ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

NZTA WAIRARAPA AND GENESIS ENERGY LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 13 May 2021

Date audit report completed: 26 May 2021

Audit report due date: 1 June 2021

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EXECUTIVE SUMMARY

This audit of the **NZTA Wairarapa** DUML database and processes was conducted at the request of **Genesis Energy Limited (Genesis)** 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 scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information.

A Microsoft Access database is held by Dave Patten, on behalf of NZTA. This is the audited database. Dave maintains this database in his capacity as a contractor to Power Services Wairarapa (PSW). PSW complete all fieldwork for the NZTA lights, with assistance from Fulton Hogan as required e.g. if repairs are needed following a major incident such as a pole being knocked down. When changes are made, PSW inform Dave Patten via email, who updates the Access database. Fulton Hogan is also advised, and they update RAMM for completeness. RAMM is not used for DUML processes for NZTA Wairarapa.

A field audit was conducted of all 41 items of load connected to the GYT0331 GXP. 100% accuracy was confirmed.

The registry has the profile of CST recorded for ICP 0666002555PC35F. A data logger is required to accurately calculate the hours where the profile of CST is being used. The registry information is being used to calculate submission. Genesis intends to start using the access database held by Dave Patten to reconcile this load. This will clear this non-compliance.

I reviewed the submission information for April 2021 and confirmed this to be correct.

Three non-compliances were identified, and no recommendations were raised. The future risk rating of seven indicates that the next audit be completed in 18 months. Given the minor nature of the discrepancies identified, I agree with this recommendation.

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	Submissions are not calculated based on database information. Incorrect use of the CST profile for ICP 0666002555PC35F. The use of the registry figures for reconciliation does not track changes at a daily basis.	Weak	Low	3	Identified
Audit trails	2.7	11(4) of Schedule 15.3	The available audit trails do not specify: 1) the user who made the data change, and 2) the date and time of the data change.	Strong	Low	1	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Submissions are not calculated based on database information. Incorrect use of the CST profile for ICP 0666002555PC35F. The use of the registry figures for reconciliation does not track changes at a daily basis.	Weak	Low	3	Identified
Future Risk Rating						7	

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
		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

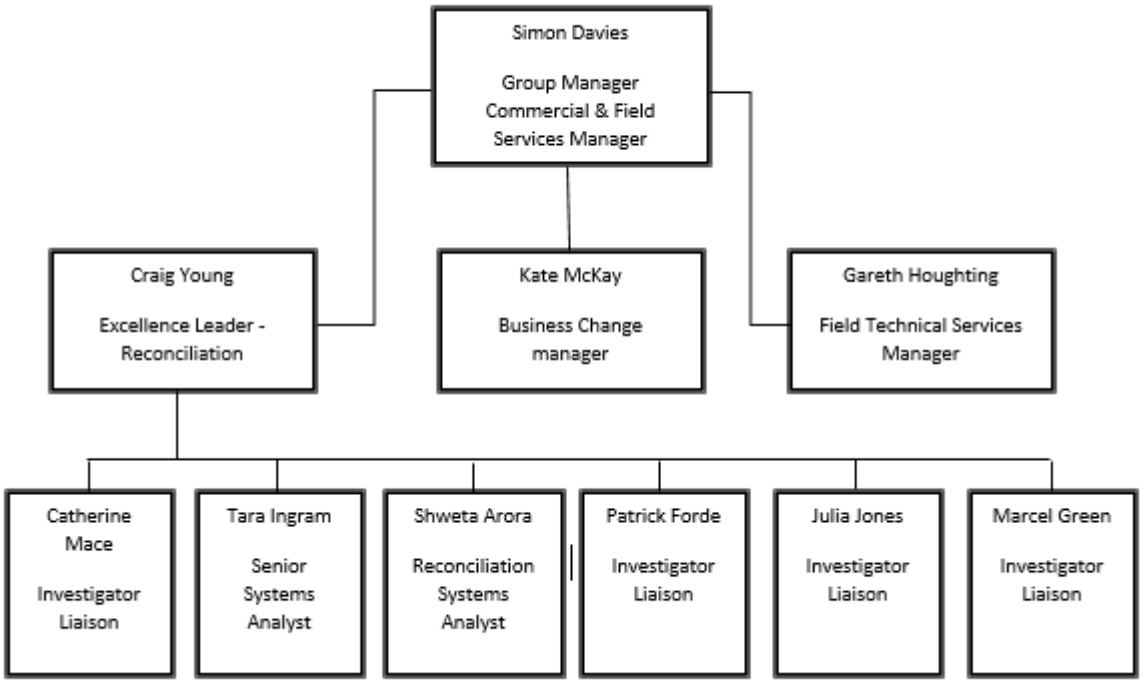
Current code exemptions were reviewed on the Electricity Authority website.

