VERITEK

Electricity Industry Participation Code Audit Report

For

INFLUX ENERGY DATA LTD:

NZBN: 9429037465971

Class B Approved Test House

Prepared by Brett Piskulic – Veritek Limited

Date of Audit: 14/03/23

Date Audit Report Complete: 17/04/23

Date Audit Report Due: 21/04/23

Executive Summary

Influx Energy Data Limited (Influx) is a Class B Approved Test House and is required to undergo an audit by 21 April 2023, in accordance with clause 16A.19(b).

The audit was conducted in accordance with the ATH Audit Guidelines V1.3 produced by the Electricity Authority.

The audit found 13 non-compliances, makes one recommendation and raises three issues for consideration by the Authority.

Influx has improved the accuracy of information in certification records with changes to certification reports being implemented during the audit period. Six of the areas of non-compliance relate to a small number of instances of inaccurate information in certification reports prior to the changes being fully implemented.

Influx conducted statistical sampling of a population of 6,104 ICPs containing EDMI Mk7A, Mk7C and Mk10D Class 1 meters. Non-compliance is recorded in two sections of the audit for the application of an incorrect certification period. Table 5 of AS/NZS 1284 states that Class 1 meters can be recertified for a maximum period of five years. Influx has treated the meters as "General purpose" and has applied the certification period of seven years. I have raised two issues in **section 5.26** for the Authority to consider in relation to statistical recertification.

The remaining non-compliances relate to certification practices as follows:

- incorrect calibration laboratory recorded on metering component sticker for four metering installations,
- the minimum load requirement for raw meter data test on Category 2 meter not met for one metering installation,
- Influx did not measure the load applied and when conducting a raw meter data test for all 33 Category 1 metering installations checked,
- one metering installation certified with CTs burden lower than the lowest burden test point specified in the standard without confirmation from the CT manufacturer, and
- certification not conducted after modification of a metering installation.

I have made a recommendation in **section 5.1** that Influx record all details of test conditions including power factor in the certification report and review the calibration reports of meters to determine if the calibration results are similar to the test results in the field at similar load points. I have raised an issue for consideration by the Authority recommending that the minimum load requirement for Category 2 certification tests is reviewed.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The future risk rating provides some guidance on this matter and recommends a next audit frequency of six months. I recommend a next audit frequency of 18 months as nine of the 13 areas of non-compliance have been addressed during the audit period through changes to metering installation certification report templates and ATH processes.

The matters found are shown in the tables below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Accurate information	2.2	10.6 of Part 10	Incorrect or missing information in some certification reports.	Moderate	Low	2	Cleared
Services Access Interface	3.2	8(2) of Schedule 10.7	All installation types and services access interfaces not recorded for two installations.	Strong	Low	1	Cleared
Services Access Interface	3.5	10 of Schedule 10.4	All services access interfaces not recorded for two installations.	Strong	Low	1	Cleared
Maximum interrogation cycle	3.14	36(3) & (4) of Schedule 10.7	Maximum interrogation cycle not recorded for each services access interface in two metering installations.	Strong	Low	1	Cleared
Metering Component Stickers	4.14	8(2) of Schedule 10.8	Incorrect calibration laboratory recorded on metering component sticker for four metering installations.	Moderate	Low	2	Identified
Certification Tests	5.12	9(1)(ii)(B) of Schedule 10.7	Minimum load requirement for raw meter data test on Category 2 meter not met for one metering installation. ATH did not measure the load applied and when conducting a raw meter data test for all 33 Category 1 metering installations checked.	Moderate	Low	2	Cleared Investigating

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Statistical Sampling	5.26	16 of Schedule 10.7	Incorrect certification period of seven years applied to 6,104 ICPs certified using the statistical recertification method.	Moderate	Low	2	Investigating
Certification Validity Periods	5.28	17 of Schedule 10.7	Incorrect certification period of seven years applied to 6,104 ICPs certified using the statistical recertification method.	Moderate	Low	2	Investigating
Measuring Transformers used in a Certified Metering Installation	5.37	28(4) Of Schedule 10.7	One metering installation certified with CTs burden lower than the lowest burden test point specified in the standard without confirmation from the CT manufacturer.	Strong	Low	1	Cleared
Measuring Transformers used in a Certified Metering Installation	5.40	31 of Schedule 10.7	One metering installation certified with CTs burden lower than the lowest burden test point specified in the standard without confirmation from the CT manufacturer.	Strong	Low	1	Cleared
Measuring Transformer Certification	5.67	3 of Schedule 10.8	Burden range is not sufficiently clear when CTs are certified.	Strong	Low	1	Cleared
Measuring Transformers in service burden range	5.68	2(1)(E) Of Schedule 10.8	Burden range is not sufficiently clear when CTs are certified.	Strong	Low	1	Cleared

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
All Functions and Activities must be completed	5.76	10.42(2)	Certification not conducted after modification of a metering installation.	Moderate	Low	2	Identified
Future Risk Rating						**19**	
Indicative Audit Frequency						**6 months**	

Future risk rating	1-3	4-6	7-8	9-17	18-26	27+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Remedial Action
Certification of metering installations	5.1	8(1) Of Schedule 10.7	I recommend Influx record all details of test conditions including power factor in the certification report and review the calibration reports of meters to determine if the calibration results are similar to the test results in the field at similar load points.	Cleared

Table of Issues

Section	Issue	Description
5.1	**Regarding:** Clause 9(1)(c)(i)(B) of Schedule 10.7	I raise as an issue for consideration by the Authority that the minimum load requirement for Category 2 certification tests is reviewed with consideration given to the current transformer primary ratio and error limits of IEC standards to ensure that on site testing does confirm that metering components are operating within IEC standards.
5.26	**Regarding:** Clause 16 of schedule 10.7	I recommend that the Authority consider amending the Code to ensure that an MEP is not disadvantaged for using meters with an accuracy class higher than the minimum class required by the Code. I also suggest that the Authority consider whether AS/NZS 1284 is still fit for purpose and whether a more appropriate process can be included in or prescribed by the Code.

5.26	**Regarding:** Clause 36(1) of Schedule 10.7 and Clause 16 of schedule 10.7	<u>Certification of data storage devices when statistical recertification is conducted.</u> The code requires an MEP to ensure that each data storage device incorporated in a metering installation is certified. It is unclear how this should be applied when conducting recertification by statistical recertification under clause 16 of Schedule 10.7.

Persons Involved in This Audit

Auditor:

Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

Influx personnel assisting in this audit were:

Name	Title
Barny Barnett	Compliance Manager
Glen Hardie	Test House Manager
Nathan Forsyth	ATH Specialist

Contents

1. ADMINISTRATIVE

1.1 Exemptions from Obligations to Comply with Code (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

I checked the Authority's website for any relevant exemptions.

Audit commentary

There are no exemptions in place.

1.2 Scope of Audit

Influx is a Class B ATH, and this audit was performed at their request, to encompass the Electricity Industry Participation Code requirement for an audit, in accordance with clause 16A.19(b).

The Authority has stipulated that the next audit was due by 21 April 2023 in accordance with clause 1(4)(c) of schedule 10.3.

The audit was conducted in accordance with the ATH Audit Guidelines V1.3 produced by the Electricity Authority.

Influx provides ATH services to metering equipment providers in respect of the installation and/or re-certification of Category 1 to Category 3 metering. Influx provides training and also conducts field audits to ensure the on-going compliance and competence of sub-contractors.

Influx wishes its ATH approval to include the following functions of Clause 4(2) of Schedule 10.3:

(b) installation and modification of metering installations:

(c) installation and modification of metering components:

(d) calibration of metering components on site:

(e) certification, using the selected component certification method, of:

(i) category 1 metering installations:

(ii) category 2 metering installations:

(iii) category 3 metering installations with a primary voltage of less than 1kV:

(g) certification, using the comparative recertification method, of category 2 metering installations:

(h) issuing of certification reports in respect of certifications of metering installations under paragraphs (e) to (g):

(i) inspection of:

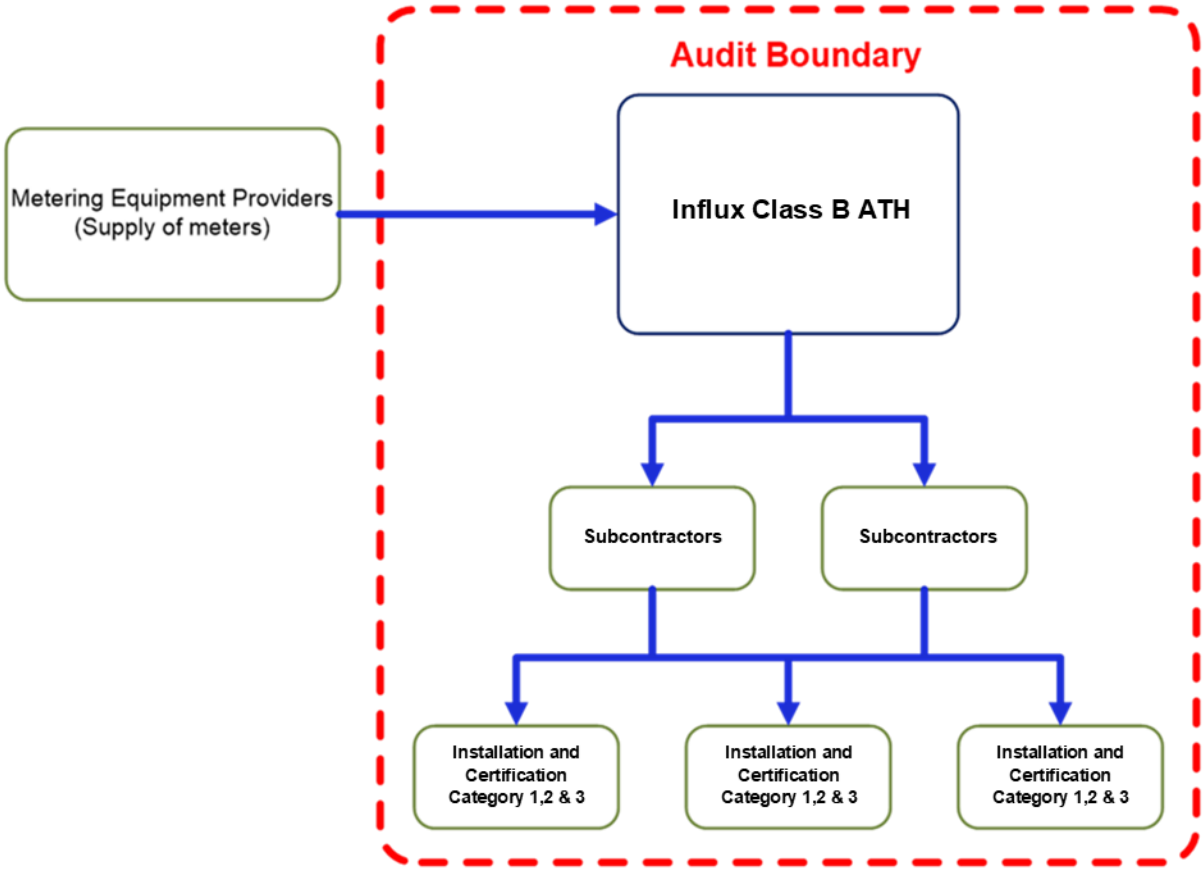
(i) category 1 metering installations:

(ii) category 2 metering installations:

(iii) category 3 metering installations with a primary voltage of less than 1kV.

Influx also requires approval to certify metering components. I note that neither the Class B or Class A functions listed in Clauses 3(2) and 4(2) of Schedule 10.3 include certification of metering components.

The boundaries of this audit are shown below for greater clarity.



1.3 Previous Audit Results

The last audit was conducted in April 2022 by Steve Woods of Veritek. The tables below show the findings:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Accurate information	2.2	10.6 of Part 10	Inaccurate information recorded in 50 fields in certification reports.	Still existing
Services Access Interface	3.2	8(2) of Schedule 10.7	All services access interfaces not recorded for two installations.	Still existing
Services Access Interface	3.5	10 of Schedule 10.4	All services access interfaces not recorded for two installations.	Still existing
Meter Certification Expiry Date	3.12	27(5) of Schedule 10.7	Meter certification expiry date not recorded for all meters in five installations.	Cleared
Invalid certification	5.1	8(1) Of Schedule 10.7	Two ICPs have an absolute error and uncertainty test result greater than 1.5%, meaning at least one of the components is operating outside its class.	Cleared
ATH Design Report Obligations	5.4	3 of Schedule 10.7	Changes to the design for four installations not documented.	Cleared
Certification Tests	5.12	9(1)(ii)(B) of Schedule 10.7	ATH did not measure the load applied and record the resulting increment of the meter register value over a measured period of time when conducting a raw meter data test for all 23 Category 1 metering installations checked.	Still existing
Test Results	5.16	10(1)&(2) Of Schedule 10.7	Two ICPs have errors greater than 1.5%, meaning at least one of the components is operating outside its class.	Cleared

Subject	Section	Clause	Non-compliance	Status
Selected component certification	5.18	11(3) Of Schedule 10.7	Raw meter data output tests not conducted for 23 metering installations.	Cleared
Statistical Sampling	5.26	16 of Schedule 10.7	The sample did not match the population when statistical sampling certification was applied on 22 October 2021. One meter type was in the population but not in the sample.	Cleared
Measuring Transformer Certification	5.67	3 of Schedule 10.8	Burden range is not sufficiently clear when CTs are certified.	Cleared
Measuring Transformers in service burden range	5.68	2(1)(E) Of Schedule 10.8	Burden range is not sufficiently clear when CTs are certified.	Cleared
All Functions and Activities must be completed	5.76	10.42(2)	Not all functions and activities required for certification are completed, specifically, raw meter data output tests are not conducted.	Cleared

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Remedial Action
Use of Contractors	2.1	10.3	Consider using photo checks as part of the contractor audit regime.	Not adopted
Quality management systems	2.6	3(1) & 4(1) of Schedule 10.3	Request an updated version of the ISO report to include category 3 metering installations in the scope.	Cleared
Certification of metering installations	5.1	8(1) Of Schedule 10.7	I recommend Influx sets a pass/fail threshold for Category 2 comparative testing which takes into account the class of the metering components.	Not adopted

2. ATH REQUIREMENTS

2.1 Use of Contractors (Clause 10.3 of Part 10)

Code related audit information

A participant may perform its obligations and exercise its rights under this Part by using a contractor. A participant who uses a contractor to perform the participant's obligation under this Part remains responsible and liable for, and is not released from, the obligation, or any other obligation under this Part.

Audit observation

I checked Influx understands of this requirement by conducting a walk-through of contractor management processes. I checked the audit regime in place to ensure contractors are competent and are following Influx's instructions.

Audit commentary

At the time of the audit Influx had 44 contractors actively operating under their ATH. Clause 10.3(c) requires that Influx "must ensure that the contractor has at least the specified level of skill, expertise, experience, or qualification that the participant would be required to have if it were performing the obligation itself."

I viewed the contractor management database which Influx uses to manage the training and competency records of all individuals approved by the ATH. Influx conducts desktop and post installation audits of fieldwork and associated paperwork on an ongoing basis. Audits are conducted by the ATH Specialist with all new contractor's work audited. On-going audits are scheduled based on volumes of work completed and ensuring that all regions are covered.

