

ELECTRICITY INDUSTRY PARTICIPATION CODE  
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

QUEENSTOWN LAKES DISTRICT COUNCIL  
AND GENESIS ENERGY  
NZBN: 9429037706609

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Audit report due date: 01-Mar-23

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## TABLE OF CONTENTS

Executive summary .....	3
Audit summary .....	4
Non-compliances .....	4
Recommendations .....	4
Issues .....	4
1. Administrative .....	5
1.1. Exemptions from Obligations to Comply with Code .....	5
1.2. Structure of Organisation .....	5
1.3. Persons involved in this audit.....	6
1.4. Hardware and Software .....	6
1.5. Breaches or Breach Allegations.....	6
1.6. ICP Data .....	6
1.7. Authorisation Received .....	7
1.8. Scope of Audit .....	7
1.9. Summary of previous audit .....	8
1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F) .....	9
2. DUML database requirements .....	10
2.1. Deriving submission information (Clause 11(1) of Schedule 15.3) .....	10
2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) 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 and capacity of load (Clause 11(2)(c) and (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) .....	12
2.7. Audit trail (Clause 11(4) of Schedule 15.3).....	13
3. Accuracy of DUML database .....	14
3.1. Database accuracy (Clause 15.2 and 15.37B(b)) .....	14
3.2. Volume information accuracy (Clause 15.2 and 15.37B(c)) .....	15
Conclusion .....	17
Participant response .....	18

## EXECUTIVE SUMMARY

This audit of the **Queenstown Lakes District Council (QLDC)** streetlight DUMML 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 DUMML audits version 1.1.

The database is remotely hosted by thinkproject New Zealand Limited. QLDC provide a monthly report to Genesis of this database. Wattages are derived from a RAMM database extract. On and off times are derived from a data logger.

QLDC's contractor for streetlight installation and maintenance is McKay Electrical.

I compared the submission information for the November 2022 submissions and confirmed that the calculation methodology was correct. I checked the submission calculation provided by Genesis against the data extract and confirm the submission is accurate.

The field audit was undertaken of a statistical sample of 339 items of load. The field audit was undertaken on 30<sup>th</sup> January 2023. This found that the database is within the allowable +/-5% accuracy threshold.

The audit found no non-compliances and repeats one recommendation. The future risk rating of 0 indicates that the next audit be completed in 36 months I have considered this in conjunction with Genesis's responses and recommend that the next audit be in 36 months.

The matters raised are detailed below:

## AUDIT SUMMARY

### NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			Nil				
Future Risk Rating							

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

### RECOMMENDATIONS

Subject	Section	Recommendation
Tracking of load change	3.1	Genesis to liaise with QLDC, Aurora and PowerNet to review the electrical connection of streetlights.

### 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

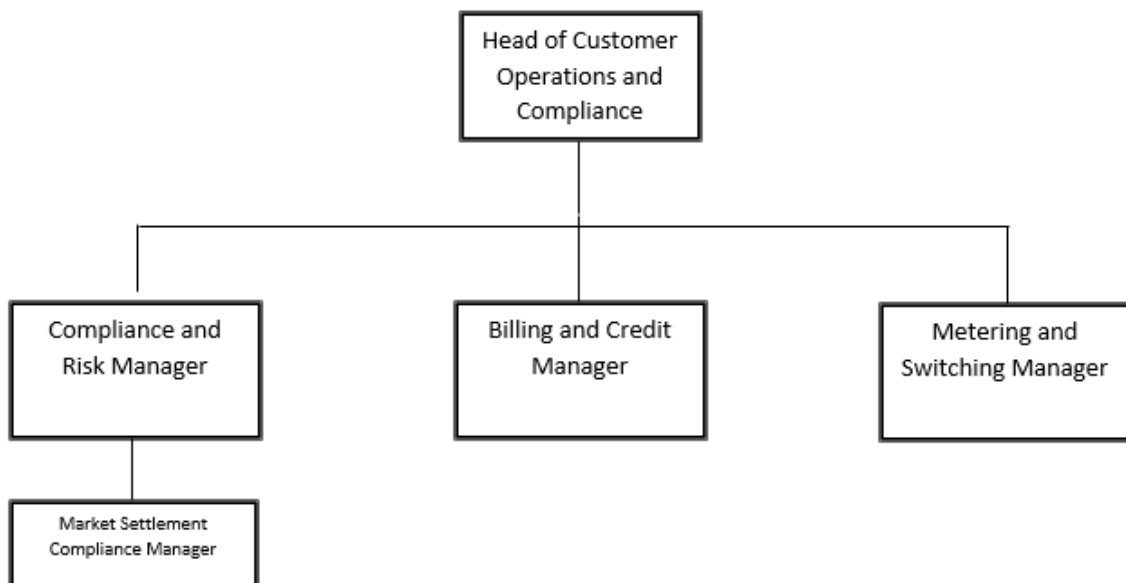
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