Audit commentary

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

1.2. Structure of Organisation

Genesis 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
Dave Patten	Project Manager	Sole Trader
Craig Young	Excellence Leader- Reconciliation	Genesis Energy

1.4. Hardware and Software

The Microsoft Access database used for the management of DUML is hosted by Dave Patten. Dave is a sole trader and confirmed that the database back-up is in accordance with standard industry procedures, to a separate hard drive. Access to the database is restricted to Dave Patten.

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

The NZTA Wairarapa DUML database contains two ICPs, which are currently supplied by different retailers. This audit report considers only 0666002555PC35F, which is supplied by Genesis.

ICP Number	Description	Trader	NSP	Profile	Number of items of load	Database wattage (watts)
0666002555PC35F	OFF POLE 818826 STATE HIGHWAY 2	GENE	GYT0331	UNM	41	6,787
Total					41	6,787

1.7. Authorisation Received

All information was provided directly by Genesis, Dave Patten.

1.8. Scope of Audit

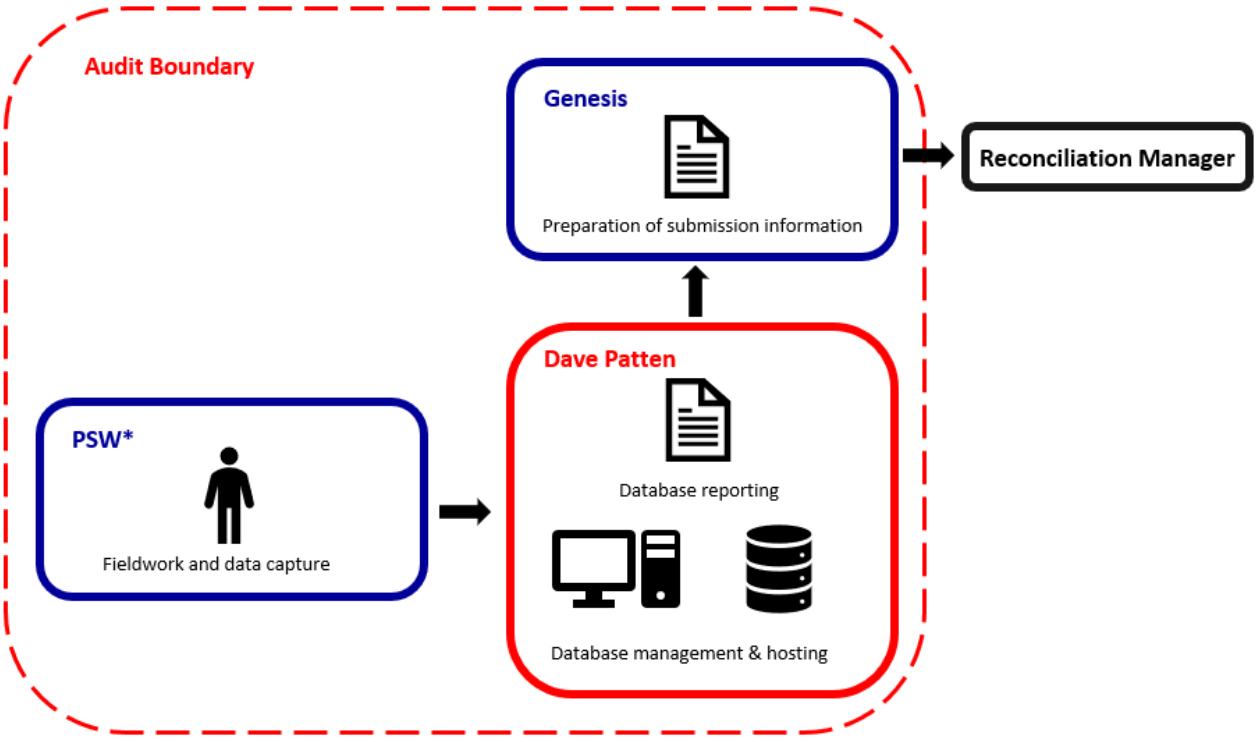
This audit of the NZTA Wairarapa DUML database and processes was conducted at the request of Genesis in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