All Category 2 certification reports are checked for completeness and accuracy. The last audit included a recommendation that Influx could also add photo checks as another form of audit for Category 1 installations. The Go Canvas application used by contractors requires photos to be taken of all work completed. The photos are reviewed during desktop audits, but Influx does not do photo checking of all completed work.

Audit outcome

Compliant

2.2 Provision of Accurate Information (Clause 10.6 of Part 10)

Code related audit information

A participant must take all practicable steps to ensure that information that it provides under this Part is:

- *complete and accurate*
- *not misleading or deceptive*
- *not likely to mislead or deceive.*

If a participant, having provided information under this Part, becomes aware that the participant has not complied with these requirements, the participant must, except if clause 10.43 applies, as soon as

practicable provide such further information, or corrected information, as is necessary to ensure that the participant complies.

Audit observation

I checked compliance with this clause at the end of the audit to determine whether compliance had been achieved.

Audit commentary

I found several issues with the accuracy of information recorded on certification reports as follows:

- two metering installations did not have all types, services access interfaces and maximum interrogation cycles recorded, (**sections 3.2, 3.5** and **3.14**),
- incorrect calibration laboratory recorded on meter certification stickers for four metering installations, (**section 4.14**),
- control device details not recorded in metering installation certification report for ICP 0000514045NRC0A, and
- Incorrect certification period of seven years applied to 6,104 ICPs certified using the statistical recertification method.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.2 With: Clause 10.6 of Part 10 From: 30-Jun-22 To: 16-Mar-23	Incorrect or missing information in some certification reports. Potential impact: Low Actual impact: Low Audit history: Twice 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. Certification was carried out correctly, therefore the impact is considered low.
Actions taken to resolve the issue	**Completion date** / **Remedial action status**

• two metering installations did not have all types, services access interfaces and maximum interrogation cycles recorded, (**sections 3.2, 3.5** and **3.14**),
  ○ 0000514045NRC0A certification was completed on an old form (FCL Metering – AMI). All certifications going forward are completed on "Influx Metering Work" within our field capture tool which has both SAI's for HHR and NHH for AMI meters
  ○ 0000007142TCBD0 certification was completed on paperwork that is no longer accepted. All contractors have been advised of this as well as this has been passed on internally.
• incorrect calibration laboratory recorded on meter certification stickers for four metering installations, (**section 4.14**),
  ○ Correspondence was sent out to contractors regarding recording the correct calibration laboratory along with examples of calibration stickers
• control device details not recorded in metering installation certification report for ICP 0000514045NRC0A, and
  ○ Training within contractors and staff
• Incorrect certification period of seven years applied to 6,104 ICPs certified using the statistical recertification method.
  ○ Identified and under investigation
	March 2023	Cleared

Preventative actions taken to ensure no further issues will occur	**Completion date**	
Update to certification forms completed prior to audit, training and process change	March 2023	

2.3 Dispute Resolution (Clause 10.50(1) to (3) of Part 10)

Code related audit information

Participants must in good faith use best endeavours to resolve any disputes related to Part 10 of the Code. Disputes that are unable to be resolved may be referred to the Authority for determination. Complaints that are not resolved by the parties or the Authority may be referred to the Rulings Panel by the Authority or participant.

Audit observation

I checked whether any disputes had been dealt with by Influx during the audit period.

Audit commentary

Influx has not needed to resolve any disputes in accordance with these clauses.

Audit outcome

Compliant

2.4 ATH Approval (Clause 10.40 of Part 10)

Code related audit information

A person wishing to be approved as an ATH, or an ATH wishing to renew its approval, must apply to the Authority:

- *at least two months before the intended effective date of the approval or renewal*
- *in writing*
- *in the prescribed form*
- *in accordance with Schedule 10.3.*

A person making an application must satisfy the Authority (providing, where appropriate, suitable evidence) that the person:

- *has the facilities and procedures to reliably meet, for the requested term of the approval, the minimum requirements of this Code for the class or classes of ATH for which it is seeking approval,*
- *has had an audit under Schedule 10.3*
- *is a fit and proper person for approval.*

Audit observation

I checked the most recent application for re-certification.

Audit commentary

Influx has appropriate approval and appropriate facilities and procedures to meet the minimum requirements of the Code.

Audit outcome

Compliant

2.5 ATH Requirements (Clause 10.41 of Part 10)

Code related audit information

An ATH must, when carrying out activities under this Part:

- *only carry out activities for which it has been approved by the Authority,*
- *exercise a degree of skill, diligence, prudence, foresight, and economic management, taking into account the technological complexity of the metering components and metering installations being tested:*
  - *determined by reference to good industry practice,*
  - *that would reasonably be expected from a skilled and experienced ATH engaged in the management and operation of an approved ATH,*
- *comply with all applicable safety, employment, environmental, and other enactments,*
- *exercise any discretion given to it under this Part by:*
  - *taking into account the relevant circumstances of the particular instance*
  - *acting professionally*
- *recording the manner in which it carried out its activities and its reasons for carrying the activities out in that manner.*

Audit observation

I checked policy and process documentation to confirm compliance with these clauses.

Audit commentary

Influx has only conducted activities that fall within the scope of their approval. I have concluded from this audit that Influx has met the requirements of this clause.

The Influx ATH procedures and policies are managed in Confluence. Each contractor is issued with a Technical Requirements Manual which contains all relevant documents.

I checked compliance with other enactments, specifically the electricity regulations with regard to safety practices and I confirm the following critical points are managed in a robust manner:

- the electrical registration and practicing licence details of contractors are checked for currency,

- access to basic insulation - meters are supplied with long terminal covers and all installations are left at least in the conditions they were found,

- livening practices, specifically polarity testing - instructions are clear in relation to this and results are recorded in certification records,

- safety practices with regard to the management of asbestos switchboards - the process and instructions were checked, and they appear to be robust and complete, and

- general safety practices and the appropriate use and testing of personal protective equipment - policy and instruction is clear in relation to this, appropriate PPE must be worn.

There is a reliance on each contractor being registered and licenced as an electrician, because this certification also requires compliance with health and safety legislation.

Audit outcome

Compliant

2.6 Quality Management Systems (Clauses 3(1) & 4(1) of Schedule 10.3)

Code related audit information

An ATH must establish, document, implement, maintain, and comply with a quality management system which records its processes and procedures to ensure compliance with this Part.

An applicant applying for approval or renewal of approval, as a class A ATH must, as part of its application, confirm that it holds and complies with AS/NZS ISO 17025 accreditation, for at least the requested term of the approval.

An applicant applying for approval, or renewal of approval, as a class B ATH must, as part of its application to the Authority, confirm that it holds and complies with AS/NZS ISO 9001:2016 certification for at least the requested term of the approval. The applicant must also confirm that the scope of the certification covers the activities that it proposes to undertake, and that a conflict-of-interest policy is maintained at all times in compliance with AS/NZS ISO 17025.

Despite the above, a class B ATH may apply to the Authority for approval without confirming that it holds and complies with AS/NZS ISO 9001:2016 certification for the term of the requested approval, provided that the applicant confirms that:

- *it holds and complies with AS/NZS ISO 9001:2016 certification at the time of the application and that certification expires during the approval period,*
- *it has appropriate plans in place to ensure that it renews its AS/NZS ISO 9001:2016 certification so that this certification is in place continuously during the term of approval.*

Audit observation

I obtained and reviewed the most recent ISO 9001:2015 Certificate of Registration and audit report to confirm the scopes were appropriate and that certification was in place.

Audit commentary

Influx provided a copy of their ISO 9001:2015 Certificate of Registration which was issued on 5 August 2022 and has an expiry date of 27 May 2024 and the most recent audit report, dated 24 May 2022, which was conducted by Kiwi Certification. The scope of the ISO certification and latest audit report is appropriate for the work undertaken and is recorded as "Test House and Metering Services including Installation of metering equipment; Commissioning and certifying of Category 1-3 metering installations under the provisions of the rules of the Electricity Authority and the purchase of calibration services from Class A and Class B Test Houses certified for the purpose".

The audit findings are summarised in the following table:

DESCRIPTION	RATING	STATUS
1. Three contractors were identified in the Contractor managing data base that had expired liability insurance. These included Flash electrical, Herpo, and Kinetic. The management system only requires the liability insurance when approving contractors and it was unclear what was required when the insurance expired. There is a big risk to the business when contractors without proof of liability insurance continued to be used by the business and this requirement should be reviewed to minimise any risk to the business. (8.5)	AI	Cleared

2. The Contractors management procedure required the practical completion of a meter upgrade and certification as part of internal training and establishing competency. This process was no longer applicable, and the procedure needs to be updated to reflect the current process. (8.4)	AI	Cleared
3. Section 8.6 of the quality manual document did not include reference to the process used for the CAT 1 and CAT 2 Quality inspection processes that was used. (8.6)	AI	Cleared
4. Although the business did determine and monitor management system performance the QMS did not clearly capture/document what was required. This included: a) what needs to be monitored and measured, b) the methods for monitoring, measurement, analysis, and evaluation needed to ensure valid results, c) when the monitoring and measuring shall be performed, and d) when the results from monitoring and measurement shall be analysed and evaluated. (9.1)	AI	Cleared
5. The internal audit structure could be reviewed to ensure that details of both compliance with the requirements of the standard as well as operational implementation is reviewed. The current audit checklist although structured according to the clauses of the standard, focused mostly on system implementation. (9.2)	AI	Cleared
6. The objectives could be reviewed and the Customer satisfaction and on time delivery objective could be raised separately. The planning to achieve the objectives could also be further built out to align better with the requirements of the standard. (6.2)	C	Cleared
Key MNC = Major Non-Conformances AI = Action Items	MN – Minor Non-Conformances C = Comments	

Audit outcome

Compliant

2.7 Organisation and Management (Clause 15 of Schedule 10.4)

Code related audit information

An ATH must ensure that it has managerial staff who, unless otherwise permitted in the relevant approval, all have the authority and resources needed to discharge their duties; and the responsibilities, authority, and functional relationships of all its personnel are fully and accurately specified and recorded in the ATH's records.

An ATH must appoint a technical manager (however named) with overall responsibility for technical operations, who must have appropriate engineering qualifications and experience in the operation of an approved ATH; and a quality manager (however named), with responsibility for the quality management certification and the implementation of the quality management system.

Audit observation

I checked records in the quality manual to confirm compliance.

Audit commentary

Glen Hardie is appointed as Technical Manager. Barny Barnett is appointed as Quality Manager. Both have appropriate qualifications and experience.

An ATH must ensure that all staff who perform or supervise work or activities regulated under this Part are technically competent, experienced, qualified, and trained for the functions they perform. I checked the training and competency assessment processes and I confirm compliance with this clause.

Audit outcome

Compliant

2.8 Document Processes and Procedures (Clause 16 Of Schedule 10.4)

Code related audit information

An ATH must establish, document, implement, maintain, and comply with a quality management system which records its processes and procedures.

Audit observation

I checked the Class B quality documentation, and I reviewed the relevant ISO report.

Audit commentary

The quality management system meets the requirements of the Code.

Audit outcome

Compliant

2.9 Quality Standard Required for Field Work (Clause 17 Of Schedule 10.4)

Code related audit information

If a class A ATH arranges for another person to carry out field work, it must ensure that person is certified to the relevant AS/NZS ISO9001:2008 or AS/NZS ISO9001:2016 standard at all times while the person carries out the work.

Audit observation

Influx is not approved as a class A ATH.

Audit commentary

Influx is not approved as a class A ATH.

Audit outcome

Not applicable

2.10 Material Change Requirements (Clause 16A.11)

Code related audit information

If the ATH intends to make a material change to any of its facilities, processes, procedures, or the scope of the ATH's ISO accreditation is reduced, the ATH must arrange for an additional audit at least five business days before the change or reduction in scope take place.

Audit observation

Influx has not conducted any material changes.

Audit commentary

Influx has not conducted any material changes.

Audit outcome

Not applicable

2.11 Audit Required for ATH Approval (Clause 16A.12 and 16A.13)

Code related audit information

The ATH must provide an audit report to the Authority by the due date. If there are areas where compliance is not achieved, the ATH must also submit a compliance plan which specifies the actions that the ATH intends to address, any issues identified in the audit report and the time frames to complete those actions.

Audit observation

Influx is currently undergoing an audit and the report will be provided with a compliance plan.

Audit commentary

Influx is currently undergoing an audit and the report will be provided with a compliance plan.

Audit outcome

Compliant

2.12 Accommodation & Environment (Clause 1 of Schedule 10.4)

Code related audit information

An ATH must maintain a list of personnel who are authorised to access and use its laboratory and *storage facilities and restrict access to its laboratory and storage facilities to:*

(i) the personnel specified

(ii) the Authority

(iii) an auditor conducting an audit

(iv) any other person who is, at all times, directly supervised by a member of personnel specified.

Audit observation

Influx does not operate a laboratory function; their scope is limited to field installation work.

Audit commentary

Influx does not operate a laboratory function; their scope is limited to field installation work.

Audit outcome

Not applicable

2.13 Compensation Factors (Clause 8 of Schedule 10.4)

Code related audit information

If an ATH is approved to certify metering installations, the ATH must have a documented process for the determination of compensation factors.

Audit observation

I checked the documentation in relation to compensation factors and I checked 52 certification reports.

Audit commentary

Influx applies compensation factors related to current transformer ratios only. The ratios are confirmed as correct as part of the error calculations on site and the compensation factor is recorded in the certification reports. The process achieves compliance with the Code and my checks of the certification reports confirmed accuracy.

Audit outcome

Compliant

2.14 Metering Component Stickers (Clause 8(3) of Schedule 10.8)

Code related audit information

An ATH must ensure that a certification sticker is:
- made of weather-proof material
- permanently attached
- filled out using permanent markings.

Audit observation

I checked Influx's component stickers to confirm compliance.

Audit commentary

All component stickers are compliant with this clause.

Audit outcome

Compliant

2.15 Interference with Metering Installations (Clause 10.12)

Code related audit information

Subject to clause 48 of Schedule 10.7, an ATH may not directly or indirectly interfere with a metering installation unless it is also the MEP or has been instructed to do so by the existing or gaining MEP for the installation.

Audit observation

I audited this clause by exception.

Audit commentary

I did not identify any interference by Influx during the audit.

Audit outcome

Compliant

3. METERING RECORDS AND REPORTS

3.1 Physical Location of Metering Installations (Clause 10.35 of Part 10)

Code related audit information

If it is not practical in the circumstances to locate the metering installation at the point of connection, the reconciliation participant must calculate the quantity of electricity conveyed through the point of connection using a loss compensation process approved by the certifying ATH.

If this occurs the ATH must record the calculation, measurements, and assumptions in the installation certification report.

Audit observation

I checked whether Influx had certified any installations with loss compensation.

Audit commentary

Influx has not been required to conduct any loss compensation calculations.

Audit outcome

Compliant

3.2 Metering Installation Type (Clause 8(2) of Schedule 10.7)

Code related audit information

The metering installation certification report must specify whether the installation is half hour, non-half hour or half hour and non-half hour metering.

The metering installation certification report must also record each services access interface and the conditions under which each services access interface may be used.

Audit observation

I checked 52 certification records to confirm compliance.