#### Audit commentary

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

### 1.2. Structure of Organisation

Genesis provided the relevant organisational structure:



### 1.3. Persons involved in this audit

Auditors:

Name	Company	Role
Steve Woods	Veritek Limited	Lead Auditor
Claire Stanley	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Organisation
Roger Hughes	Contract Data Engineer	QLDC
Nirav Teli	DUML Data & Stakeholder Lead	Genesis Energy

### 1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Limited. The database is commonly known as “RAMM” which stands for “Road Assessment and Maintenance Management”. The specific data used for DUML is held in the Streetlight tables. thinkproject New Zealand Limited backs up the database and assists with disaster recovery as part of their hosting service.

Pocket RAMM is used in the field by McKay Electrical.

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	NSP	Number of items of load	Database wattage (watts)
0000027637CE36B	Frankton	FKN0331	2,206	101,548
0000480064CEA92	QLDC lights Lakeview subdivision	CML0331	2,247	109,374
0000950000LN0EC	KINGSTON	FKN0331	857	43,470
0000990001LN819	CROMWELL GXP	NLK0111	308	7,856
0008801006TP2A7	FRANKTON GXP	NMA0331	56	1,382
TOTAL			5,674	263,630

## 1.7. Authorisation Received

All information was provided directly by Genesis and QLDC.

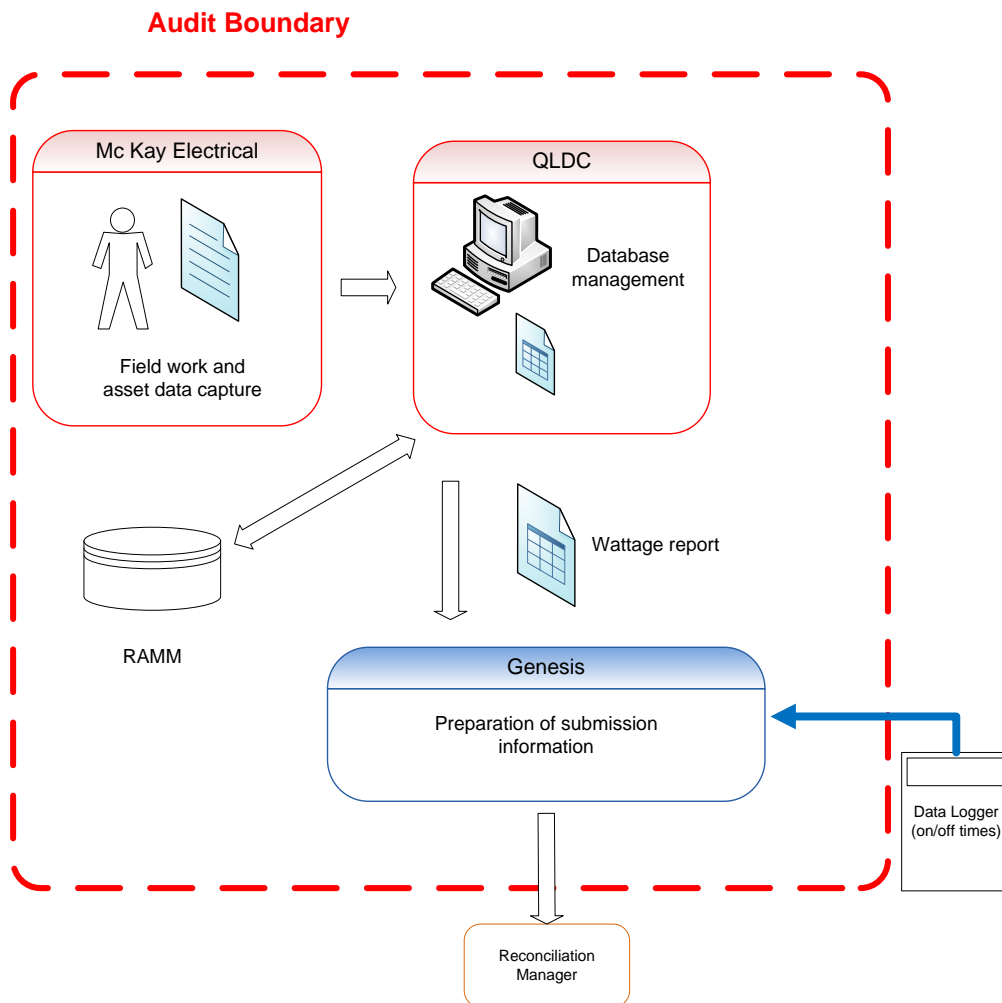
## 1.8. Scope of Audit

This audit of the **Queenstown Lakes District Council (QLDC)** streetlight 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.

