

NZTA carry out all new project work in house. Westlink is provided with new lamp information once NZTA have closed the project. This is often some time after the lights have been electrically connected. Validation of this data occurs prior to being received by Westlink. I recommend that the process to update new lights is reviewed to ensure changes are made in a timely way.

Description	Recommendation	Audited party comment	Remedial action
Tracking of load change	Review process to update new lights in RAMM to ensure database accuracy.	Trustpower to initiate talks with NZTA to ensure new capital works are notified to Trustpower in a timely manner.	Identified

Horizon carries out the field maintenance for Westlink on behalf of NZTA and they update RAMM directly. Westlink have robust controls in their contract with Horizon and this ensures that field maintenance is captured in a timely and accurate manner.

The current monthly report includes an audit trail of lights removed, changed and added. Trustpower uses this information to ensure the current and earlier months have accurate submission.

There are no festive lights connected to the unmetered streetlight circuits and there are no private lights known of.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Sep-20 To: 21-Mar-21	The database data was 0.77% higher than the field data for Veritek's 100% field audit. This will result in over submission of 1,332 kWh per annum. Potential impact: Medium Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Westlink is not responsible for capital works and these updates can take several months, even several years.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Trustpower will initiate talks with NZTA Tga to be informed on new capital works. The new Powerco connection process will be initiated with NZTA capital works contractors.		ASAP	

3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

- volume information for the DUML is being calculated accurately
- profiles for DUML have been correctly applied.

Audit observation

The submission was checked for accuracy for the month the database extract was supplied. This included:

- checking the registry to confirm that the ICP has the correct profile and submission flag, and
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit commentary

Trustpower reconciles this DUML load using the STL profile. Trustpower receive monthly wattage reports. Submissions are based on the monthly wattage report, with on and off times derived from data logger information.

I recalculated the submissions for January 2021 using the data logger and database information. I confirmed that the calculation method and result was correct.

As detailed in **sections 2.5** and **3.1**, the database data was 0.77% higher than the field data for Veritek’s 100% field audit. This will result in over submission of approx. 1,332 kWh per annum. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 Clause 15.2 and 15.37B(c) From: 01-Sep-20 To: 21-Mar-21	The database data was 0.77% higher than the field data for Veritek’s 100% field audit. This will result in over submission of 1,332 kWh per annum. Potential impact: Medium Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Westlink is not responsible for capital works and these updates can take several months, even several years.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Trustpower will initiate talks with NZTA Tga to be informed on new capital works. The new Powerco connection process will be initiated with NZTA capital works contractors.		ASAP	

CONCLUSION

The RAMM database is managed by Westlink on behalf of NZTA and monthly reporting is provided to Trustpower. Westlink manage the maintenance contract, and the maintenance field work is carried out by Horizon. Any new work is managed by NZTA and once completed the information is passed to Westlink to update. Validation of this data occurs prior to being received by Westlink.

The main issue from the last audit was that the Te Puna roundabout lighting had not been updated in the database, despite being installed in late 2017 to early 2018. This matter is now resolved, and there were only minor errors identified.

The audit found three non-compliances and makes one recommendation. The future risk rating of six indicates that the next audit be completed in 18 months. Given the minor nature of the issues found, and that the Te Puna Roundabout issue is resolved, I recommend a 24 month audit period.

PARTICIPANT RESPONSE

Westlink processes have been improved and found to be very sound. Where they are the contractor and have responsibility for the data (excluding capital works), the data is accurate and the updates are done in a timely manner. There are no errors in the database at all, all wattages, descriptions and gear wattages are complete and accurate.

Westlink is not responsible for capital works and these updates can take several months, even several years. The two items found to have been changed from what was recorded in the database were done during the Capital works project and were not notified to WEstLink. The third item, (ground upright at Haiku Path Katikati) is still there so should be removed as a non-compliance.

The main issue with NZTA Tga is the uptake of new capital works, with the current works being carried out on SH2 north of Katikati. While streetlight plans are prepared there are some instances where these plans change on site due to various reasons.

Trustpower has arranged to meet with NZTA Network Managers and discuss what is required for the installation of new lights and the new connection procedure that is required by Powerco. New connections can be planned and notified as the intention to install and this may not happen for several months and may change for some reason. Once Trustpower is informed of the planned installations then Powerco and Westlink can be informed of the future installations even though they may change from time to time.

It is appropriate that WestLink have at least a 24 month audit period.