Audit commentary

My checks of the 52 records found that the installation type was recorded incorrectly for two metering installations and each services access interface was not recorded correctly for two metering installations. A breakdown of this is shown in the table below.

Category	Records checked	Installation type correctly recorded	Each services access interface recorded
1	33	31	31
2	19	19	19

Influx has implemented changes to its metering installation certification report templates to include each services access interface and whether the installation is half hour, non-half hour or both half hour and non-half hour metering. The two metering installations identified in the table above were AMI meters where both NHH and HHR types and local and remote services access interfaces were not recorded. In both cases the type can both NHH and HHR and local and remote services access interfaces can be used. The ICPs were Se and 0000007142TCBD0.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 8(2) of Schedule 10.7 From: 30-Jun-22 To: 16-Mar-23	All installation types and services access interfaces not recorded for two installations. Potential impact: None Actual impact: None Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because they mitigate risk to an acceptable level. There is no impact because the MEP normally determines the location of the services access interface; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
○ 0000514045NRC0A certification was completed on an old form (FCL Metering – AMI). All certifications going forward are completed on "Influx Metering Work" within our field capture tool which has both SAI's for HHR and NHH for AMI meters ○ 0000007142TCBD0 certification was completed on paperwork that is no longer accepted. All contractors have been advised of this as well as this has been passed on internally.	March 2023	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Update to certification forms completed prior to audit,	March 2023	

3.3 Record Metering Installation Category (Clause 8(4) Of Schedule 10.7)

Code related audit information

An ATH must record the category of the metering installation in the metering installation certification report.

Audit observation

I checked 52 certification reports to confirm compliance.

Audit commentary

All reports correctly recorded the metering category.

Audit outcome

Compliant

3.4 Calibration Test Points (Clause 7(7) Of Schedule 10.4)

Code related audit information

An ATH may select a test point other than those specified in the relevant standard listed in Table 5 of Schedule 10.1, or at a lower burden than specified in the standard, but must, if it does this, document its reasons for the selection of these test points in the calibration report.

Audit observation

Influx does not calibrate components.

Audit commentary

Influx does not calibrate components.

Audit outcome

Not applicable

3.5 Services Access Interface (Clause 10 of Schedule 10.4)

Code related audit information

An ATH must, when preparing a metering installation certification report, determine, and record in the certification report, the services access interfaces and the conditions under which each services access interface may be used. The services access interface means the point, at which access may be gained to the services available from a metering installation, that is:

- *recorded in the certification report by the certifying ATH for the metering installation,*
- *where information received from the metering installation can be made available to another person*
- *where signals for services such as remote control of load (but not ripple control) can be injected.*

Audit observation

I checked 52 certification reports to confirm compliance.

Audit commentary

My checks of the 52 records found that each services access interface was not recorded correctly for two Category 1 metering installations at ICPs 0000514045NRC0A and 0000007142TCBD0.
The two metering installations have AMI meters where both local and remote services access interfaces may be used but only one option was recorded. Influx has implemented changes to its metering installation certification report templates to include each services access interface. Non-compliance is also recorded for these two ICPs in **section 3.14**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.5 With: Clause 10 of Schedule 10.4 From: 30-Jun-22 To: 16-Mar-23	All services access interfaces not recorded for two installations. Potential impact: None Actual impact: None Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong as Influx have made changes to its process to record each services access interface and maximum interrogation cycle. There is no impact because the MEP normally determines the location of the services access interface; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
○ 0000514045NRC0A certification was completed on an old form (FCL Metering – AMI). All certifications going forward are completed on "Influx Metering Work" within our field capture tool which has both SAI's for HHR and NHH for AMI meters ○ 0000007142TCBD0 certification was completed on paperwork that is no longer accepted. All contractors have been advised of this as well as this has been passed on internally.	March 2023	Cleared

Preventative actions taken to ensure no further issues will occur	Completion date	
Update to certification forms completed prior to audit,	March 2023	

3.6 Certification & Calibration Reports (Clause 11(1) of Schedule 10.4)

Code related audit information

An ATH must, for each metering installation that it certifies, produce a certification report in accordance with Schedule 10.7. An ATH must, for each metering component:

- *that it calibrates, produce a calibration report in accordance with Schedule 10.8*
- *that it certifies, produce a certification report in accordance with Schedule 10.8.*

Audit observation

I requested a sample of 52 certification records to confirm compliance.

Audit commentary

Influx does not calibrate components.

Certification reports are produced for all installations. **Section 2.2** discusses the accuracy of the fields in the reports.

Audit outcome

Compliant

3.7 ATH Record Keeping Requirements (Clause 12 of Schedule 10.4)

Code related audit information

The ATH must document and maintain its record keeping system for certificates, reports, and any other records. The records can be stored in any media, such as hard copy or electronically. The records should be stored in a manner that prevents deterioration or damage and that retrieval of a record cannot result in change or damage to the record. Electronic storage should be backed up.

The ATH must securely store all records, certificates, and reports and ensure that each metering installation is:

- uniquely identified

- sufficiently detailed to verify the tests carried out including test conditions, the test equipment used and the personnel carrying out the tests.

Audit observation

I checked the certification records for 52 metering installations along with the storage practices.

Audit commentary

All records were available, and records are stored indefinitely.

Audit outcome

Compliant

3.8 Retention of Records (Clause 13 of Schedule 10.4)

Code related audit information

The ATH must keep all records, certificates, and calibration reports for all components and installations certified for at least 48 months after the date of decommissioning.

Audit observation

I checked the certification records for 52 metering installations along with the storage practices.

Audit commentary

All records were available, and records are stored indefinitely.

Audit outcome

Compliant

3.9 Advise MEP of Records, Certificates or Reports for a Metering Installation (Clause 14 Of Schedule 10.4)

Code related audit information

The ATH must provide the MEP responsible for the metering installation with the record, certificate, or report for the metering installation within five business days of certification. The ATH must ensure the MEP receives the record. This can be either as an electronic copy or any other agreed format.

Audit observation

I checked the communication trail for 52 metering records.

Audit commentary

All records were provided within five business days. In all cases Influx is both the ATH and the MEP.

Audit outcome

Compliant

3.10 Certification at a Lower Category (Clause 6(4) Of Schedule 10.7)

Code related audit information

If the ATH makes a determination to certify a metering installation at a lower category under clause 6 of Schedule 10.7, the certification report must include all information required to demonstrate compliance.

Audit observation

I checked the Influx processes and three examples of certification at a lower category.

Audit commentary

The Influx process requires the inclusion in the metering installation certification report of details of the lower category certification including advice to the MEP regarding the requirement to monitor the load or the consumption or recording of current limiting devices. In one example the metering installation certification report included the following statement, "Site downgraded to CAT2 based on maximum demand. MEP to monitor load." Two examples were certified on the basis of current limiting devices being present to limit the current to less than the Category 2 limit. The certification reports contained details of the current limiting devices.

Audit outcome

Compliant

3.11 Meter Requirements (Clause 26(3) & (4) of Schedule 10.7)

Code related audit information

The ATH needs to document the following in the metering records:

- the meter manufacturer's required recommendations for regular maintenance

- any maintenance that has been carried out on the meter, such as battery monitoring and replacement.

An ATH must record in the metering installation certification report, the maximum interrogation cycle for the metering installation before it certifies a metering installation incorporating a meter.

Audit observation

I checked process documentation, conducted a walk-through of the process and checked 52 certification records.

Audit commentary

As a Class B ATH, Influx is unlikely to deal with any meters where maintenance is required.

I checked 52 certification reports, and I confirm the maximum interrogation cycle was recorded in all cases.

Audit outcome

Compliant

3.12 Meter Certification Expiry Date (Clause 27(5) of Schedule 10.7)

Code related audit information

The ATH must record the certification expiry date for each meter in a metering installation in the metering installation certification report and the meter certification report.

Audit observation

I checked 52 certification records to confirm compliance.

Audit commentary

My checks of 52 certification reports confirmed that the meter certification expiry dates were correctly recorded in all 52 reports.

Audit outcome

Compliant

3.13 Measuring Transformer Requirements (Clause 28(3) of Schedule 10.7)

Code related audit information

The ATH needs to document the following in the metering records:

- the manufacturer's recommendations for any regular maintenance required for the measuring transformer

- any maintenance that has been carried out on the measuring transformer.

Audit observation

I checked whether any measuring transformers required maintenance.

Audit commentary

Influx has not installed any measuring transformers where maintenance is required.

Audit outcome

Not applicable

3.14 Determine Maximum Interrogation Cycle (Clause 36(3) & (4) Of Schedule 10.7)

Code related audit information

An ATH must record the maximum interrogation cycle for each services access interface for the metering installation. The maximum interrogation cycle for a metering installation is the shortest of the following periods:

- the period of inherent data loss protection for the metering installation

- the period of memory availability given the data storage device configuration

- the period in which the accumulated drift of a data storage device clock is expected to exceed the maximum time error set out in Table 1 of clause 2 of Schedule 15.2 for the category of the metering installation.

Audit observation

I checked 52 certification reports to confirm the maximum interrogation cycle is recorded.

Audit commentary

50 of the 52 certification reports had the maximum interrogation cycle recorded for each available services access interface. The two metering installations have AMI meters where both local and remote services access interfaces may be used but only one option and the associated maximum interrogation cycle was recorded. Influx has implemented changes to its metering installation certification report

templates to include each services access interface and maximum interrogation cycle. Non-compliance is also recorded for these two ICPs in **section 3.5**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.14 With: Clause 36(3) & (4) of Schedule 10.7 From: 30-Jun-22 To: 16-Mar-23	Maximum interrogation cycle not recorded for each services access interface in two metering installations. Potential impact: None Actual impact: None Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong as Influx have made changes to its process to record each services access interface and maximum interrogation cycle. There is no impact on MEPs because they are the source of this information anyway; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
○ 0000514045NRC0A certification was completed on an old form (FCL Metering – AMI). All certifications going forward are completed on "Influx Metering Work" within our field capture tool which has both SAI's for HHR and NHH for AMI meters ○ 0000007142TCBD0 certification was completed on paperwork that is no longer accepted. All contractors have been advised of this as well as this has been passed on internally.	March 2023	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Update to certification forms completed prior to audit,	March 2023	

4. CALIBRATION AND CERTIFICATION OF METERING COMPONENTS

4.1 Accommodation and Environment (Clause 1(D)-(E) Of Schedule 10.4)

Code related audit information

The ATH must ensure that the environment in which its activities are undertaken is monitored, appropriate for the tests being carried out and unlikely to affect the required accuracy.

Audit observation

Influx does not operate a laboratory function because their scope is limited to field installation work. Temperature is measured and recorded when comparative certification is conducted.

Audit commentary

Influx does not operate a laboratory function because their scope is limited to field installation work. Temperature is measured and recorded when comparative certification is conducted.

Audit outcome

Compliant

4.2 Use of Measurement Standards (Clause 1(F) Of Schedule 10.4)

Code related audit information

The ATH must comply with the specific requirements of the applicable standard listed in Table 5 of Schedule 10.1.

Audit observation

I checked the standards being used to confirm compliance.

Audit commentary

Influx does not conduct calibration but has ensured that all metering components certified have been type tested and calibrated to the correct standards.

Audit outcome

Compliant

4.3 Test Equipment (Clause 2 of Schedule 10.4)

Code related audit information

An ATH must, at all times, ensure that it has access to all items of equipment required for the performance of the calibrations and tests it is approved to undertake under this Part; and each item of equipment it uses is maintained in accordance with the manufacturer's recommendations and this Code. A class B ATH must have and maintain procedures for the purchase of test equipment and associated consumables.

Audit observation

Influx maintains a register of equipment, including test equipment. I confirmed this was up to date and that all relevant equipment is regularly checked and tested.

Audit commentary

Influx maintains a register of equipment, including test equipment. I confirmed this was up to date and that all relevant equipment is regularly checked and tested. There are 17 Hioki working standards recorded in the register, 16 of these have current calibration reports and one is not currently in use and has not been calibrated. Five of the Hioki working standards are owned and used by contractors. The contractors supply copies of the current calibration reports to Influx, and these are also recorded in the register. There have been no repairs during the audit period.

A class B ATH must have and maintain procedures for the purchase of test equipment and associated consumables. The relevant process was demonstrated during the audit. The relevant consumables are seals, sealing tools and stickers.

Audit outcome

Compliant

4.4 Calibration of Reference & Working Standards (Clause 3(1)(a), (b)(i) and (6) of Schedule 10.4)

Code related audit information

An ATH must ensure that any reference standard is calibrated by an approved calibration laboratory and that any working standard is calibrated by an approved calibration laboratory or class A ATH. The calibration reports for the calibrated standards must be held by the ATH and indicate that the standard is within the manufacturer's accuracy specifications.

Audit observation

Influx currently has 16 Hioki working standards in use, and I checked the most recent calibration records.

Audit commentary

Influx has 16 Hioki working standards in use, and they all have current calibration reports.

Audit outcome

Compliant

4.5 Calibration Interval (Clause 3(2) of Schedule 10.4)

Code related audit information

Each reference standard or working standard must be calibrated within the applicable calibration interval set out in Table 1 of Schedule 10.4.

Audit observation

I checked Influx's working standards to confirm they had current calibration certificates.

Audit commentary

Influx ensures that the eight working standards currently used for category 2 installation certification are calibrated within the required maximum of 12 months, this was confirmed by my checks of the calibration records.

Audit outcome

Compliant

4.6 Calibration of Reference Standards (Clause 3(1)(B)(Ii), (2), (3)(C), (4) And (5) Of Schedule 10.4)

Code related audit information

Class A ATHs must ensure that in calibration of reference standards, any uncertainties are sufficiently small so that the overall uncertainty in the measurements used to test a metering installation does not exceed one third of the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of metering installation that the reference standard will be used to calibrate.

If a reference standard is used in conditions that deviate from those in the calibration report, the class A ATH must calculate and apply adjustments using its own processes and procedures so that the reference standard achieves the reference conditions.

If a reference standard is used in conditions that deviate from those in the calibration report, the class A ATH must calculate and apply adjustments using its own processes and procedures so that the reference standard achieves the reference conditions.

Audit observation

Influx does not have any reference standards.

Audit commentary

Influx does not have any reference standards.

Audit outcome

Not applicable

4.7 33kv or above calibrated by an Approved Calibration Laboratory (Clause 3(3)(B) Of Schedule 10.4)

Code related audit information

Class A ATHs must ensure that a working standard on a system operating at a voltage of 33kV or above has been calibrated by an approved calibration laboratory.

Audit observation

Influx does not use HV working standards.

Audit commentary

Influx does not use HV working standards.

Audit outcome

Not applicable

4.8 Metering Component Testing System (Clause 4 of Schedule 10.4)

Code related audit information

An ATH may use a complete calibrated metering component testing system (a test bench) as an alternative to a separately calibrated working standard only if the ATH:

- calibrates the test bench as if it was a working standard

- carries out a testing system accuracy test, using approved reference standards before completing the calibration report.

Audit observation

Influx does not have a laboratory or component testing system.

Audit commentary

Influx does not have a laboratory or component testing system.

Audit outcome

Not applicable

4.9 Calibration Errors (Clause 5 of Schedule 10.4)

Code related audit information

A Standard cannot be used if the ATH believes is has a calibration error. If an error is found, then all ATH's that have used the standard must be notified. All metering installations certified using the standard must be treated as defective in accordance with Clause 10.43.

