

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

GORE DISTRICT COUNCIL AND PIONEER
ENERGY

Prepared by: Rebecca Elliot

Date audit commenced: 1 December 2019

Date audit report completed: 2 March 2020

Audit report due date: 08-Mar-20

TABLE OF CONTENTS

Executive summary	3
Audit summary	4
Non-compliances	4
Recommendations	6
Issues 6	
1. Administrative	7
1.1. Exemptions from Obligations to Comply with Code	7
1.2. Persons involved in this audit.....	7
1.3. Structure of Organisation	8
1.4. Hardware and Software	9
1.5. Breaches or Breach Allegations.....	9
1.6. ICP Data	9
1.7. Authorisation Received	9
1.8. Scope of Audit	9
1.9. Summary of previous audit	10
1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F).....	11
2. DUML database requirements.....	12
2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)	12
2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)	13
2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)	14
2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)	14
2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)	15
2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)	17
2.7. Audit trail (Clause 11(4) of Schedule 15.3).....	18
3. Accuracy of DUML database	19
3.1. Database accuracy (Clause 15.2 and 15.37B(b))	19
3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))	23
Conclusion	25
Participant response	26

EXECUTIVE SUMMARY

This audit of the Gore District Council (GDC) DUML database and processes was conducted at the request of Pioneer Energy Limited (Pioneer), 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.

Previously this ICP was included in the Meridian GDC DUML audit. Pioneer gained ICP 0008801007TPEE2 from 1/05/19, therefore this is the first audit undertaken for Pioneer. Due to historical pricing arrangements, Pioneer bills the Power Company Ltd for the former Gore Borough Council (Gore township) lighting at commercial rates, and the Power Company Ltd on charges GDC at the agreed historic rate of a penny per unit.

The database is relatively static, but the errors found in previous audits were still present in this audit. Overall the processes in place to manage the database are robust, but historic errors need to be corrected to improve the accuracy. The personnel managing this in GDC are in the process of being replaced due to staff attrition. It will take time for new staff to come up to speed with the management of streetlights.

The field audit was undertaken of a statistical sample of 134 items of load on 17th February 2020. This found the same issue as was recorded in the last audit completed for Meridian. The under verandah fluorescent lights have been recorded with the incorrect wattages. The database accuracy fell outside of the allowable +/-5% variance threshold. I repeat the last audit's recommendation that these be audited to correct the wattages. This will greatly improve the database accuracy.

The audit found five non-compliances and makes one recommendation. The future risk rating of 26 indicates that the next audit be completed in three months. I have considered this in conjunction with Pioneer's comments and recommend that the next audit be undertaken in nine months. This should allow sufficient time for new staff to be recruited and trained.

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	<p>The database accuracy is assessed to be 120.9% of the database for the sample checked indicating a potential under submission of approximately 26,800 kWh per annum.</p> <p>Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM and therefore not reconciled.</p> <p>Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p>	Moderate	High	6	Identified
Description of lights	2.4	11(2)(c) of Schedule 15.3	Two items of load with insufficient light descriptions	Moderate	Low	2	Identified
All load recorded in the database	2.5	11(2A) of Schedule 15.3	<p>12 additional lights found in the field.</p> <p>Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM.</p>	Moderate	High	6	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database accuracy	3.1	15.2 and 15.37B(b)	<p>The database accuracy is assessed to be 120.9% of the database for the sample checked indicating a potential under submission of approximately 26,800 kWh per annum.</p> <p>Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM.</p> <p>Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.</p>	Moderate	High	6	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	<p>The database accuracy is assessed to be 120.9% of the database for the sample checked indicating a potential under submission of approximately 26,800 kWh per annum.</p> <p>Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM and therefore not reconciled.</p> <p>Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p>	Moderate	High	6	Identified
Future Risk Rating						26	

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
Database accuracy	3.1	Audit all under verandah lighting to confirm the correct fluorescent lamp values are recorded in RAMM.