A Microsoft Access database is held by Dave Patten, on behalf of NZTA. This is the audited database. Dave maintains this database in his capacity as a contractor to Power Services Wairarapa (PSW). PSW complete all fieldwork for the NZTA lights, with assistance from Fulton Hogan as required e.g. if repairs are needed following a major incident such as a pole being knocked down. When changes are made, PSW inform Dave Patten via email, who updates the Access database. Fulton Hogan is also advised, and they update RAMM for completeness. RAMM is not used for DUML processes for NZTA Wairarapa.

Genesis reconciles the DUML load using the CST profile, based on the registry unmetered load details. The registry information is being used to calculate submission. Genesis intends to start using the access database held by Dave Patten to reconcile this load.

In the last audit it was noted that the NZTA Wairarapa DUML database contained two ICPs, which are supplied by different retailers. This audit report considers only ICP 0666002555PC35F, which is supplied by Genesis. ICP 0020909000WR49A is part of a larger NZTA project underway. This ICP is expected to be decommissioned as part of the project to consolidate the data sources into one RAMM database. The audit of the that NZTA database is expected to confirm that the items of load previously associated with that ICP are recorded. There has been no discussion of ICP 0666002555PC35F being included in the new NZTA database at this point in time.

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 boundaries for clarity.



*with assistance from Fulton Hogan as required

A field audit was conducted of all 41 items of load connected to the GYT0331 GXP on 19 May 2021.

1.9. Summary of previous audit

The previous audit of this database was undertaken by Tara Gannon of Veritek Limited in April 2020. The summary table below shows the statuses of the non-compliances raised in the previous audit. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Submissions are not calculated based on database information. 32 items of load with Powerco GXP = TP Greytown had 0020909000WR49A (MST0331) recorded, but instead should have 0666002555PC35F (GYT0331).	Still existing Cleared except for one item of load
Audit trails	2.7	11(4) of Schedule 15.3	The available audit trails do not specify: 1) the user who made the data change, and 2) the date and time of the data change.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	32 items of load with Powerco GXP = TP Greytown had 0020909000WR49A (MST0331) recorded, but instead should have 0666002555PC35F (GYT0331).	Cleared except for one item of load
Volume information accuracy	3.2	15.2 and 15.37B(c)	Submissions are not calculated based on database information. 32 items of load with Powerco GXP = TP Greytown had 0020909000WR49A (MST0331) recorded, but instead should have 0666002555PC35F (GYT0331).	Still existing Cleared except for one item of load

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

Genesis 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

The registry has the profile of CST recorded for ICP 0666002555PC35F. A data logger is required to accurately calculate the hours where the profile of CST is being used. The registry information is being used to calculate submission. Genesis intends to start using the access database to reconcile this load and a data logger. The use of the incorrect profile for ICP 0666002555PC35F is recorded as non-compliance below and in **section 3.2**.

The registry has been updated since the last audit. I reviewed the submission information for April 2021 and compared it to the registry and the database kW value and found a very minor difference that is likely due to timing differences rather than an incorrect kW value being used.

The field audit confirmed that the database is within the accuracy thresholds. This is discussed in **section 3.1**.

The previous audit found some inaccurate ICP numbers were identified in the database, but there is no impact on submission because the database is not used. 32 of the 41 items of load with Powerco GXP = TP Greytown had ICP 0020909000WR49A recorded. This was checked and found only one item of load with the incorrect ICP was recorded against one lamp in the database. There is no impact on submission because the database is not used but this will need correcting prior to the database being used.