Audit observation

I checked Influx understands this requirement through interview. I checked whether this situation had occurred.

Audit commentary

Influx understands the requirements of this clause. There are no examples of standards with calibration errors.

Audit outcome

Compliant

4.10 Measurement Traceability (Clause 6 of Schedule 10.4)

Code related audit information

An ATH must document, maintain, and comply with a system that ensures, whenever it undertakes a calibration test or measurement, the ATH can replicate the test or measurement in every respect and the results of the measurements are traceable.

Audit observation

Influx conducts comparative certification, and the records contain sufficient information for the test to be replicated.

Audit commentary

Influx conducts comparative certification, and the records contain sufficient information for the test to be replicated.

Audit outcome

Compliant

4.11 Calibration Methods (Clause 7(6) of Schedule 10.4)

Code related audit information

An ATH must only use components that have been certified by an ATH or calibration laboratory.

A Class B ATH must follow 17025 calibration methods for components.

The test points must be those listed in the relevant IEC standard.

An ATH must ensure that uncertainty of measurement does not exceed one third of the error listed in the relevant IEC standard listed in Table 5.

If a CT is to be used in a Metering Installation is certified using the selected component method, then it must be tested for errors at 5% to 120% of rated current.

An ATH must have documented instructions for calibration that match the IEC standard.

Audit observation

I checked with Influx whether it calibrates components in accordance with this clause.

Audit commentary

Influx does not calibrate components.

Audit outcome

Not applicable

4.12 Data Storage Device Certification (Clause 5 of Schedule 10.8)

Code related audit information

All data storage devices must be certified before they can be used in a metering installation. The ATH must ensure that the data storage devices in a metering installation have been type tested by an approved test laboratory, that the results for data storage devices are appropriate for that model and version and have a calibration report.

Audit observation

I checked the certification records for 52 metering installations to confirm compliance.

Audit commentary

Influx certifies data storage devices in accordance with these clauses. The certification report is combined with the metering installation certification report and contains the required details. Influx has a directory of type test reports for relevant devices which was viewed during the audit.

I have recorded an issue in **section 5.26** regarding certification of data storage devices when conducting statistical recertification of Category 1 metering installations.

Audit outcome

Compliant

4.13 Metering Component Stickers (Clause 8(1) and 8(4) of Schedule 10.8)

Code related audit information

An ATH must confirm certification by attaching a metering component certification sticker to the metering component or, if not practicable, provide the sticker with the metering component.

If an ATH certifies the metering component on the same day it certifies the metering installation that the metering component is installed in, the ATH may combine the certification stickers and attach it to the metering installation in accordance with clause 41 of Schedule 10.7.

Audit observation

I checked Influx's component stickers to confirm compliance.

Audit commentary

All component stickers are compliant with this clause. I checked photos included in the certification reports to confirm they were correctly applied. Influx does not use combined installation and component stickers.

Audit outcome

Compliant

4.14 Metering Component Stickers (Clause 8(2) of Schedule 10.8)

Code related audit information

A metering component certification sticker must show:

- the name of the metering component owner (if available)

- if the metering component is a meter or a measuring transformer:

a) the name of the ATH or the approved calibration laboratory who calibrated the metering component

b) the name of the ATH who certified the metering component

c) the date on which the metering component was certified

d) the initials or other unique identifier of the person who carried out the certification of the metering component.

Audit observation

I checked Influx's component stickers and the certification records for 52 metering installations to confirm compliance.

Audit commentary

All component stickers are compliant with this clause and include all the required fields. During my checks of photos included in the certification reports I found four cases (ICPs 0000503076NRBB3, 0000508436NRAF7, 0000555538NR93C and 1000528985PC8DD) where the metering component sticker "Calibrated by" field was populated with the incorrect party. These were Itron meters with the "Calibrated by" field recorded as "EDMI".

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.14 With: Clause 8(2) of Schedule 10.8 From: 15-Aug-22 To: 18-Nov-22	Incorrect calibration laboratory recorded on metering component sticker for four metering installations. 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 recorded as moderate because there is room for improvement. There is very little impact on other participants; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
○ Correspondence was sent out to contractors regarding recording the correct calibration laboratory along with examples of calibration stickers.	April 2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Training and communication with contractors	April 2023	

4.15 Sealing and Monitoring of Seals (Clause 9 of Schedule 10.4 & Clause 47(7) of Schedule 10.7)

Code related audit information

An ATH is required to have a documented system for applying seals to a metering installation to ensure that each metering component in the metering installation that could be expected to affect the accuracy or reliability of the metering installation is sealed. The system of sealing will ensure monitoring of the integrity of the metering installation and that unauthorised access to the metering installation will be identifiable so that the MEP can be notified.

The sealing system will identify:

- the ATH who affixed the seal

- the person (or the sealing tool) who applied the seal

- when the seal was applied.

Audit observation

I checked the quality documentation and a sample of 52 certification records to confirm compliance.

Audit commentary

Influx uses the wire and ferrule method for sealing. Nylon "wire" is used where stainless wire would not be appropriate, e.g., for the sealing of potential fuses. I confirmed the accuracy of the sealing tool register and checked that the sealing details was recorded in the certification records.

Audit outcome

Compliant

5. CALIBRATION AND CERTIFICATION OF METERING INSTALLATIONS

5.1 ATH Must Not Certify Metering Installations under Certain Circumstances (Clause 8(1) Of Schedule 10.7)

Code related audit information

An ATH must not certify a metering installation unless the metering installation complies with this Part.

Audit observation

I checked a sample of 52 certification records to confirm compliance.

Audit commentary

In the last audit non-compliance was recorded and a recommendation was made regarding Category 2 comparative recertification with an absolute error and uncertainty test result greater than 1.5%, meaning at least one of the components is operating outside its class. Influx provided further detail on its error calculation processes and an example was examined. Influx provided details of the requirements of the relevant IEC standards for meters and current transformers, *IEC 62053-21 - Electricity metering equipment (AC) – Particular requirements – Part 21: Static meters for active energy (classes 1 and 2)* and *IEC 6189-2 - Instrument Transformers - Part 2: Additional Requirements for Current Transformers.* Table 3 of IEC 62053-21 and Table 201 of IEC 6189-2 specify the error limits at various test points. These tables show that as the power factor moves away from unity and at lower load the acceptable error for class 1 meters and class 0.5 CTs can be up to 1.5% for each component. See tables below,

Table 3 – Acceptable percentage error limits
(single-phase meters and poly-phase meters with balanced loads or single-phase loads)

Value of current		Power factor	Acceptable percentage error limits for meters of class		
for directly connected meters	for transformer operated meters	cos φ	0,5	1	2
$I_{min} \le I < 0,1\ I_n$	$I_{min} \le I < 0,05\ I_n$	1	±1,0	±1,5	±2,5
$0,1\ I_n \le I \le I_{max}$	$0,05\ I_n \le I \le I_{max}$	1	±0,5	±1,0	±2,0
$0,1\ I_n \le I < 0,2\ I_n$	$0,05\ I_n \le I < 0,1\ I_n$	0,5 inductive	±1,0	±1,5	±2,5
		0,8 capacitive	±1,0	±1,5	-
$0,2\ I_n \le I \le I_{max}$	$0,1\ I_n \le I \le I_{max}$	0,5 inductive	±0,6	±1,0	±2,0
		0,8 capacitive	±0,6	±1,0	-------
$0,2\ I_n \le I \le I_{max}$	$0,1\ I_n \le I \le I_{max}$	0,25 inductive	±1,0 [a]	±3,5 [a]	
		0,5 capacitive	±1,0 [a]	±2,5 [a]	-------
		0,25 capacitive	---------	-------	-------
[a] When specially requested by the user.					
NOTE 1 The current transformers under IEC 61869-2 have a lowest load point at 0,05 I_n.					
NOTE 2 See Annex A for an informative comparison of percentage error limits for classes 0,5, 1 and 2.					

Table 201 – Limits of ratio error and phase displacement for measuring current transformers (classes 0,1 to 1)

Accuracy class	Ratio error ± % at current (% of rated)				Phase displacement ± Minutes at current (% of rated)				± Centiradians at current (% of rated)			
	5	20	100	120	5	20	100	120	5	20	100	120
0,1	0,4	0,2	0,1	0,1	15	8	5	5	0,45	0,24	0,15	0,15
0,2	0,75	0,35	0,2	0,2	30	15	10	10	0,9	0,45	0,3	0,3
0,5	1,5	0,75	0,5	0,5	90	45	30	30	2,7	1,35	0,9	0,9
1	3,0	1,5	1,0	1,0	180	90	60	60	5,4	2,7	1,8	1,8

In the example examined, ICP 0004421339MLF02, the certification report included details of the load at the time of testing, which was 13, 12 and 13 amps on the red, white and blue phases. The certification report did not contain details of the power factor at the time of testing, but Influx advised that after checking photos taken on site that the power factor was 0.83. As the site error was less than the combined error limits specified in the IEC standards for the meter and CTs at the load and power factor levels at the time of testing Influx determined that the meter and CTs are operating inside their class. I agree that the components are operating within the class limits during testing but recommend that Influx record all details of test conditions including power factor in the certification report and review the calibration reports of meters to determine if the calibration results are similar to the test results in the field at similar load points.

Recommendation	Description	Audited party comment	Remedial action
8(1) Of Schedule 10.7	I recommend Influx record all details of test conditions including power factor in the certification report and review the calibration reports of meters to determine if the calibration results are similar to the test results in the field at similar load points.	Both power factor and average load are now recorded within our new certification form	Cleared

Clause 9(1)(c)(i)(B) of Schedule 10.7 requires a minimum load of 10 amps when conducting Category 2 certification. As the issues with high error have occurred at low load levels, I raise as an issue for consideration by the Authority that the minimum load requirement is reviewed with consideration given to the current transformer primary ratio and error limits of IEC standards to ensure that on site testing does confirm that metering components are operating within IEC standards.

Issue	Description
Regarding: Clause 9(1)(c)(i)(B) of Schedule 10.7	I raise as an issue for consideration by the Authority that the minimum load requirement for Category 2 certification tests is reviewed with consideration given to the current transformer primary ratio and error limits of IEC standards to ensure that on site testing does confirm that metering components are operating within IEC standards.

Audit outcome

Compliant

5.2 Determination of Metering Categories (Clause 5 of Schedule 10.7 & Clause 10.11)

Code related audit information

An ATH is required to determine the category of the metering installation in accordance with Table 1 of Schedule 10.1 before it certifies a metering installation.

Audit observation

I checked certification records for 52 metering installations to confirm compliance.

Audit commentary

All 52 certification reports had the metering category recorded correctly.

Audit outcome

Compliant

5.3 Requirement for Metering Installation Design Report (Clause 2(4) Of Schedule 10.7)

Code related audit information

The ATH must receive a design report from the MEP before installing or modifying a metering installation or a component in a metering installation.

Audit observation

I checked the current suite of design reports and the certification records for 52 metering installations.

Audit commentary

Influx is both the MEP and the ATH. I checked the design reports and I confirm they are all compliant.

Audit outcome

Compliant

5.4 ATH Design Report Obligations (Clause 3 of Schedule 10.7)

Code related audit information

Before certifying a metering installation, the ATH must check the design report to confirm the metering installation will function as designed and that the metering installation will comply with Part 10.

The certifying ATH must update the design report with any changes and provide it to the MEP responsible for the installation within 10 days of installation certification.

Audit observation

I checked the current suite of design reports and the certification records for 52 metering installations.

Audit commentary

The design reports contain all of the required information, including configuration schemes and schematic drawings. The design report was recorded in all 52 certification records.

In the last audit non-compliance was recorded for details of variations not being recorded when burden resistors were added to Category 2 metering installations. My checks included 13 cases where burden resistors had been added and the details were recorded correctly. Compliance is confirmed.

Audit outcome

Compliant

5.5 Certification as a Lower Category (Clause 6(1) of Schedule 10.7)

Code related audit information

An ATH may determine that the metering category of a current transformer installation is lower than would otherwise be the case and certify the installation at that lower category only if:

- a protection device, like a fuse or a circuit breaker, is installed so that it limits the maximum current; or

- the MEP provides evidence from historical data that the maximum current will be lower than the current setting of the protection device for the category that metering installation is currently certified at; or

- the components in the metering installation will use less than 0.5 GWh in any 12-month period; or

- the MEP provides evidence from historical data that the installation will use less than 0.5 GWh in any 12-month period.

Audit observation

I checked the Influx processes and three examples of certification at a lower category.

Audit commentary

The Influx process requires the inclusion in the metering installation certification report of details of the lower category certification including advice to the MEP regarding the requirement to monitor the load or the consumption or recording of current limiting devices. In one example the metering installation certification report included the following statement, "Site downgraded to CAT2 based on maximum demand. MEP to monitor load." Two examples were certified on the basis of current limiting devices being present to limit the current to less than the Category 2 limit. The certification reports contained details of the current limiting devices.

Audit outcome

Compliant

5.6 Use of Current Transformer Rating Lower Than Supply Capacity (Clause 6(2)(a) of Schedule 10.7)

Code related audit information

If the ATH determines the category of a current transformer metering installation is lower than would otherwise be the case and a current limiting device is used, the ATH must:

- confirm the suitability and operational condition of the protection device

- record the rating and setting of the protection device in the metering records

- seal the protection device

- apply, if practicable, a warning tag or label to the seal.

Audit observation

I checked the Influx processes and two examples of certification at a lower category on the basis of a current limiting device being installed.

Audit commentary

The Influx process requires the inclusion in the metering installation certification report of details of current limiting devices. In the two examples checked the certification reports contained details of the current limiting devices.

Audit outcome

Compliant

5.7 Determining Metering Installation Category at a Lower Category Using Current Transformer Rating (Clause 6(2)(b) & (d) of Schedule 10.7)

Code related audit information

The ATH may determine the metering installation category according to the metering installation's expected maximum current, if:

- there has been a request to do so from the MEP,

- the MEP provides evidence from historical data that the maximum current will be lower than the current setting of the protection device for the category that metering installation is currently certified; and

- the ATH considers it is appropriate to do so in the circumstances.

The MEP must obtain the maximum current that flows through the installation each month from the participant interrogating the installation. From this data the ATH can calculate the maximum current from the raw meter data by either calculation from the kVA by trading period if available or from a maximum current indicator if fitted. If the MEP does not receive the monthly report from the participant interrogating the installation or if the current exceeds the maximum calculated rating of the installation, the certification of the installation is automatically cancelled.

Audit observation

I checked the Influx processes and three examples of certification at a lower category.

Audit commentary

The Influx process requires the inclusion in the metering installation certification report of details of the lower category certification including advice to the MEP regarding the requirement to monitor the load or the consumption or recording of current limiting devices. In one example the metering

installation certification report included the following statement, “Site downgraded to CAT2 based on maximum demand. MEP to monitor load.” Two examples were certified on the basis of current limiting devices being present to limit the current to less than the Category 2 limit. The certification reports contained details of the current limiting devices.

Audit outcome

Compliant

5.8 Suitability of Determination of a Metering Installation Category at a Lower Category using Current Transformer Rating (Clause 6(3) Of Schedule 10.7)

Code related audit information

Before the ATH determines a metering installation to be a lower category, the ATH must first visit the site of the metering installation to ensure it is suitable for the metering installation to be determined to be a lower category.