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

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 commentary

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

1.2. Persons involved in this audit

Auditor:

Rebecca Elliot

Veritek Limited

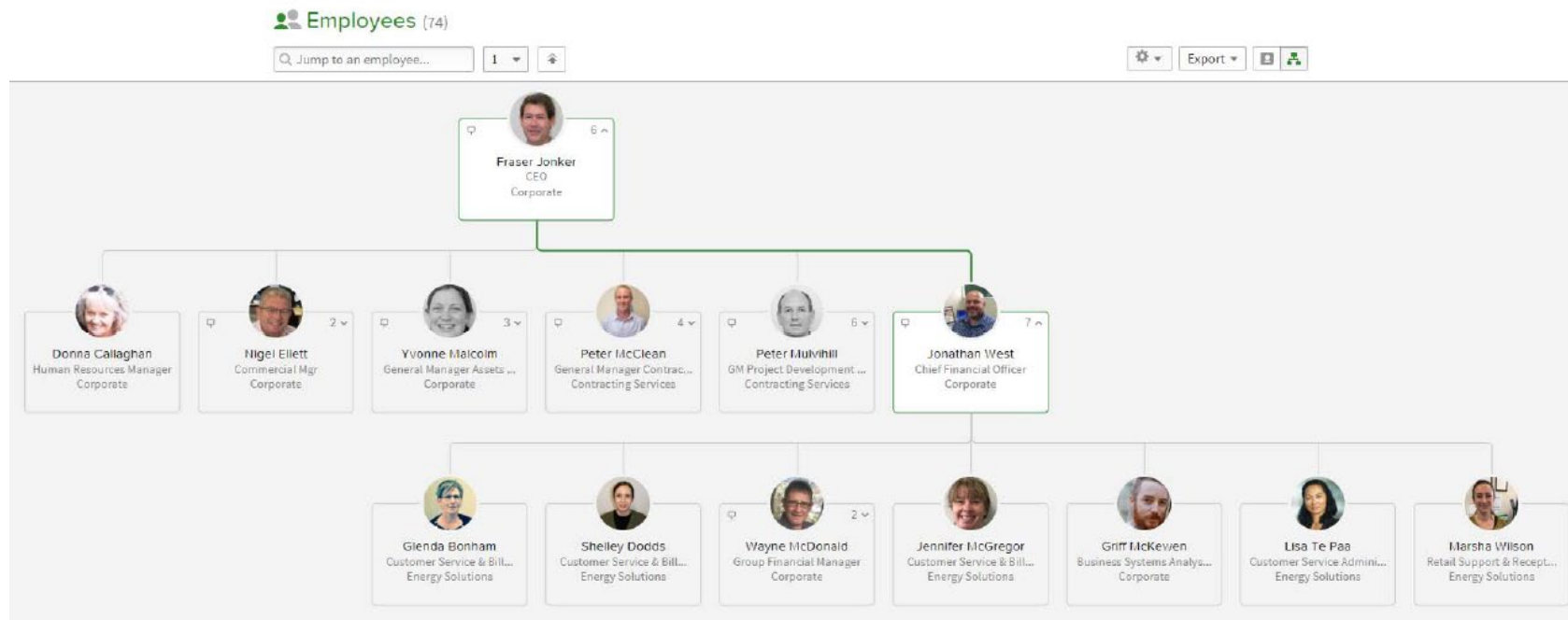
Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Peter Standring	Transportation Manager	Gore District Council
Glenda Bonham	Retail Customer Service Team Leader	Pioneer Energy
Jennifer McGregor	Customer Services & Billing Analyst	Pioneer Energy

1.3. Structure of Organisation

Pioneer provided a copy of their organisational structure:



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”.

GDC confirmed that 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. ICP Data

ICP Number	Description	NSP	Number of items of load	Database wattage (watts)
0008801002TP3AD	GDC LIGHTS - URBAN	GOR0331	1,065	30,023

1.7. Authorisation Received

All information was provided directly by Pioneer and GDC.