The registry is used based on intermittent database updates provided. This does not track load changes at a daily level. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 17-Apr-20 To: 13-May-21	Submissions are not calculated based on database information. Incorrect use of the CST profile for ICP 0666002555PC35F. The use of the registry figures for reconciliation does not track changes at a daily basis. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak because the database information is not used for submission. The risk is low as the registry figures used are closely aligned with the database figures.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis continues to work with the third-party contractor and the NZTA to gain reporting completeness enabling accurate submissions. Genesis will be seeking a logger to mitigate the current compliance issue with the use of CST to meet the current guidelines.	01/07/2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis has been working with both NZTA and the contractor to facilitate better data reporting. Where the reporting previously has been from a spreadsheet, it has in more recent times been NZTA's work stream to include these assets in their RAMM database contracted to Fulton Hogan. Genesis Energy will be requesting the logger for the region to be supplied by EMS to try and mitigate this highlighted instance of non-compliance. Failing to do obtain the logger data, would mean there is no correct profile to be used as all other profiles available also misrepresent the hours the energy is consumed. This is potentially a floor that the duml regime has and it would mean to accurately settle volumes, all customers would then need a golden meter to determine their assets burn times and their own settlement profiles. The Logger also could potentially have a 30 min Margin of error due to its location. Completion date is unknown, however requesting the logger for the settlement use in 01/07/2021 and historical washups as required.	Unknown	

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 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 the correct ICP was recorded against each item of load.

Audit commentary

An ICP and GXP is recorded for each item of load in the database. The accuracy of ICP identifiers is discussed in **sections 2.1, 3.1** and **3.2**.

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 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

The database contains a street address and location for each item of load. I was able to locate all items of load during the field audit.

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 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 light type and wattage capacity,
- wattage capacities include any ballast or gear wattage, and
- each item of load has a light type, light wattage, and gear wattage recorded.

Audit commentary

A lamp description and size (including make and model) and lamp and gear wattages are recorded in the database for all items of load.

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

Audit observation

A field audit was conducted of all 41 items of load connected to the GYT0331 GXP on 19 May 2021.

Audit commentary

The field audit did not find any differences between the information recorded in the database, and the lights present in the field.

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 functionality achieves compliance with the code. The database records a "last changed date" which indicates the date that the work was carried out, and it is possible to retrospectively determine the lights that were installed on a given date using this information.

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 Access database does not contain an audit trail, but before and after values are maintained within the database, and also retained in the monthly database extracts.

The detail sheets of the database extracts have an audit trail, which includes the new values and last lamp change date. The summary sheet contains notes briefly describing changes since the last database extract.

Non-compliance is recorded because:

1) the user is not specified, but only Dave Patten maintains the database, and
2) the date and time of the data change is not specified, only the date of the physical lamp change.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.7 With: Clause 11(4) of Schedule 15.3 From: 17-Apr-20 To: 14-May-21	The available audit trails do not specify: 3) the user who made the data change, and 4) the date and time of the data change. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as strong, because the user who made the change and the approximate date and time of the change can be determined from other information which is available. The impact is assessed to be low based on the nature and type of non-compliance, and because only one user is maintaining the database.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has requested the use of RAMM for the reporting of streetlighting assets monthly	01/06/2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
It is Genesis expectation that once the reporting has been established from RAMM, that the RAMM database should be able to track the changes and the reporting to be supplied monthly enabling the calculation of energy volumes @ asset level for any given day.	01/07/2021	

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 full field audit was undertaken.

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

Field audit findings

All lights recorded in the database were surveyed in the field, and the database was found to be 100% accurate.

Light description and capacity accuracy

As discussed in **section 2.4**, a lamp description and size (including make and model) and lamp and gear wattages are recorded in the database for all items of load. All information was found to be correct.

ICP number accuracy

The database records the Powerco GXP description, ICP, and location for each item of load. The previous audit found some inaccurate ICP numbers were identified in the database, but there is no impact on submission because the database is not used. 32 of the 41 items of load with Powerco GXP = TP Greytown had ICP 0020909000WR49A recorded. This was checked and found only one item of load with the incorrect ICP was recorded against one lamp in the database. There is no impact on submission because the database is not used but this will need correcting prior to the database being used.

Change management process findings

PSW complete all fieldwork for the NZTA lights, with assistance from Fulton Hogan as required e.g. if repairs are needed following a major incident such as a pole being knocked down. When changes are made, PSW inform Dave Patten via email, who updates the database. There are very few new connections or changes.

Night patrols are completed monthly by Dave Patten, who reports any maintenance issues arising to PSW. The normal email process is followed to advise Dave of any changes made.

The database records a “last changed date” which indicates the date that the work was carried out, and it is possible to retrospectively determine the lights that were installed on a given date using this information.