Audit observation

I checked three examples of certification at a lower category.

Audit commentary

In all three examples checked Influx visited the sites at the time of certification and determined that the metering installations were suitable to be certified at a lower category.

Audit outcome

Compliant

5.9 Use of Metering Installation Certification Methods (Clause 7(1) Of Schedule 10.7)

Code related audit information

When certifying a metering installation, the ATH must use either of the following methods:

a) the selected component certification method if the metering installation is category 1, 2, or 3; or

b) the fully calibrated certification method.

Audit observation

I checked certification records for 52 metering installations to confirm compliance.

Audit commentary

Influx uses the comparative recertification method of certification for recertification of Category 2 metering installations and the selected component method for new installations or where components are replaced. Influx has not conducted any fully calibrated certification.

Audit outcome

Compliant

5.10 Certification of a Metering Installation Using Statistical Sampling or Comparative Recertification (Clause 7(2) Of Schedule 10.7)

Code related audit information

In addition to the selected component and fully calibrated methods, the ATH may also recertify an installation using:

a) an approved statistical sampling process for category 1 metering installations; or

b) the approved comparative recertification method for a category 2 metering installation

Audit observation

I checked certification records for 16 Category 2 metering installations certified using the comparative recertification method and checked if any recertification by statistical sampling had been conducted to confirm compliance.

Audit commentary

Influx conducted statistical sampling recertification of 6,104 Category 1 ICPs under the FCLM MEP identifier for the Influx MEP. Compliance is confirmed in this section as an approved statistical sampling method was used. This is discussed further, and non-compliance is recorded for application of an incorrect certification period, in **section 5.26.**

Influx uses the comparative method of certification for recertification of category 2 metering installations and the selected component method for new installations or where components are replaced.

Audit outcome

Compliant

5.11 Metering Installation Certification Requirements (Clause 8(3) Of Schedule 10.7)

Code related audit information

An ATH may only certify a metering installation as category 3 or higher if the metering installation incorporates a half hour meter.

Audit observation

Influx did not certify any Category 3 or above metering installations during the audit period.

Audit commentary

Influx did not certify any Category 3 or above metering installations during the audit period.

Audit outcome

Not applicable

5.12 Certification Tests (Clause 9(1) of Schedule 10.7)

Code related audit information

An ATH, when required to carry out tests specified in Tables 3 or 4 of Schedule 10.1, must comply with the provisions of clause 9(1) of Schedule 10.7 for the following tests:

- a prevailing load test

- an installation or component configuration test

- a raw meter data output test.

A prevailing load test is defined in the Code as a test that is carried out by comparing the output of the metering installation against a working standard connected to the metering installation. For a category 2 or higher metering installation, the prevailing load check must be done against a calibrated instrument (working standard). For a category 1 metering installation industry, best practice has defined a prevailing load test as a measurement of disk revolutions or pulses compared with time and current measurements. The revolutions or pulses are compared against a table or chart to validate the accuracy of the measurement. The prevailing load check is more than simply confirming that the meter operates but is only intended to identify a "gross error" like a phase missing or reversed or a significant metering error.

If the ATH carries out an installation or component configuration test on a metering installation or a metering component, it must ensure that the test equipment configuration is the same as the metering installation or component configuration recorded in the design report.

To carry out a raw meter data output test for a category 1 metering installation or category 2 metering installation, the ATH must apply a load on each phase that is:

- *greater than 5% of the meter's maximum rated current for category 1 installations,*
- *10 amps on each phase for category 2 metering installations.*

In addition, the ATH must use either the working standard referred to in subclause (1)(a) or an ammeter in good working order with an accuracy range of +/-5% to measure the load applied to the metering installation and recording the resulting increment of the meter register value over a measured period of time or recording the resulting accumulation of pulses from the load over a measured period of time.

The ATH must also ensure that the change in the meter register that occurs under subclause (ii)(A) or (ii)(B) is at least "1" in the least significant digit, or one mark if the least significant digit does not have numerical markings.

If the meter is a Ferraris disc meter, the ATH must undertake two raw meter data output tests in which the second test must have a load applied to the meter that is at least double the load applied in the first test.

To carry out a raw meter data output test for a half-hour installation, the ATH must either compare the output from a working standard to the raw meter data from the metering installation for a minimum of 1 trading period, or if the raw meter data is to be used for the purposes of Part 15, confirm that the MEP's back-office processes include a comparison of:

- *the increment of the accumulating meter registers, and*
- *the sum of the half-hour metering raw meter data for the same period.*

Audit observation

I checked process documentation, and 52 certification reports to confirm compliance.

Audit commentary

The Code requires minimum load requirements for ATHs when conducting raw meter data tests. The minimum load required on each phase is:

- greater than 5% of the meter's maximum rated current for Category 1 installations,
- 10 amps on each phase for Category 2 metering installations.

The Influx process requires technicians to apply a 2kW load conducting raw meter data tests on Category 1 meters, this meets the minimum load requirement of 5% of the meter's rated current.

I checked 19 Category 2 metering installation certification records. Test results are clearly recorded in the reports which confirmed that the minimum load requirement of 10 amps was met for 18 of the 19 records. The measured load for the certification at ICP 0000046802NTEB3 was 5.92A, non-compliance is recorded as this does not meet the minimum load requirement of 10 amps. I have raised an issue for consideration by the Authority regarding minimum load for Category 2 testing in **section 5.1.**

When conducting a raw meter data test the Code requires the ATH to measure the load applied using either a working standard or an ammeter in good working order with an accuracy range of +/-5% and to record either:

- the resulting increment of the meter register value over a measured period of time, or
- the resulting accumulation of pulses from the load over a measured period of time.

I checked 33 Category 1 metering installation certification records. Influx has added "Start Read" and "End Read" fields which record the increment of the meter register and a "Time taken in seconds for the meter advancement field" to record the time taken. Whilst a known load of 2kW is applied the Code is specific and requires the ATH to measure the load applied using either a working standard or an ammeter in good working order with an accuracy range of +/-5%. I have recorded non-compliance as the Influx process does not measure the load applied and there is no review of the results or pass/fail criteria applied to the test.

Raw meter data output tests for an HHR metering installation which are category 1 or category 2 must be conducted by either:

- comparing the output from a working standard to the raw meter data from the metering installation for a minimum of one trading period, or
- confirming that the metering equipment provider's back-office processes include a comparison of the difference in the increment of the meter registers to the half-hour metering raw meter data, if the raw meter data is to be used for the purposes of Part 15.

Influx compares the output from a working standard to the raw meter data from the metering installation for a minimum of one trading period for Category 2 installations, the results are recorded in the metering installation certification report. For Category 1 installations Influx has received confirmation from the MEP that the comparison occurs.

Prevailing load tests must be conducted on a metering installation or metering component by using a working standard connected to the metering installation. When certifying Category 2 metering

installations Influx has conducted prevailing load tests in accordance with this clause using a working standard.

Installation or component configuration tests must ensure that the actual configuration scheme is the same as the scheme for the metering installation or metering component recorded in the design report. The configuration scheme is recorded on the design report and confirmed in the metering installation certification report.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 5.12 With: Clause 9(1)(ii)(B) of Schedule 10.7 From: 01-Feb-21 To: 16-Mar-23	Minimum load requirement for raw meter data test on Category 2 meter not met for one metering installation. ATH did not measure the load applied and when conducting a raw meter data test for all 33 Category 1 metering installations checked. Potential impact: Low Actual impact: Low Audit history: Once 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 is minor because testing is conducted therefore the audit risk rating is low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**

○ This Category 2 site was completed during a training session with the ATH Technical Specialist. The code clearly states in Clause 9(1)c of Schedule 10.7 that the site only requires a minimum of 10 amps during the raw meter data output test. The photo taken on site clearly shows that the current was above 10 amps (11, 14 and 11A) during the raw meter data output. This will not be an issue in future as the average load during the raw meter data output test is recorded in the new certification paperwork, however Influx would like to raise an issue of the auditor using the secondary current for the burden test as an indication for the primary load as the code does not require the primary (or secondary current for that matter) to be greater that a set point for burden measurements.	N/A	Cleared
○ Influx has submitted a code change application to the EA for category 1 load testing while conducting raw meter data tests.	TBC	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No preventative actions required, however new certification paperwork records the average load during the raw data output meter test.	N/A	

5.13 Raw Meter Data Test for All Metering Installations (Clause 9(1A) Of Schedule 10.7)

Code related audit information

If the ATH performs a raw meter data output test under sub-clause (1)(c) or sub-clause (1)(d), for a metering installation that will be certified for remote meter reading, the ATH must:

a) obtain the raw meter data from the back-office system where the raw meter data is held; or

b) ensure that the metering equipment provider responsible for the metering installation has a process to validate a meter reading taken at the time of the metering installation certification with a meter reading from the metering equipment provider's back-office system.

Audit observation

I checked documentation and 52 certification reports to confirm compliance.

Audit commentary

Influx has confirmation from the MEP that they have a back-office validation process.

Audit outcome

Compliant

5.14 Alternate Raw Meter Data Test for Category 1 And 2 Metering Installations (Clause 9(1)(C) Of Schedule 10.7)

Code related audit information

A raw meter data output test is carried out for a category 1 metering installation or category 2 metering installation by comparing a known load change against the increment of the sum of the meter registers.

Audit observation

Refer to **sections 5.12** and **5.13**.

Audit commentary

Refer to **sections 5.12** and **5.13**.

Audit outcome

Compliant

5.15 Raw Meter Data Output Test (Clause 9(2) And 9(3) Of Schedule 10.7)

Code related audit information

If the ATH performs a raw meter data output test that requires a comparison between two quantities, the ATH must not certify the metering installation unless the test demonstrates that the difference between the two quantities is within the applicable accuracy tolerances set out in Table 1 of Schedule 10.1.

Audit observation

I checked process documentation and records for 52 metering installations to confirm compliance.

Audit commentary

There were no examples of inaccurate or failed test results.

Audit outcome

Compliant

5.16 Test Results (Clause 10(1) & (2) of Schedule 10.7)

Code related audit information

An ATH must not certify a metering installation if the results of tests on the metering installation or any of its metering components find that:

- a metering component did not pass all the tests

- the metering installation did not meet the requirements for certification.

Within five business days of reviewing the tests, the ATH must advise the relevant MEP why it did not certify the metering installation.

Audit observation

I checked process documentation and records for 52 metering installations to confirm compliance.

Audit commentary

There were no examples of metering components or installations failing tests. The Influx processes ensure that certification will not occur if a test fails.

In the last audit non-compliance was recorded and a recommendation was made regarding Category 2 comparative recertification with an absolute error and uncertainty test result greater than 1.5%. This is discussed further, a recommendation made, and an issue raised in **section 5.1.**

Audit outcome

Compliant

5.17 Selected Component Certification (Clause 11(2) of Schedule 10.7)

Code related audit information

An ATH may only use the selected component certification method to certify a metering installation which complies with the categories and component specifications set out in Table 1 of Schedule 10.1.

Audit observation

I checked process documentation, and records for 24 metering installations to confirm compliance.

Audit commentary

Compliance is confirmed with this clause for all 24 installations.

Audit outcome

Compliant

5.18 Selected Component - Circumstances where method may be used (Clause11(3) Of Schedule 10.7)

Code related audit information

An ATH must only use the selected component certification method to certify the metering installation if:

- the required tests in Table 3 of Schedule 10.1 are carried out

- each data storage device, meter, and measuring transformer has been calibrated and certified

- each data storage device is certified in accordance with clause 5 of Schedule 10.8

- the ATH provides a certification report for the metering installation.

Audit observation

I checked process documentation, and records for 35 metering installations to confirm compliance.

Audit commentary

Certification reports were provided in all cases and all components were certified; all of the required tests in table 3 were conducted. Whilst all tests are conducted, non-compliance is recorded in **section 5.12** as the Category 1 raw meter data test process does not require the technician to measure the load applied.

Audit outcome

Compliant

5.19 Comparative Recertification – Circumstances where method may be used (Clause 12(2) of Schedule 10.7)

Code related audit information

An ATH may only use the comparative recertification method to recertify a category 2 metering installation if:

- the certification of the current transformers in the metering installation expires before the meter certification expiry date

- each data storage device and/or meter has been calibrated and certified.

Audit observation

I checked process documentation and records for 16 metering installations to confirm compliance.

Audit commentary

The process documentation is clear, and all comparative certification reports contained confirmation that the meter was replaced by another certified meter.

Audit outcome

Compliant

5.20 Comparative Recertification Tests (Clause 12(3) And 12(5)(A) Of Schedule 10.7)

Code related audit information

An ATH must, when recertifying the category 2 metering installation using the comparative recertification metering installation certification method, ensure that:

- the metering installation has passed the tests set out in Table 3 of Schedule 10.1 using a working standard

- the accuracy of the current measurement sensor (current transformer or high accuracy Rogowski coil) enables the metering installation to meet the specified accuracy requirements of Table 1 of Schedule 10.1

- the overall metering installation accuracy meets the requirements of Table 1 of Schedule 10.1 and

- the ATH provides a certification report for the metering installation.

Audit observation

I checked process documentation and records for 16 metering installations to confirm compliance.

Audit commentary

The certification reports confirmed that appropriate testing was conducted and that the total accuracy was within the requirements of table 1. A certification report was provided for each metering installation.

Audit outcome

Compliant

5.21 Fully Calibrated – Circumstances Where Method May be Used (Clause 13(3) of Schedule 10.7)

Code related audit information

An ATH must use the fully calibrated certification method to certify the metering installation:

- by carrying out the tests set out in Table 4 of Schedule 10.1

- if each of the components (the data storage device, meter, and measuring transformer) has been calibrated and certified.

Audit observation

Influx does not conduct certification under this clause.

Audit commentary

Influx does not conduct certification under this clause.

Audit outcome

Not applicable

5.22 Fully Calibrated - Certify Each Metering Component (Clause 13(4) Of Schedule 10.7)

Code related audit information

Each individual metering component in the metering installation must have a current certification report that confirms that the metering component complies with the requirements of its accuracy class; and includes the certification date of the metering component.

Audit observation

Influx does not conduct certification under this clause.

Audit commentary

Influx does not conduct certification under this clause.

Audit outcome

Not applicable

5.23 Fully Calibrated - Additional Metering Installation Certification Report Requirements (Clause 13(5) & (6) Of Schedule 10.7)

Code related audit information

The ATH must provide a certification report for the metering installation. The certification report must include confirmation that:

- the ATH has checked the design report of the metering installation to confirm the metering installation functions in accordance with the report

- the overall metering installation accuracy meets the requirements of Table 1 of Schedule 10.1

- the accuracy of the metering installation remains within the maximum permitted error for the relevant metering installation

- each metering component in the metering installation is used only in a permitted combination as set out in table 1 of Schedule 10.1.

Audit observation

Influx does not conduct certification under this clause.

Audit commentary

Influx does not conduct certification under this clause.

Audit outcome

Not applicable

5.24 Fully Calibrated – Use Meter Class Accuracy (Clause 13(7) Of Schedule 10.7)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that the ATH uses the meter class accuracy, and not the actual accuracy, to calculate whether the actual error is within the maximum permitted error.