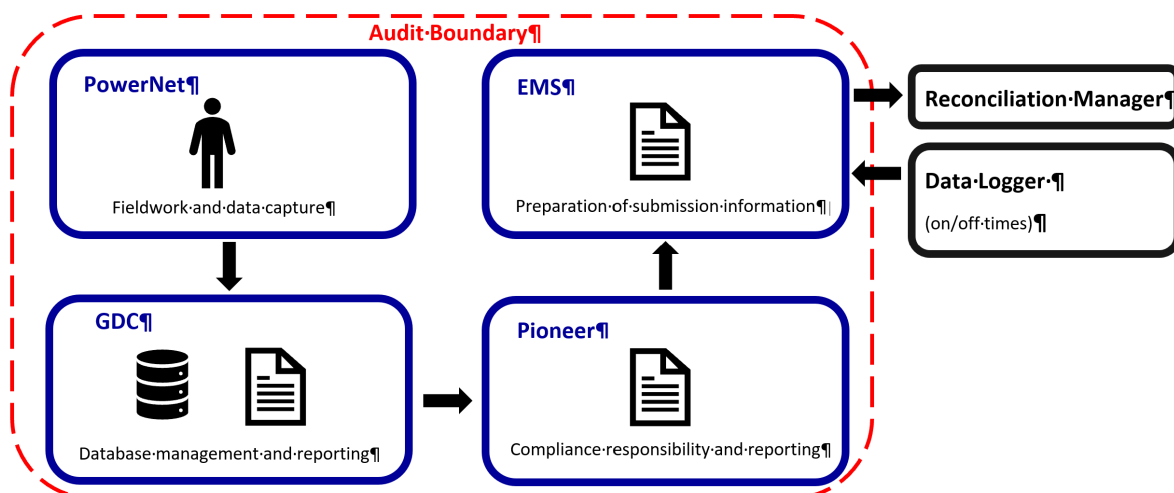
1.8. Scope of Audit

Pioneer gained ICP 0008801007TPEE2 from 1/05/19. Due to historical pricing arrangements, Pioneer bills the Power Company Ltd for the former Gore Borough Council (Gore township) lighting at commercial rates, and the Power Company Ltd on charges GDC at the agreed historic rate of a penny per unit.

The database used for submission is the GDC RAMM database.

Field work is conducted by PowerNet as a contractor.

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 a statistical sample of 134 items of load on 17th February 2020.

1.9. Summary of previous audit

The previous audit was completed for all of the GDC ICPs in April 2019 by Rebecca Elliot of Veritek Limited. I have included only those non-compliances relevant to the ICP associated with this audit. Four non-compliances were identified, and two recommendations were made. The current status of the non-compliances recorded are detailed below.

Table of Non-Compliance

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The database accuracy is assessed to be 90.1% of the database for the sample checked indicating a potential over submission of approximately 46,600 kWh per annum.	Still existing
			Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM and therefore not reconciled.	Still existing
			Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.	Still existing
All load recorded in the database	2.5	11(2A) of Schedule 15.3	Four additional lights found in the field.	Still existing
			Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	The database accuracy is assessed to be 90.1% of the database for the sample checked indicating a potential over submission of approximately 46,600 kWh per annum.	Still existing
			Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM.	Still existing
			Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database accuracy is assessed to be 90.1% of the database for the sample checked indicating a potential over submission of approximately 46,600 kWh per annum.	Still existing
			Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM and therefore not reconciled.	Still existing
			Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.	Still existing

Table of Recommendations

Subject	Section	Non-Compliance	Status
Tracking of load change	2.6	Meridian to liaise with GDC and PowerNet to review the electrical connection of streetlights.	Cleared
Database accuracy	3.1	Audit all under verandah lighting to confirm the correct fluorescent lamp values are recorded in RAMM.	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

Pioneer 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. 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

Pioneer reconciles this DUMML load using the DST profile. Pioneer is using the GDC RAMM database for reconciliation. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Pioneer supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Pioneer's reconciliation participant audit and EMS' agent audit. Compliance was confirmed for both parties.

I compared the RAMM database provided to the capacity information Pioneer supplied to EMS for the month of December 2020 and found it matched.

There is some inaccurate data within the RAMM database which is used to provide capacity information to Pioneer.

Issue	Potential volume information impact (annual kWh)
Potential under submission due to database inaccuracy	26,800 kWh under submission
Some decorative LED and seasonal festive LED lighting not recorded in RAMM.	Unknown but the anticipated volume associated is expected to be small.
147 x Fluorescent lamps – no lamp type recorded. All recorded as 15W +10W ballast. Field audit indicated 2x36W tubes with a total wattage of 72W.	29,508 kWh under submission

This is recorded as non-compliance and discussed in **sections 2.5, 3.1 and 3.2.**

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed; and
- wash up volumes must take into account where historical corrections have been made to the DUMML load and volumes.