Fault, and maintenance work is completed by McKay Electrical. Pocket RAMM is used in the field to issue work and record changes in the field into RAMM.

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the monthly reporting. The diagram below shows the flow of information and the audit boundary for clarity.



The field audit was undertaken of 339 lights using the statistical sampling methodology on the 30<sup>th</sup> January 2023.

## 1.9. Summary of previous audit

The previous audit report conducted for Genesis Energy in February 2022 by Rebecca Elliot of Veritek Limited was reviewed. Five non-compliances were recorded, and one recommendation was made. The current status of these are detailed below:

### Table of Non-compliances

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Variance between database extract and volume submitted for ICP 0000027637CE36B of 2,769 kWh for the month of November 2021. Estimated annual impact on submission of 33,228 kWh over submission.	Cleared
			Database is not confirmed as accurate with a 95% level of confidence. In absolute terms, total annual consumption is estimated to be 18,600 kWh higher than the DUML database indicates as recorded in <b>section 3.1</b>	Cleared
All load recorded in database	2.5	11(2A) and (d) of Schedule 15.3	Six additional items of load found in the field of 316 items of load sampled.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	Variance between database extract and volume submitted for ICP 0000027637CE36B of 2,769 kWh for the month of November 2021. Estimated annual impact on submission of 33,228 kWh over submission.	Cleared
			Database is not confirmed as accurate with a 95% level of confidence. In absolute terms, total annual consumption is estimated to be 18,600 kWh higher than the DUML database indicates.	Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	Database is not confirmed as accurate with a 95% level of confidence. In absolute terms, total annual consumption is estimated to be 18,600 kWh higher than the DUML database indicates as recorded in <b>section 3.1</b>	Cleared

### Table of Recommendations

Subject	Section	Recommendation	Status
Deriving submission information	2.1	Genesis to investigate the discrepancy identified for ICP 0000027637CE36B. The kW value for November 2021 is 2769 kW higher than the database value indicates.	Cleared
Tracking of load change	3.1	Genesis to liaise with QLDC, Aurora and PowerNet to review the electrical connection of streetlights.	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**

Genesis has 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. 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

Genesis reconciles this DUMML load as NHH using the SST profile, and on hours are derived using data logger information.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from the QLDC RAMM database and the “burn time” which is sourced from data logger. The methodology is compliant.

I compared the submission information for the November 2022 submissions and confirmed that the calculation methodology was correct. I checked the submission calculation provided by Genesis against the data extract and confirm the submission is accurate.

The previous audit identified a difference between the submission values and the database extract provided for the audit for ICP 0000027637CE36B. This was corrected via the usual reconciliation revision processes.

The field audit indicated that the database was within the allowable +/-5% variance threshold and is therefore deemed to be accurate. This is discussed in **section 3.1**.

The monthly report is provided with changes made through the month. The database contains a “light date added” and a “lamp date changed”. Genesis calculates the load from the date the light is added (vested), changed or removed. Revisions are completed where corrections are required.

#### Audit outcome

Compliant

### 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 an ICP was recorded against each item of load.

#### **Audit commentary**

An ICP is recorded for all items of load.

#### **Audit outcome**

Compliant

### 2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)

#### **Code reference**

*Clause 11(2)(b) of Schedule 15.3*

#### **Code related audit information**

*The DUMML database must contain the location of each DUMML item.*

#### **Audit observation**

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

#### **Audit commentary**

The database contains fields for the street address and GPS coordinates for each item of load.

#### **Audit outcome**

Compliant

### 2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)

#### **Code reference**

*Clause 11(2)(c) and (d) of Schedule 15.3*

#### **Code related audit information**

*The DUMML database must contain:*

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

#### **Audit observation**

The database was checked to confirm that:

- it contained a field for 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**

The extract provided has fields for lamp type, lamp model as well as lamp wattage and gear wattage, all were populated.

The accuracy of the lamp wattages and ballasts is discussed in **section 3.1**.

#### **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

The field audit was undertaken of a statistical sample of 339 items of load. The field audit was undertaken on 30<sup>th</sup> January 2023.

The population was divided into the following strata:

- Arrowtown,
- Queenstown,
- Wanaka, and
- Rural.

### Audit commentary

The wattage is recorded correctly in the database for the sample of lights checked. There were no items missing from the database, and no additional lights were identified in the field.

The accuracy of the database is discussed in **section 3.1**.

### 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 RAMM database functionality achieves compliance with the code.

### Audit outcome

Compliant

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

### **Code reference**

*Clause 11(4) of Schedule 15.3*

### **Code related audit information**

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

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

### **Audit observation**

The RAMM database was checked for audit trails.