Audit observation

Influx does not conduct certification under this clause.

Audit commentary

Influx does not conduct certification under this clause.

Audit outcome

Not applicable

5.25 Insufficient Load (Clause 14 of Schedule 10.7)

Code related audit information

Every metering installation requires a test to ensure that the installation is correctly recording the energy used at the installation. The tests required are defined in Tables 3 and 4 of Schedule 10.1. The checks range from a minimum check that the meter registers increment through to a full raw meter data output check against a working standard and a check against the back-office data for a half hour installation.

If the ATH decides to certify half hour metering installation that has insufficient load to complete a prevailing load check, the ATH must ensure that:

- it performs an additional integrity check of the metering installation wiring, and records the results of this check in the certification report

- it records in the certification report that the metering installation is certified under clause 14 of Schedule 10.7.

Once load is present and following a request from the MEP, the ATH must carry out prevailing load tests. If the tests demonstrate that the metering installation performs within the maximum permitted error, the certifying ATH must:

- update the metering installation certification report, within five business days of completing the tests, to include the results of the tests carried out

- leave the original metering installation certification expiry date unchanged.

Audit observation

Influx has not conducted insufficient load certification.

Audit commentary

Influx has not conducted insufficient load certification.

Audit outcome

Not applicable

5.26 Statistical Sampling (Clause 16 of Schedule 10.7)

Code related audit information

A group of meters can be sampled by the ATH and the results of the sample group can be extended to a larger group of the same meters. This is a process of certification by statistical sampling. The ATH must select a sample using a statistical sampling process that is:

- detailed in AS/NZS1284 (or approved and published by the Authority)

- recertify the group by recertifying each metering installation in the sample using the fully calibrated certification method

- advise the MEP as soon as reasonably practicable whether the sample passes or fails the recertification requirements.

If the ATH carries out a statistical sampling process when recertifying a group of category 1 metering installations on behalf of an MEP, it must document and record:

- the process it follows for selecting samples

- any assumptions about those samples

- the metering installations in the sample

- the metering installations in the recertified group.

An ATH that recertifies a group of metering installations using a statistical sampling process does not need to apply a certification sticker to the remainder of the metering installations in the family or group that was sample tested.

If the group meets the recertification requirements, the ATH must use the maximum validity period set out in Table 5 of AS/NZS 1284 as the certification validity period for each metering installation in the group.

Audit observation

Influx conducted statistical sampling of a population of 6,104 ICPs. I checked the results in detail to ensure compliance.

Audit commentary

Influx conducted statistical sampling of a population of 6,104 ICPs containing EDMI Mk7A, Mk7C and Mk10D Class 1 meters. The population was selected to include meters likely to pass testing and a check was conducted to ensure the sample matched the population. The sample passed testing and certification has been applied for seven years. Table 5 of AS/NZS 1284 states that Class 1 meters can be recertified for a maximum period of five years. The ATH has treated the meters as "General purpose" and has applied the certification period of seven years. I have recorded non-compliance as the ICPs have been certified for longer than the maximum period specified by the standard. I have also raised this as an issue for the Authority to consider amending the Code to ensure that an MEP is not disadvantaged for using meters with an accuracy class higher than the minimum class required by the Code. I also suggest that the Authority consider whether AS/NZS 1284 is still fit for purpose and whether a more appropriate process can be included in or prescribed by the Code.

Issue	Description
Regarding: Clause 16 of schedule 10.7	I recommend that the Authority consider amending the Code to ensure that an MEP is not disadvantaged for using meters with an accuracy class higher than the minimum class required by the Code. I also suggest that the Authority consider whether AS/NZS 1284 is still fit for purpose and whether a more appropriate process can be included in or prescribed by the Code.

The EDMI Mk7A, Mk7C and Mk10D meters certified contain integrated data storage devices. The Code requires that each data storage device incorporated in a metering installation is certified but is unclear on the requirements for certification of data storage devices when statistical recertification is conducted. I have raised this as an issue to be considered by the Authority.

Issue	Description
Regarding: Clause 36(1) of Schedule 10.7 and Clause 16 of schedule 10.7	Certification of data storage devices when statistical recertification is conducted. The code requires an MEP to ensure that each data storage device incorporated in a metering installation is certified. It is unclear how this should be applied when conducting recertification by statistical recertification under clause 16 of Schedule 10.7.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.26 With: Clause 16 of Schedule 10.7 From: 07-Sep-22 To: 16-Mar-23	Incorrect certification period of seven years applied to 6,104 ICPs certified using the statistical recertification method. Potential impact: None Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate as the statistical sampling process used is robust apart from the determination of the certification period. There is likely to be no impact as the meters used are of a higher class than required by the Code for use in Category 1 metering installations and the calibration results have confirmed their accuracy. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
In discussion with the Electricity Authority regarding the certification validity periods	TBA	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
Awaiting further discussions with the Electricity Authority	TBA	

5.27 Statistical Sampling - Certification Method (Clause 7(3) Of Schedule 10.7)

Code related audit information

If the ATH uses statistical sampling, it must use either the selected component method or the fully calibrated method, as applicable, to certify each metering installation in the sample.

Audit observation

Influx conducted statistical sampling of a population of 6,104 ICPs. I checked the results in detail to ensure compliance.

Audit commentary

All installations were recertified using the selected component method.

Audit outcome

Compliant

5.28 Certification Validity Periods (Clause 17 of Schedule 10.7)

Code related audit information

A metering installation certification expiry date is the earliest of:

a) the date of commissioning plus the maximum certification validity period for the relevant category of metering installation, as set out in Table 1 of Schedule 10.1; or

b) the earliest metering component certification expiry date; or

c) a date determined by the ATH if the ATH believes that the circumstances and condition of the components in a metering installation warrant deviation from Table 1 of Schedule 10.1.

The expiry date for a metering installation in a group recertified using a statistical sampling process, is the earliest expiry date of the metering installations in the sample.

Audit observation

I checked 52 metering installation certification records and the results of statistical sampling of a population of 6,104 ICPs to confirm compliance.

Audit commentary

The certification and expiry dates were correctly recorded in all 52 of the metering installation certification reports.

As recorded in **section 5.26**, an incorrect certification period of seven years was applied to 6,104 ICPs certified using the statistical recertification method.

Audit outcome

Non-compliant

Non-compliance	Description

Audit Ref: 5.28 With: Clause 17 of Schedule 10.7 From: 07-Sep-22 To: 16-Mar-23	Incorrect certification period of seven years applied to 6,104 ICPs certified using the statistical recertification method. Potential impact: None Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate as the statistical sampling process used is robust apart from the determination of the certification period. There is likely to be no impact as the meters used are of a higher class than required by the Code for use in Category 1 metering installations and the calibration results have confirmed their accuracy. The audit risk rating is low.

Actions taken to resolve the issue	**Completion date**	**Remedial action status**
In discussion with the Electricity Authority regarding the certification validity periods	TBA	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
Awaiting further discussions with the Electricity Authority	TBA	

5.29 Metering Installation Accuracy (Clause 21 of Schedule 10.7)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that the metering installation does not exceed the relevant maximum permitted error after the application of any external compensation factors.

Audit observation

I checked 52 metering installation certification records to confirm compliance.

Audit commentary

The process documentation stipulates the maximum permitted errors for certification. I checked a sample of certification records that confirmed this was being applied correctly.

Audit outcome

Compliant

5.30 Error Calculation (Clause 22 of Schedule 10.7)

Code related audit information

If a metering installation is certified using the comparative recertification or fully calibrated methods, the ATH must calculate and record the percentage of overall error of the metering installation. The ATH must calculate this using appropriate mathematical methods that include:

- all sources of measurement error including test instrument errors, reference standard variations when used in conditions that deviate from those in the calibration report, variations in repeated observations, the instrument resolution or discrimination threshold and any assumptions incorporated in the measurement method and procedure

- the error calculation must include the uncertainty in the measurement at a 95% level of confidence using JCGM 100:2008

- the error and its calculation must be recorded in the certification report.

The ATH must not certify the metering installation if the uncertainty is greater than the maximum permitted site uncertainty or the combined error that includes the measured error and the uncertainty, is greater than the maximum permitted installation error.

Audit observation

I checked 16 metering installation certification records and discussed the process for error calculation.

Audit commentary

Influx's methodology includes the uncertainty associated with the working standards and clamps, plus consideration of temperature. The technician measures the ambient temperature on-site and this is recorded in the metering installation certification report. The certification report calculates the total uncertainty based on the working standard uncertainty which has been derived from the most recent calibration report and the influence of temperature. The total error including uncertainty is recorded in the metering installation certification report. The calculation methodology is compliant.

Audit outcome

Compliant

5.31 Compensation Factors (Clause 24(1)(b) of Schedule 10.7)

Code related audit information

Before it certifies a metering installation that requires a compensation factor to adjust raw meter data, the ATH must:

- advise the MEP of the compensation factor

- ensure that the compensation factor that will be applied to raw meter data external to the metering installation is applied as follows:

a) for ratio compensation, on a category 1 metering installation or higher category of metering installation; or

b) for error compensation, on a metering installation that quantifies electricity conveyed through a point of connection to the grid; or

c) for loss compensation, only on a category 3 or higher metering installation.

Audit observation

I checked 52 metering installation certification records, and process documentation.

Audit commentary

Influx has a documented process for the management of compensation factors (multipliers). The testing procedures for Category 2 metering installations provide confirmation of the multiplier and CT ratio, the multiplier is recorded on the metering installation certification report. Influx only deals with multipliers, not loss or error compensation factors. The compensation factor was correctly recorded in all 52 certification records checked.

Audit outcome

Compliant

5.32 Record Metering Installation Compensation Factor (Clause 24(2) Of Schedule 10.7)

Code related audit information

If a compensation factor is applied to a metering installation, the ATH must record in the certification report, the methodology, assumptions, measurements, calculation and details of each compensation factor that is included within the internal configuration of the metering installation and each compensation factor that must be applied to the raw meter data.

Audit observation

I checked 52 metering installation certification records, and process documentation.

Audit commentary

Influx has a documented process for the management of compensation factors (multipliers). The testing procedures for Category 2 metering installations provide confirmation of the multiplier and CT ratio, the multiplier is recorded on the metering installation certification report. Influx only deals with multipliers, not loss or error compensation factors. The compensation factor was correctly recorded in all 52 certification records checked.

Audit outcome

Compliant

5.33 Installation of Metering Components (Clause 25 of Schedule 10.7)

Code related audit information

Before it certifies a metering installation, the ATH must ensure that the installation of the metering components was carried out by an ATH. However, a suitably qualified person such as a switchboard manufacturer may install the measuring transformers and any required associated burden, the test facilities, potential fuses and switchboard wiring.

Before it certifies a metering installation, the ATH must ensure that each metering component is installed in accordance with the installation design report.

Audit observation

I checked process documentation and conducted a walk-through of the process.

Audit commentary

This clause is designed to allow switchboard manufacturers to install measuring transformers in switchboards at the time of manufacture. This clause does not allow the installation of meters or data loggers. Influx has a documented process to ensure compliance with this clause. Only CTs and test blocks are supplied, not meters.

Audit outcome

Compliant

5.34 Determine Metering Installation Certification Expiry Date (Clause 27(1) & (2) Of Schedule 10.7)

Code related audit information

The ATH needs to determine the meter certification expiry date for each meter in a metering installation. The meter certification expiry date must be the earliest end date of the following periods, calculated from the date of commissioning of the metering installation:

a) the maximum metering installation certification validity period for the relevant category of metering installation; or

c) the certification period specified in the meter certification report.

Audit observation

I checked 52 certification records to confirm compliance.

Audit commentary

The meter commissioning date and expiry date was correctly recorded in all 52 of the metering installation certification records.

Non-compliance is recorded in **sections 5.26** and **5.28**, due to an incorrect certification period of seven years applied to 6,104 ICPs certified using the statistical recertification method.

Audit outcome

Compliant

5.35 Meter Certification Shelf Life (Clause 27(4) Of Schedule 10.7)

Code related audit information

If a meter is not installed in a metering installation within 24 months of the date of the meter's certification report, the meter must be recertified before it is installed.

Audit observation

I checked 52 certification records to confirm compliance.

Audit commentary

Influx understands the requirements of this clause and ensures that all meters are certified at the time of installation.

Audit outcome

Compliant

5.36 Measuring Transformers Must Be Certified (Clause 28(2) Of Schedule 10.7)

Code related audit information

All measuring transformers must be certified before they can be used in a metering installation. If a measuring transformer has previously been used in another metering installation, the ATH must ensure that the measuring transformer has been recalibrated since it was removed from the previous metering installation. This must be undertaken either by an approved calibration laboratory or an ATH.

Audit observation

I checked 19 Category 2 certification records to confirm compliance.

Audit commentary

All of the installations had certified measuring transformers. Influx has a clear understanding of this requirement.

Audit outcome

Compliant

5.37 Measuring Transformers Used in a Certified Metering Installation (Clause 28(4) Of Schedule 10.7)

Code related audit information

To certify any metering installation incorporating measuring transformers, the ATH must ensure that:

- the installation has certified measuring transformers

- the installation has a test facility which has provision for isolation, installed as physically close to the meter as practical in the circumstances

- the test facility is fitted with a transparent cover

- the installation has securely mounted measuring transformers which are, if practicable, in a sealed enclosure

- the maximum permitted error is calculated in accordance with clause 22 for the fully calibrated certification method or the comparative recertification method

- any voltage supplies from a voltage transformer to a meter or that other equipment in the metering installation is protected by appropriately rated fuses or circuit breakers dedicated to the supply. All fuses and circuit breakers must be suitably sealed or located in sealed enclosures,

- the measuring transformer's secondary circuit is earthed and that it is earthed at no more than one point

- the total in-service burden (magnitude and phase angle, where appropriate), complies with clause 31.

Audit observation

I checked 19 Category 2 certification records, including photos for some installations, and process documentation to confirm compliance.

Audit commentary

The process documentation and design reports stipulate all of the requirements above. The certification reports confirmed compliance with regard to certification. Photos confirmed transparent covers were used.

When certifying category 2 installations burden testing is conducted and the results are recorded in the metering installation certification report. The process and certification reports specify that the in-service burden must be within the range of the current transformer. If the in-service burden is found to be lower than the burden range for the current transformer burden resistors are installed to increase the burden and the burden tests are repeated. The in-service burden was within the burden range for the current transformer for 18 of the 19 records checked.

Influx certified the Category 2 metering installation at ICP 000530401NRCE9 on 6 September 2022. The current transformers are TWS Model SAL29A 150/5 with a rated burden of 2.5VA. The calculated burden at full load recorded in the certification report was 0.44, 0.33 and 0.44 VA. The minimum burden for these current transformers is 0.625VA (25% of the rated burden). Prior to completion of the audit Influx advised that this model of current transformer had been added to its list of transformers requiring burden to be added and had advised the MEP that certification needed to be cancelled. Non-compliance is recorded as the in-service burden was not within the burden range of the current transformers.

Audit outcome

Non-compliant

Non-compliance	Description

<table>
<tr><td>Audit Ref: 5.37
With: Clause 28(4) Of Schedule 10.7

From: 06-Sep-22
To: 16-Mar-23</td><td colspan="3">One metering installation certified with CTs burden lower than the lowest burden test point specified in the standard without confirmation from the CT manufacturer.