The current monthly report is provided as a snapshot and is non-compliant. When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes. Pioneer completes revision submissions where corrections are required and has not yet updated their processes to be compliant with the Authority's memo.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3</p> <p>From: 01-May-19 To: 31-Dec-19</p>	<p>The database accuracy is assessed to be 120.9% of the database for the sample checked indicating a potential under submission of approximately 26,800 kWh per annum.</p> <p>Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM and therefore not reconciled.</p> <p>Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p> <p>Potential impact: High Actual impact: High Audit history: Multiple times Controls: Moderate Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
High	<p>The controls are rated as moderate there are good controls in place to ensure that the database is kept up to date, but historic errors have not been corrected.</p> <p>The impact is assessed to be high, based on the kWh differences described above.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Pioneer advised by Peter Standring, GDC that an improvement plan will be put in place. We will endeavour to work with GDC to resolve issues indicated in the audit.		27.02.2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
GDC are in the process of replacing staff so new staff will get up to speed with the management of streetlights.		TBC	

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

The database contains an ICP reference and all items of load had an 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 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 co-ordinates, and all were populated.

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 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

A lamp type, lamp rating, and input wattage (including gear or ballast) is included for all with the exception of two items of load are recorded as "LED" lights only. The light type needs to be recorded to confirm that the correct wattage has been applied.

The accuracy of these is discussed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.4 With: Clause 11(2)(c) of Schedule 15.3 From: 01-May-19 To: 31-Dec-19	Two items of load with insufficient light descriptions Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate there are good controls in place to ensure that the database is kept up to date, but historic errors have not been corrected. The impact is assessed to be low as only two items were found with insufficient details recorded.		
Actions taken to resolve the issue		Completion date	Remedial action status
Pioneer advised by Peter Standring, GDC that an improvement plan will be put in place. We will endeavour to work with GDC to resolve issues indicated in the audit.		27.02.2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
GDC are in the process of replacing staff so new staff will get up to speed with the management of streetlights to correct the historical issues.		TBC	

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 134 items of load on 17th February 2020.

Audit commentary

The field audit discrepancies are detailed in the table below:

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
CHARLTON RD	9	10	+1		1x extra 24W LED found in the field
COUTTS RD	16	18	+2		2x extra 24W LEDs found in the field
HYDE ST	8	9	+1		1x extra 24W LED found in the field
LYNE ST - EAST	5	4	-1		1x 250W HPS not found in the field
MERSEY ST - WEST	10	10		7	7x incorrect fluorescent wattages recorded as 25W but double 36W tubes found in the field which should be recorded as 72W
WAYLAND PARK CAR PARK NTH	1	7	+6		6x extra lights found in the field
WAYLAND PARK CAR PARK STH	2	4	+2		2x extra lights found in the field
GRAND TOTAL	134	145	13	7	

The field audit found 12 additional lights in the field. This is recorded as non-compliance below.

Festive lighting is used over the Christmas period, but this is not recorded in the RAMM database. GDC had expected to add these after the last audit, but this has yet to be completed.

The permanent decorative lighting installed in the park beside Medway Road around the large trout sculpture and surrounding trees had been checked in the field in the previous audit and the findings from this were expected to be updated in the database, but this has not been completed as expected.

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

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-Sep-18 To: 01-Apr-19	12 additional lights found in the field. Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Moderate Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
High	The controls are rated as moderate there are good controls in place to ensure that the database is kept up to date, but historic errors have not been corrected. The impact is assessed to be high, based on the kWh differences detailed in section 3.1 indicate.		
Actions taken to resolve the issue		Completion date	Remedial action status
Pioneer advised by Peter Standring, GDC that an improvement plan will be put in place. We will endeavour to work with GDC to resolve issues indicated in the audit.		27.02.2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
GDC are in the process of replacing staff so new staff will get up to speed with the management of streetlights to correct the issues.		TBC	

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. The change management process and the compliance of the database reporting provided to Pioneer is detailed in **sections 3.1** and **3.2**.