### **Audit commentary**

RAMM has a complete audit trail of all additions and changes to the database information.

### **Audit outcome**

Compliant

### 3. ACCURACY OF DUMML 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 DUMML database is complete and accurate.

##### Audit observation

The DUMML Statistical Sampling Guideline was used to determine the database accuracy. The table below shows the survey plan.

Plan Item	Comments
Area of interest	Queenstown Lakes District Council Area
Strata	The database contains items of load in Queenstown Lakes District Area. The processes for the management of all QLDC items of load are the same, the population was across four strata: <ul style="list-style-type: none"><li>• Arrowtown,</li><li>• Queenstown,</li><li>• Wanaka, and</li><li>• rural.</li></ul>
Area units	I created a pivot table of the roads in each area, and I used a random number generator in a spreadsheet to select a total of 50 sub-units.
Total items of load	339 items of load were checked.

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

The change management process to track changes and timeliness of database updates was evaluated.

##### Audit commentary

##### Field audit findings

A field audit was conducted of a statistical sample of 339 items of load.

The wattage is recorded correctly in the database for the items of load in the field audit. There were no items missing from the database, and no additional lights were identified in the field.

##### Lamp description and capacity accuracy

As discussed in **section 2.4**, all items of load have a gear model, light model, light wattage and gear wattage recorded, and no items have invalid zero lamp or gear wattages.

##### Change Management

The processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance.

There has not been any change to the existing processes for fault, and maintenance work, it is completed by McKay Electrical. Pocket RAMM is used in the field to issue work and record changes in the field into RAMM.

Any new streetlight connections on the PowerNet sections of the network are notified to QLDC. This gives QLDC notification of new assets being connected. These assets are not added to the RAMM database until the 224C notification has been received. This is often after electrical connection has occurred. In addition to this, notification from other parts of council can be slow to be provided, causing the database to be updated late.

As reported in the previous audits, no notifications are received for new connections on the Aurora network. I have repeated the previous audit’s recommendation that Genesis liaise with QLDC, Aurora and PowerNet to review the electrical connection of streetlight circuits. There have been no known changes, and as below they will be identified by the full field audit underway.

Recommendation	Description	Audited party comment	Remedial action
Tracking of load change	Genesis to liaise with QLDC, Aurora and PowerNet to review the electrical connection of streetlights.	Genesis will notify Aurora of the auditor’s findings with an intent that Aurora makes every effort to review the process.	Identified

McKay Electrical are still working through the full field audit, the completion of this audit was delayed by COVID 19. The contractors are using Pocket RAMM to collect details and update RAMM.

McKay Electrical undertake monthly outage and condition patrols.

The QLDC LED rollout is largely complete except for some of the V category and decorative lights. Where a lamp requires replacing an LED lamp will be installed, this is expected to happen over a number of years as budget allows.

Festive lights are all metered.

**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 all ICPs have 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**

Genesis reconciles this DUML load as NHH using the SST profile, and on hours are derived using data logger information.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from the QLDC RAMM database and the “burn time” which is sourced from data logger. The methodology is compliant.

I compared the submission information for the November 2022 submissions and confirmed that the calculation methodology was correct. I checked the submission calculation provided by Genesis against the data extract and confirm the submission is accurate.

The previous audit identified a difference between the submission values and the database extract provided for the audit for ICP 0000027637CE36B. This was corrected via the usual reconciliation revision processes.

The field audit indicated that the database was within the allowable +/-5% variance threshold and is therefore deemed to be accurate. This is discussed in **section 3.1**.

The monthly report is provided with changes made through the month. The database contains a “light date added” and a “lamp date changed”. Genesis calculates the load from the date the light is added (vested), changed or removed. Revisions are completed where corrections are required.

#### **Audit outcome**

Compliant



## CONCLUSION

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

The database is remotely hosted by thinkproject New Zealand Limited. QLDC provide a monthly report to Genesis of this database. Wattages are derived from a RAMM database extract. On and off times are derived from a data logger.

QLDC's contractor for streetlight installation and maintenance is McKay Electrical.

I compared the submission information for the November 2022 submissions and confirmed that the calculation methodology was correct. I checked the submission calculation provided by Genesis against the data extract and confirm the submission is accurate.

The field audit was undertaken of a statistical sample of 339 items of load. The field audit was undertaken on 30<sup>th</sup> January 2023. This found that the database is within the allowable +/-5% accuracy threshold.

The audit found no non-compliances and repeats one recommendation. The future risk rating of 0 indicates that the next audit be completed in 36 months I have considered this in conjunction with Genesis's responses and recommend that the next audit be in 36 months.

## PARTICIPANT RESPONSE

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