Potential impact: Low
Actual impact: Low
Audit history: None
Controls: Strong
Breach risk rating: 1</td></tr>
<tr><th>Audit risk rating</th><th colspan="3">Rationale for audit risk rating</th></tr>
<tr><td>Low</td><td colspan="3">I have recorded the controls as strong as the Influx process ensures that burden resistors are added when required, and this model of CT has been added to its list of CTs requiring burden to be added.
The impact on the accuracy of the metering installation is low therefore the audit risk rating is low.</td></tr>
<tr><th colspan="2">Actions taken to resolve the issue</th><th>Completion date</th><th>Remedial action status</th></tr>
<tr><td colspan="2">○ The site in question (000530401NRCE9) had its certification cancelled and the MEP notified on 23/03/2023. A Work Order was raised, and a contractor attended site and rectified the burden on 30/03/2023 (certification can be provided if required). Influx request that the points regarding this are removed from the overall tally or at least considered with respect to the next audit frequency.</td><td>April 2023</td><td rowspan="3">Cleared</td></tr>
<tr><th colspan="2">Preventative actions taken to ensure no further issues will occur</th><th>Completion date</th></tr>
<tr><td colspan="2">Updates to certification paperwork as well as correspondence with contractors</td><td>April 2023</td></tr>
</table>

5.38 Measuring Transformer Certification Expiry Date (Clause 29 of Schedule 10.7)

Code related audit information

The ATH needs to determine the measuring transformer certification expiry date for each measuring transformer in a metering installation. The measuring transformer certification expiry must be within the validity period specified in the measuring transformer certification report.

Audit observation

I checked 19 Category 2 certification records to confirm compliance.

Audit commentary

Current transformers are certified and the time of installation certification by Influx. The certification dates and certification expiry dates were correctly recorded in the certification records checked for three Category 2 metering installations certified using the selected component method.

Audit outcome

Compliant

5.39 Other Equipment Connected to Measuring Transformers (Clause 30 of Schedule 10.7)

Code related audit information

If the ATH certifies a metering installation incorporating a measuring transformer used by another metering installation, it must ensure that where voltage transformers are connected to more than one meter:

- the meters are included in the metering installation being certified

- appropriate fuses or circuit breakers are provided to protect the metering circuit from short circuits or overloads affecting the other meter.

While it is desirable that only metering equipment is connected to measuring transformers in a metering installation if, in some circumstances, the MEP connects other equipment to measuring transformers, the ATH must ensure that:

- the accuracy of the metering installation remains within the maximum permitted error for the relevant metering installation category

- the metering installation certification report confirms that the accuracy of the metering installation remains within the maximum permitted error for the relevant metering installation

- any wiring between the equipment and any part of the metering installation is continuous

- the equipment is labelled appropriately, including with any de-energisation restrictions

- the connection details of the other equipment are recorded in the metering installation design report

- there are appropriate fuses or circuit breakers provided to protect the voltage transformer and metering circuit from short circuits or overloads affecting the other equipment.

Audit observation

I checked whether the situation arises where other equipment is connected to measuring transformers.

Audit commentary

This scenario is not likely to occur with the scope of the Influx ATH operation, and no examples were available to review.

Audit outcome

Compliant

5.40 Burden & Compensation (Clause 31 of Schedule 10.7)

Code related audit information

An ATH may certify a metering installation for a POC to the grid that includes error compensation factors as an alternative to the use of burden resistors only if the ATH is satisfied the error compensation factors will provide a more accurate result than the use of burden resistors.

An ATH may change the burden on a voltage transformer, without obtaining the approval of the MEP, if the ATH confirms in the certification report that the difference between the new burden and the burden at the time of the most recent metering installation certification is:

a) less than or equal to 1/30th of the VA rating of the voltage transformer, if the voltage transformer is rated at less than 30 VA; or

b) no greater than 1 VA, if the voltage transformer is rated at equal to or greater than 30 VA.

Before it certifies a metering installation incorporating a measuring transformer:

- *ensure that the in-service burden does not exceed the upper limit of the range specified for the measuring transformer, if specified in the design report for the metering installation.*
- *ensure that the in-service burden on the measuring transformer is within the range specified in the certification report by installing burdening resistors, if necessary,*
- *confirm that a class A ATH has confirmed by calibration that the accuracy of the measuring transformer will not be adversely affect by the in-service burden being less than the lowest burden test point specified in the standard, if the primary voltage of the measuring transformer is greater than 1kV,*
- *confirm that the measuring transformer's manufacturer has confirmed that the accuracy of the measuring transformer will not be adversely affected by the in-service burden being less than the lowest burden test point specified in the standard.*

Audit observation

I checked processes and the records for 19 metering installations to confirm compliance.

Audit commentary

When certifying Category 2 installations burden testing is conducted and the results are recorded in the metering installation certification report. The process and certification reports specify that the in-service burden must be within the range of the current transformer. If the in-service burden is found to be lower than the burden range for the current transformer burden resistors are installed to increase the burden and the burden tests are repeated. The in-service burden was within the burden range for the current transformer for 18 of the 19 records checked.

Influx certified the Category 2 metering installation at ICP 000530401NRCE9 on 6 September 2022. The current transformers are TWS Model SAL29A 150/5 with a rated burden of 2.5VA. The calculated burden at full load recorded in the certification report was 0.44, 0.33 and 0.44 VA. The minimum burden for these current transformers is 0.625VA (25% of the rated burden). Prior to completion of the audit Influx advised that this model of current transformer had been added to its list of

transformers requiring burden to be added and had advised the MEP that certification needed to be cancelled. Non-compliance is recorded as the in-service burden was not within the burden range of the current transformers.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.40 With: Clause 31 of Schedule 10.7 From: 06-Sep-22 To: 16-Mar-23	One metering installation certified with CTs burden lower than the lowest burden test point specified in the standard without confirmation from the CT manufacturer. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as strong as the Influx process ensures that burden resistors are added when required, and this model of CT has been added to its list of CTs requiring burden to be added. The impact on the accuracy of the metering installation is low therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
○ The site in question (000530401NRCE9) had its certification cancelled and the MEP notified on 23/03/2023. A Work Order was raised, and a contractor attended site and rectified the burden on 30/03/2023 (certification can be provided if required). Influx request that the points regarding this are removed from the overall tally or at least considered with respect to the next audit frequency.	April 2023	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Updates to certification paperwork as well as correspondence with contractors	April 2023	

5.41 Alternative Certification (Clause 32(1) of Schedule 10.7)

Code related audit information

If the ATH cannot comply with the requirements for certifying a measuring transformer solely due to the inability to obtain physical access to test the measuring transformers, it can certify the metering installation for a period not exceeding 24 months only if:

- the measuring transformer has not previously been certified due to failure to obtain access

- the ATH is satisfied that the metering installation will comply with the applicable accuracy requirements

- the ATH has advised the MEP that the metering installation has been certified by this method

- the MEP has advised the registry of the certification, if the ICP is not an NSP.

Audit observation

Influx has not applied alternative certification.

Audit commentary

Influx has not applied alternative certification.

Audit outcome

Not applicable

5.42 Installations Incorporating Control Devices (Clause 33(2) of Schedule 10.7)

Code related audit information

Before the ATH can certify a metering installation incorporating a control device that must be certified, it must ensure:

- that the certification expiry date for each control device is the same as the metering installation certification expiry date and record that date in the installation certification report

- that the control device complies with the applicable standards listed in Table 5 of Schedule 10.1

- the control device is fit for purpose

- if the metering installation contains a control device that has previously been used in another metering installation, that the control device is still fit for service.

- that the control device is:

a) likely to receive control signals

b) correctly connected

c) correctly programmed.

Audit observation

I checked certification records for eight metering installations to confirm compliance.

Audit commentary

Influx is certifying control devices and correctly applying stickers. The control device certification expiry date is correctly recorded in the installation certification report.

Audit outcome

Compliant

5.43 Control Device Reliability (Clause 34(1) & (3) to (5) of Schedule 10.7)

Code related audit information

In order to ensure control device accuracy or the completeness of reconciliation information, the ATH must determine the likelihood of the control device not receiving control signals before it certifies a metering installation incorporating a control device.

If the ATH believes the likelihood of the control device not receiving control signals would affect the accuracy or completeness of the information for consumption reconciliation, the ATH may certify the remainder of the metering components and the installation, excluding the control device. The ATH must advise the MEP within three business days of its decision. The MEP is then responsible for advising both the reconciliation participant for the POC for the metering installation and the control signal provider of the ATH's determination.

Audit observation

I checked correspondence in relation to this matter to determine compliance.

Audit commentary

As an ATH and MEP, Influx has good information of areas with signal propagation issues and appropriate instructions are provided to contractors.

Audit outcome

Compliant

5.44 Data Storage Devices (Clauses 36(2) of Schedule 10.7)

Code related audit information

If a data storage device has previously been used in another metering installation, the ATH must ensure that the data storage device has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory, an approved test laboratory, or an ATH.

Audit observation

I checked processes and the records for 52 metering installations to confirm compliance.

Audit commentary

All data storage devices are integrated with the meters and are recertified prior to being reinstalled.

Audit outcome

Compliant

5.45 Data storage device requirements (Clause 38(1) and (2) of Schedule 10.7 and clause 5(1) of Schedule 10.8)

Code related audit information

An ATH must ensure that each data storage device in the metering installation:

- is installed so that on-site interrogation is possible without the need to interfere with seals

- has a dedicated power supply unless the data storage device is integrated with another metering component

- is compatible with each other metering component of the metering installation

- is suitable for the electrical and environmental site conditions in which it is installed

- has all of its outputs and inputs appropriately electrically isolated and rated for purpose

- has no outputs that will interfere with the operation of the metering installation

- records periods of data identifiable or deducible by both date and time on interrogation

- has memory capacity and functionality that is suitable for the proposed functions of the data storage device specified in the design report for the metering installation

- has availability of memory for a period that is suitable for the proposed functions as set out in the design report for the metering installation, and at least for a minimum continuous period of 15 days.

The data storage device must have an event log which records the following:

a) loss of power supply

b) critical internal alarms

c) meter phase failure if integral to the meter

d) software configuration changes

e) a record of time changes.

Audit observation

I checked processes and the records for 52 metering installations to confirm compliance.

Audit commentary

All of the points above apart from the point regarding environmental suitability are covered by the type test reports. Influx has appropriate instructions for the identification and recording of unsuitable environments.

I have recorded an issue in **section 5.26** regarding certification of data storage devices when conducting statistical recertification of Category 1 metering installations.

Audit outcome

Compliant

5.46 Location of Metering Installation Certification Stickers (Clause 41(1) and 41(9) of Schedule 10.7)

Code related audit information

An ATH must confirm the metering installation certification by attaching a metering installation certification sticker as close as possible to the meter, while maintaining reasonable visibility of the certification sticker and the meter.

When attaching a metering installation certification sticker, the ATH must remove or obscure any invalid or expired certification stickers.

Audit observation

I checked the photos included in the certification reports for metering installations to confirm compliance.

Audit commentary

In all cases, the certification stickers contained the appropriate detail and were correctly applied. Old certification stickers are either removed or obscured.

Audit outcome

Compliant

5.47 Alternate Location of Metering Installation Certification Sticker (Clause 41(4) Of Schedule 10.7)

Code related audit information

If attaching a certification sticker is not practicable, the ATH must devise and use an alternative means of documenting the information and keep any metering component certification sticker with the documented information.

Audit observation

I checked with Influx whether this scenario had arisen.

Audit commentary

This scenario has not arisen and is unlikely to arise.

Audit outcome

Not applicable

5.48 Contents of Metering Installation Certification Sticker (Clause 41(2) Of Schedule 10.7)

Code related audit information

The metering installation certification sticker must show:

- the name of the ATH who certified the metering installation

- the certification date of the installation

- the metering installation category

- the ICP

- the certification number for the metering installation.

Audit observation

I checked the photos included in the certification reports for metering installations to confirm compliance.

Audit commentary

In all cases, the certification stickers contained the appropriate detail and were correctly applied.

Audit outcome

Compliant

5.49 Combining certification stickers (Clause 41(5) – Clause 41(8) of Schedule 10.7)

Code related audit information

If an ATH certifies a metering component on the same day that the ATH certifies the metering installation, the ATH may combine the metering installation certification sticker with the metering component certification sticker.

If the certification sticker is combined, the ATH must:

- *ensure that the combined sticker shows all the information required by subclause (2) and clause 8(2) of Schedule 10.8,*
- *meet the requirements of subclauses (1), (3) and (4), as if the combined sticker were a metering installation certification sticker.*

The combined sticker is immediately invalid if:

- *the metering installation certification expiry date changes; or*
- *a metering component to which the combined certification sticker relates is removed from the metering installation.*

Audit observation

Influx has not used a combined metering installation and component sticker.

Audit commentary

Influx has not used a combined metering installation and component sticker.

Audit outcome

Compliant

5.50 Enclosures (Clause 42 of Schedule 10.7)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that, if a metering component in the metering installation is housed in a separate enclosure from the meter enclosure, the enclosure is appropriate to the environment in which it is located and has a warning label attached stating that the enclosure houses a metering component.

Audit observation

I checked the photos for five metering installations to confirm compliance.

Audit commentary

Although this clause only refers to enclosures other than the metering enclosure, I have considered this clause to apply to metering enclosures as well.

The photos for five metering installations showed that all enclosures were appropriate for the environment, and the Influx certification sticker has an appropriate warning. Influx reviews photos of all Category 2 installations to confirm enclosure suitability.

Audit outcome

Compliant

5.51 Metering Component Certification (Clause 43(1) of Schedule 10.7)

Code related audit information

Before certifying an installation, the ATH must ensure that each component has been certified by an ATH and has been stored appropriately since component certification.

Audit observation

I checked the processes for storage of components, and the records for 52 metering installations to confirm compliance.

Audit commentary

Influx has appropriate arrangements for storage and transportation.

Audit outcome

Compliant

5.52 Sealing Requirements (Clause 47(2) (3) (4) and (5) Of Schedule 10.7)

Code related audit information

Before an ATH certifies a metering installation, or leaves it unattended, the ATH must ensure that each metering component that could reasonably be expected to affect the accuracy or reliability of the metering installation is sealed.

The metering components which must be sealed include:

- each part and connection of a data storage device in, or attached to, the metering installation except for a port for on-site reading that is not capable of carrying out any other function

- the main switch cover, if the main switch:

a) is on the supply side of the metering installation

b) has provision for sealing.

Audit observation

I checked process documentation, design reports and the photos included in the certification reports for metering installations to confirm compliance.

Audit commentary

The process documentation achieves compliance with all of the requirements above. Main switches are sealed where this is possible using paper seals. I confirmed the sealing tool numbers were correctly recorded in the sealing tool register, enabling tracking of the persons who apply any given seal. The date of application of seals is recorded in the metering installation certification reports.

Audit outcome

Compliant

5.53 Seals for Metering Component Enclosures (Clause 47(6) Of Schedule 10.7)

Code related audit information

When applying a seal to a metering component in an enclosure, the ATH must attach a warning label in a prominent position inside the enclosure.

Audit observation

I checked process documentation, design reports and the photos included in the certification reports for metering installations to confirm compliance.