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

The RAMM database contain a complete audit trail of all additions and changes including the identifier of person who makes any changes.

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

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

Plan Item	Comments
Area of interest	Gore District Council region
Strata	The database contains items of load in Gore district area. The processes for the management of GDC items of load are the same, but I decided to place the items of load into three alphabetical strata of a similar size, as follows: <ol style="list-style-type: none"> 1. A-H 2. I-N 3. O-W
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 23 sub-units.
Total items of load	134 items of load were checked.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority or LED light specifications where available.

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

Audit commentary

Field Audit Findings

A statistical sample of 134 items of load found that the field data was 120.9% of the database data for the sample checked.

Result	Percentage	Comments
The point estimate of R	120.9%	Wattage from survey is higher than the database wattage by 20.9%
R _L	92.0%	With a 95% level of confidence it can be concluded that the error could be between -8.0% and +117.3%
R _H	217.3%	

These results were categorised in accordance with the “Distributed Unmetered Load Statistical Sampling Audit Guideline”, effective from 01/02/19 and the table below shows that Scenario C (detailed below) applies.

The conclusion from Scenario C is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between 8.0% lower to 117.3% higher than the wattage recorded in the DUML database. Non-compliance is recorded because the potential error is greater than 5.0%.

In absolute terms the installed capacity is estimated to be 6kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 2 kW lower and 35 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 26,800 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 10,300 kWh p.a. lower and 150,400 kWh p.a. higher than the database indicates. This will be due to the missing car park lights and the incorrect under verandah lights selected in the audit sample. If these issues were addressed this would greatly improve the overall database accuracy. These errors have been present for some time and are not due to recent changes in the database. There is a total of 147 fluorescent lights recorded in the database. I have repeated the recommendation made in the last audit, that these are all reviewed to ensure the correct wattages are recorded in the database.

Recommendation	Description	Audited party comment	Remedial action
Database accuracy	Audit all under verandah lighting to confirm the correct fluorescent lamp values are recorded in RAMM.	GDC are in the process of replacing staff so new staff will get up to speed with the management of streetlights to correct the issues in RAMM.	Investigating

Scenario	Description
A - Good accuracy, good precision	<p>This scenario applies if:</p> <p>(a) R_H is less than 1.05; and</p> <p>(b) R_L is greater than 0.95</p> <p>The conclusion from this scenario is that:</p> <p>(a) the best available estimate indicates that the database is accurate within +/- 5 %; and</p> <p>(b) this is the best outcome.</p>
B - Poor accuracy, demonstrated with statistical significance	<p>This scenario applies if:</p> <p>(a) the point estimate of R is less than 0.95 or greater than 1.05</p> <p>(b) as a result, either R_L is less than 0.95 or R_H is greater than 1.05.</p> <p>There is evidence to support this finding. In statistical terms, the inaccuracy is statistically significant at the 95% level</p>
C - Poor precision	<p>This scenario applies if:</p> <p>(a) the point estimate of R is between 0.95 and 1.05</p> <p>(b) R_L is less than 0.95 and/or R_H is greater than 1.05</p> <p>The conclusion from this scenario is that the best available estimate is not precise enough to conclude that the database is accurate within +/- 5 %</p>

Lamp description and capacity accuracy

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority and found the same issue as identified in the last audit of incorrect under verandah light wattages recorded. I have recommended above that these be corrected:

Incorrect lamp wattages and ballasts	Potential volume information impact (annual kWh)
147 x Fluorescent lamps – no lamp type recorded. All recorded as 15W +10W ballast. Field audit indicated 2x36W tubes with a total wattage of 72W.	29,508 kWh under submission
TOTAL	29,508 kWh under submission

This is recorded as non-compliance below.

Change management process findings

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

GDC have no new subdivisions in progress so new streetlight connections are few and far between. There were no new connections found during the audit period. GDC will liaise with Pioneer and PowerNet if any are required.

As discussed in **section 2.5**, there is some permanent decorative lighting installed in the park beside Medway Road around the large trout sculpture and surrounding trees, and festive lighting is used over the Christmas period, but these items are not recorded in the RAMM database. A field audit of the decorative lights has been undertaken but this is yet to be updated in RAMM. GDC intend to correct both lots of lights.