NZTA are planning to do a LED roll-out for this GXP, there is no timeframe currently for this.

Festive and private lights

There are no private or festive lights for NZTA Wairarapa.

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, and
- checking the database extract combined with the on hours against the submitted figure to confirm accuracy.

Audit commentary

The registry has the profile of CST recorded for ICP 0666002555PC35F. A data logger is required to accurately calculate the hours where the profile of CST is being used. The registry information is being used to calculate submission. Genesis intends to start using the access database to reconcile this load and a data logger. The use of the incorrect profile for ICP 0666002555PC35F is recorded as non-compliance below and in **section 3.2**.

The registry has been updated since the last audit. I reviewed the submission information for April 2021 and compared it to the registry and the database kW value and found a very minor difference that is likely due to timing differences rather than an incorrect kW value being used.

The field audit confirmed that the database is within the accuracy thresholds. This is discussed in **section 3.1**.

The previous audit found some inaccurate ICP numbers were identified in the database, but there is no impact on submission because the database is not used. 32 of the 41 items of load with Powerco GXP = TP Greytown had ICP 0020909000WR49A recorded. This was checked and found only one item of load with the incorrect ICP was recorded against one lamp in the database. There is no impact on submission because the database is not used but this will need correcting prior to the database being used.

The registry is used based on intermittent database updates provided. This does not track load changes at a daily level. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 17-Apr-20 To: 13-May-21	Submissions are not calculated based on database information. Incorrect use of the CST profile for ICP 0666002555PC35F. The use of the registry figures for reconciliation does not track changes at a daily basis. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak because the database information is not used for submission. The controls over database accuracy are rated as moderate. The risk is low as the registry figures used are closely aligned with the database figures.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis continues to work with the third-party contractor and the NZTA to gain reporting completeness enabling accurate submissions. Genesis will be seeking a logger to mitigate the current compliance issue with the use of CST to meet the current guidelines. The monthly reporting from RAMM is to be established by the customer enabling completeness.	01/07/2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis has been working with both NZTA and the contractor to facilitate better data reporting. Where the reporting previously has been from a spreadsheet, it has in more recent times been NZTA's work stream to include these assets in their RAMM database contracted to Fulton Hogan. Genesis will be requesting the logger for the region to be supplied by EMS to try and mitigate this highlighted instance of non-compliance. Failing to do obtain the logger data, would mean there is no correct profile to be used as all other profiles available also miss represents the hours the energy is consumed. This is potentially a floor that the duml regime has and it would mean to accurately settle volumes, all customers would then need a golden meter to determine their assets burn times and their own settlement profiles. As the Logger also could potentially have a 30 min Margin of error due to its location. Completion date is unknown, however requesting the logger for the settlement use in 01/07/2021 and historical washups as required.	unknown	

CONCLUSION

A Microsoft Access database is held by Dave Patten, on behalf of NZTA. This is the audited database. Dave maintains this database in his capacity as a contractor to Power Services Wairarapa (PSW). PSW complete all fieldwork for the NZTA lights, with assistance from Fulton Hogan as required e.g. if repairs are needed following a major incident such as a pole being knocked down. When changes are made, PSW inform Dave Patten via email, who updates the Access database. Fulton Hogan is also advised, and they update RAMM for completeness. RAMM is not used for DUML processes for NZTA Wairarapa.

A field audit was conducted of all 41 items of load connected to the GYT0331 GXP. 100% accuracy was confirmed.

The registry has the profile of CST recorded for ICP 0666002555PC35F. A data logger is required to accurately calculate the hours where the profile of CST is being used. The registry information is being used to calculate submission. Genesis intends to start using the access database held by Dave Patten to reconcile this load. This will clear this non-compliance.

I reviewed the submission information for April 2021 and confirmed this to be correct.

Three non-compliances were identified, and no recommendations were raised. The future risk rating of seven indicates that the next audit be completed in 18 months. Given the minor nature of the discrepancies identified, I agree with this recommendation.

PARTICIPANT RESPONSE

The current asset reporting is used to update the registry. Therefore, they are closely aligned. The process will change once the logger and RAMM data is received, although Genesis can implement this change once the logger is provided and update the registry accordingly. The logger will also remove the issue around the use of the CST profile.

The monthly reporting, Genesis Energy will work with the NZTA contractor to ensure the change information is being catered for on a monthly basis.