No private lights have been identified in the GDC database.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-May-19 To: 31-Dec-19</p>	<p>The database accuracy is assessed to be 120.9% of the database for the sample checked indicating a potential under submission of approximately 26,800 kWh per annum.</p> <p>Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM.</p> <p>Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.</p> <p>Potential impact: High Actual impact: High Audit history: Three times Controls: Moderate Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
<p>High</p>	<p>The controls are rated as moderate there are good controls in place to ensure that the database is kept up to date, but historic errors have not been corrected.</p> <p>The impact is assessed to be high, based on the kWh differences described above.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Pioneer advised by Peter Standring, GDC that an improvement plan will be put in place. We will endeavour to work with GDC to resolve issues indicated in the audit.</p>		<p>27.02.2020</p>	<p>Identified</p>
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>GDC are in the process of replacing staff so new staff will get up to speed with the management of streetlights to include/correct the issues in RAMM</p>		<p>TBC</p>	

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

Pioneer reconciles this DUML load using the DST profile. Pioneer is using the GDC RAMM database for reconciliation. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Pioneer supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Pioneer's reconciliation participant audit and EMS' agent audit. Compliance was confirmed for both parties.

I compared the RAMM database provided to the capacity information Pioneer supplied to EMS for the month of December 2020 and found it matched.

There is some inaccurate data within the RAMM database which is used to provide capacity information to EMS. This is recorded as non-compliance and discussed in **sections 2.1, 2.5 and 3.1**.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed; and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current monthly report is provided as a snapshot and is non-compliant. When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes. Pioneer completes revision submissions where corrections are required and has not yet updated their processes to be compliant with the Authority's memo.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-May-19 To: 31-Dec-19</p>	<p>The database accuracy is assessed to be 120.9% of the database for the sample checked indicating a potential under submission of approximately 26,800 kWh per annum.</p> <p>Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM and therefore not reconciled.</p> <p>Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.</p> <p>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.</p> <p>Potential impact: High Actual impact: High Audit history: Twice Controls: Moderate Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
High	<p>The controls are rated as moderate there are good controls in place to ensure that the database is kept up to date, but historic errors have not been corrected.</p> <p>The impact is assessed to be high, based on the kWh differences described above.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Pioneer advised by Peter Standring, GDC that an improvement plan will be put in place. We will endeavour to work with GDC to resolve issues indicated in the audit.		27.02.2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
GDC are in the process of replacing staff so new staff will get up to speed with the management of streetlights to include/correct the issues in RAMM		TBC	

CONCLUSION

Previously this ICP was included in the Meridian GDC DUML audit. Pioneer gained ICP 0008801007TPEE2 from 1/05/19, therefore this is the first audit undertaken for Pioneer. Due to historical pricing arrangements, Pioneer bills the Power Company Ltd for the former Gore Borough Council (Gore township) lighting at commercial rates, and the Power Company Ltd on charges GDC at the agreed historic rate of a penny per unit.

The database is relatively static, but the errors found in previous audits were still present in this audit. Overall the processes in place to manage the database are robust, but historic errors need to be corrected to improve the accuracy. The personnel managing this in GDC are in the process of being replaced due to staff attrition. It will take time for new staff to come up to speed with the management of streetlights.

The field audit was undertaken of a statistical sample of 134 items of load on 17th February 2020. This found the same issue as was recorded in the last audit completed for Meridian. The under verandah lights have been uploaded with the incorrect wattages. The database accuracy fell outside of the allowable +/- 5% variance threshold. I repeat the last audit's recommendation that the under verandah fluorescent lights be audited to correct the wattages. This will greatly improve the database accuracy.

The audit found five non-compliances and makes one recommendation. The future risk rating of 26 indicates that the next audit be completed in three months. I have considered this in conjunction with Pioneer's comments and recommend that the next audit be undertaken in nine months. This should allow sufficient time for new staff to be recruited and trained.

PARTICIPANT RESPONSE

Pioneer have reviewed this audit. Their comments are recorded within the report. No further comments were provided.