Audit commentary

The process documentation, design reports and the photos included in the certification reports for metering installations confirm compliance. The warning label is installed in a prominent position.

Audit outcome

Compliant

5.54 Requirements for Sealing System (Clause 47(7) Of Schedule 10.7)

Code related audit information

An ATH must use a sealing system that enables identification of:

- the ATH who affixed the seal

- the person (or the sealing tool) who applied the seal

- when the seal was applied.

Audit observation

I checked process documentation, design reports and the photos included in the certification reports for metering installations to confirm compliance.

Audit commentary

The process documentation, design reports and photos included in the certification reports for metering installations confirm compliance. The certification records contain the relevant details required by this clause. The sealing tool register was confirmed as accurate and up to date.

Audit outcome

Compliant

5.55 Removal or Breakage of Seals (Clause 48(6) of Schedule 10.7)

Code related audit information

When the ATH investigates an unauthorised removal or breakage, it must assess the accuracy and continued integrity of the metering installation. If the ATH considers the accuracy and continued integrity is unaffected, it must replace the removed or broken seals.

If the accuracy and continued integrity is affected, the ATH must replace the removed or broken seal and advise the MEP that the metering installation is potentially inaccurate, defective, or not fit for purpose.

Audit observation

I checked the process documentation and reporting form for compliance.

Audit commentary

Influx has appropriate instructions in relation to this requirement, and there is the ability to record this information on the commissioning record for the installation.

Audit outcome

Compliant

5.56 Wiring (Clause 6 of Schedule 10.8)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that all wiring in the metering installation is suitable for the environment in which the metering installation is located, fit for purpose, securely fastened, and compliant with all applicable requirements and enactments.

The ATH must ensure that the wiring between metering components in the metering installation:

- is run as directly as practicable

- is appropriately sized and protected

- does not, to the extent practicable, include intermediate joints for any measuring transformer circuits

- includes conductors that are clearly and permanently identified, by the use of any one or more of the following:

a) colour coding

b) marker ferrules

c) conductor numbering.

If it is not practicable to exclude intermediate joints for any measuring transformer circuits, the ATH must ensure that the intermediate joints are sealed or in a sealed enclosure.

Audit observation

I checked process documentation, design reports and the certification records for 52 metering installations to confirm compliance.

Audit commentary

The process documentation, design reports and certification records confirm compliance. The technicians confirm that the wiring matches the design report via a check box in the metering installation certification report.

Audit outcome

Compliant

5.57 Fuses and Circuit Breakers (Clause 7 of Schedule 10.8)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that all fuses and circuit breakers that are part of the metering installation are appropriately rated for the electrical duty and discrimination required, clearly labelled and sealed or located in sealed enclosures.

Audit observation

I checked process documentation, design reports and the certification records for 19 Category 2 metering installations to confirm compliance.

Audit commentary

The process documentation, design reports and certification records confirm compliance. The technicians confirm that the metering installation matches the design report in the metering installation certification report.

Audit outcome

Compliant

5.58 Calibration of Metering Components Where Relevant (Clause 7(1) Of Schedule 10.4)

Code related audit information

Before the ATH certifies a metering installation or metering component, it must ensure that the metering components have been calibrated by an approved calibration laboratory or an ATH with appropriate approval under Schedule 10.3.

Audit observation

I checked design reports, 52 certification reports and process documentation to confirm compliance.

Audit commentary

The Influx process requires the technician to confirm the calibration details of metering components on-site and certification does not occur if the component does not have a calibration sticker. The technician confirms that components are calibrated by selecting a tick box in the certification report. My checks of 52 metering installation certification reports and a sample of calibration reports confirmed compliance.

Audit outcome

Compliant

5.59 Requirement for Calibration of Metering Components (Clause 7(2) Of Schedule 10.4)

Code related audit information

Before the ATH certifies a metering component it must ensure that the component is calibrated or adjusted under the physical and electrical conditions specified in Table 5 of schedule 10.1 and the conditions permit the calculation of uncertainties at the reference conditions.

Audit observation

I checked design reports, 52 certification reports and process documentation to confirm compliance.

Audit commentary

The Influx process requires the technician to confirm the calibration details of metering components on-site and certification does not occur if the component does not have a calibration sticker. The technician confirms that components are calibrated by selecting a tick box in the certification report. My checks of 52 metering installation certification reports and a sample of calibration reports confirmed compliance.

Audit outcome

Compliant

5.60 Metering Component Calibration Method (Clause 7(3) Of Schedule 10.4)

Code related audit information

A class B ATH must follow the relevant requirements of ISO17025 for calibration of components and only use methodologies that have been verified in their most recent audit.

Audit observation

Influx's Class B ATH does not calibrate components.

Audit commentary

Influx's Class B ATH does not calibrate components.

Audit outcome

Not applicable

5.61 Metering Component Calibration Test Points (Clause 7(4) Of Schedule 10.4)

Code related audit information

If the ATH calibrates a component, it must ensure that the test points that it uses are either:

- no less than the test points in Table 5 of Schedule 10.1 or

- sufficient to calculate the metering installation error as defined in clause 22 of Schedule 10.7.

Audit observation

Influx's Class B ATH does not calibrate components.

Audit commentary

Influx's Class B ATH does not calibrate components.

Audit outcome

Not applicable

5.62 Determine Metering Component Error and Record (Clause 7(5) Of Schedule 10.4)

Code related audit information

An ATH must, when calibrating a metering component:

- if necessary, adjust and document the error compensation

- ensure that any adjustment carried out is appropriate to achieve an error as close as practicable to zero

- ensure that the uncertainty of measurement during the calibration of the metering component does not exceed one third of the maximum permitted error in the relevant standard listed in Table 5 of Schedule 10.1.

If the metering component is intended for a metering installation which will be certified using the selected component certification method, the ATH must ensure that the ATH records the errors of a current transformer from 5 % to 120 % of rated primary current.

Audit observation

Influx's Class B ATH does not calibrate components.

Audit commentary

Influx's Class B ATH does not calibrate components.

Audit outcome

Not applicable

5.63 Class B ATH Calibrating Metering Components (Clause 2(3) Of Schedule 10.3)

Code related audit information

If a class B ATH wishes to calibrate components (such as class 0.5 meters, class 1 meters, class 2 meters, class 0.5 current transformers, and class 1.0 current transformers) this must be carried out under the relevant provisions and methodologies of ISO 17025. The final audit report must include a list of all relevant requirements of ISO 17025 for calibrating these metering components and all relevant methodologies audited.

Audit observation

Influx's Class B ATH does not calibrate components.

Audit commentary

Influx's Class B ATH does not calibrate components.

Audit outcome

Not applicable

5.64 Meter Certification (Clause 1 of Schedule 10.8)

Code related audit information

All meters must be certified before they can be used in a metering installation. The ATH must ensure that the meters in a metering installation have been type tested by an approved test laboratory, that the results for the meter are appropriate for that meter model and version and have a calibration report.

Audit observation

I checked the certification records for 52 metering installations and Influx's database to confirm compliance.

Audit commentary

Influx certifies meters in accordance with this clause. Influx has a directory of type test reports for relevant devices which was viewed during the audit.

Audit outcome

Compliant

5.65 Meter Requirements When Meter Is Relocated (Clause 26(2) Of Schedule 10.7 and Clause 43(2) Of Schedule 10.7)

Code related audit information

If a meter has previously been used in another metering installation, the ATH must ensure that the meter has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory or an ATH unless it is less than 12 months since the meter was commissioned in the previous installation.

Audit observation

I checked processes and the records for 52 metering installations to confirm compliance.

Audit commentary

Influx ensures that all meters are calibrated by a class A ATH prior to being reinstalled.

Audit outcome

Compliant

5.66 Measuring Transformer Error Testing (Clause 2(1)(A) & (B) Of Schedule 10.8)

Code related audit information

Before certifying a measuring transformer, an ATH must test the measuring transformer's errors at a range of primary values at their rated burdens. If the measuring transformer is a multi-tap current transformer, an ATH must carry out the calibration tests and only certify the transformer for the ratios that have been calibrated.

Audit observation

I checked three ICPs where selected component certification was conducted and measuring transformers were certified.

Audit commentary

Calibration reports confirm compliance with this clause.

Audit outcome

Compliant

5.67 Measuring Transformer Certification (Clause 3 of Schedule 10.8)

Code related audit information

Before it certifies a measuring transformer, the ATH must ensure that:

- the measuring transformer has a current calibration report issued by an approved calibration laboratory or an ATH approved to carry out calibration

- the measuring transformer calibration report:

- confirms that the measuring transformer complies with the standards listed in Table 5 of Schedule 10.1

- records any tests the ATH has performed to confirm compliance

- confirms that the measuring transformer has passed the tests

- records any recommendations made by the ATH on error compensation

- includes any manufacturer's calibration test reports.

The ATH is required to produce a measuring transformer certification report that includes:

- the date on which it certified the measuring transformer

- the certification validity period for the measuring transformer, which must be no more than 120 months

- whether the certification was based on batch test certificates

- if the certification was based on batch test certificates, confirmation that the manufacturer's batch testing facility is, in the ATH's opinion, of an acceptable standard

- the range that the in-service burden must be within

The ATH must provide confirmation that the ATH has inspected the manufacturer's test certificates, and carried out any additional tests it considers necessary, to satisfy itself that the measuring transformer meets the accuracy requirements.

Audit observation

I checked three ICPs where selected component certification was conducted and measuring transformers were certified.

Audit commentary

Calibration reports were available and checked for these two metering installations, confirming compliance with the relevant parts of this clause.

The only issue identified is that the burden range is not clearly recorded. The certification reports checked contained a statement with the following wording: *"Note: Calculated VA Full Load must be above 25% of the installed CTs VA rating. For example, 5VA > 1.25VA; 10VA > 2.5VA & 15VA > 3.75 VA and no more than the rated VA, unless exempt."* This does not achieve the requirements of the Code, which are specific and require recording of *"…the range, including highest and lowest values, that the in-service burden must be within".* During the audit Influx provided details of an update to the Category 2 certification report template which is now in use. The report now includes a clear statement of the burden range for each current transformer certified which includes the highest and lowest permitted burden figures in VA. I have recorded non-compliance for certifications conducted prior to the implementation of the compliant report template.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.67 With: Clause 3 of Schedule 10.8 From: 01-Apr-21 To: 04-Nov-22	Burden range is not sufficiently clear when CTs are certified. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	I have recorded the controls as strong as the ATH process now records burden range correctly. 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**
○ As per the audit correspondence, Influx have updated our Category 2 Installation Report to clearly specify the burden range on a CT by CT basis. We would request that the points associated with this be removed from the overall tally or at least considered with respect to the next audit frequency.		September 2022	Cleared
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Nil		N/A	

5.68 Measuring Transformers in service burden range (Clause 2(1)(E) Of Schedule 10.8)

Code related audit information

Before certifying a measuring transformer, the ATH must determine the range that the in-service burden must be within to ensure the measuring transformer remains accurate, by using one or more of the following:

- *the measuring transformer's nameplate rating*
- *the calibration report for the measuring transformer*
- *the manufacturer's documentation for the measuring transformer*
- *the standard set out in Table 5 of Schedule 10.1 the measuring transformer was manufactured to.*

Audit observation

I checked three ICPs where selected component certification was conducted and measuring transformers were certified.

Audit commentary

I found the burden range was not clearly recorded in the three records checked. The certification reports checked contained a statement with the following wording: *"Note: Calculated VA Full Load*

must be above 25% of the installed CTs VA rating. For example, 5VA > 1.25VA; 10VA > 2.5VA & 15VA > 3.75 VA and no more than the rated VA, unless exempt." This does not achieve the requirements of the Code, which are specific and require recording of *"…the range, including highest and lowest values, that the in-service burden must be within".* During the audit Influx provided details of an update to the Category 2 certification report template which is now in use. The report now includes a clear statement of the burden range for each current transformer certified which includes the highest and lowest permitted burden figures in VA. I have recorded non-compliance for certifications conducted prior to the implementation of the compliant report template.

Audit outcome

Non-compliant

<table>
<tr><th>Non-compliance</th><th colspan="3">Description</th></tr>
<tr><td>Audit Ref: 5.68
With: Clause 2(1)(E) Of Schedule 10.8

From: 01-Apr-21
To: 04-Nov-22</td><td colspan="3">Burden range is not sufficiently clear when CTs are certified.

Potential impact: Low
Actual impact: Low
Audit history: Once
Controls: Strong
Breach risk rating: 1</td></tr>
<tr><th>Audit risk rating</th><th colspan="3">Rationale for audit risk rating</th></tr>
<tr><td>Low</td><td colspan="3">I have recorded the controls as strong as the ATH process now records burden range correctly.
The impact on settlement and participants is minor; therefore, the audit risk rating is low.</td></tr>
<tr><th colspan="2">Actions taken to resolve the issue</th><th>Completion date</th><th>Remedial action status</th></tr>
<tr><td colspan="2">○ As per the audit correspondence, Influx have updated our Category 2 Installation Report to clearly specify the burden range on a CT by CT basis. We would request that the points associated with this be removed from the overall tally or at least considered with respect to the next audit frequency.</td><td>September 2022</td><td rowspan="3">Cleared</td></tr>
<tr><th colspan="2">Preventative actions taken to ensure no further issues will occur</th><th>Completion date</th></tr>
<tr><td colspan="2">Nil</td><td>N/A</td></tr>
</table>

5.69 Measuring Transformer - Epoxy Insulated (Clause 2(2) Of Schedule 10.8)

Code related audit information

Before it certifies an epoxy insulated current transformer, the ATH must ensure that the certification tests allow for, and the metering installation certification report shows, the current transformer's age, temperature, and batch.

Audit observation

I checked the policy regarding epoxy CTs.

Audit commentary

Epoxy insulated CTs are discarded upon discovery.

Audit outcome

Compliant

5.70 Control Device Certification (Clause 4 of Schedule 10.8)

Code related audit information

Before it certifies a new control device, the ATH must produce a certification report that:

- confirms that the control device complies with the applicable standards listed in Table 5 of Schedule 10.1

- includes the details and results of any test that the ATH has carried out to confirm compliance under paragraph (a)

- confirms that the control device has passed such tests.

Before it certifies an existing installed control device, the ATH must produce a certification report that confirms:

- that the control device is fit for purpose

- the control device certification validity period that the ATH considers appropriate, which must be no more than 180 months.

Audit observation

I checked the certification records for eight metering installations to confirm compliance.

Audit commentary

Influx certifies control devices in accordance with these clauses. The certification report is combined with the metering installation certification report and contains the required details.

Audit outcome

Compliant

5.71 Data Storage Devices (Clause 36(2) Of Schedule 10.7)

Code related audit information

If a data storage device has previously been used in another metering installation, the ATH must ensure that the data storage device has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory, an approved test laboratory, or an ATH.

Audit observation

I checked the certification records for 52 metering installations to confirm compliance.

Audit commentary

All data storage devices are integrated with the meters and are recertified prior to being reinstalled.

Audit outcome

Compliant

5.72 On-site Calibration and Certification (Clause 9(1) of Schedule 10.8)

Code related audit information

An ATH may only calibrate a metering component on site in the metering component's normal environment by measuring the influence of all on-site variables and including their estimated effects in the uncertainty calculation. An ATH must ensure that:

- the effects of any departures from the reference conditions can accurately and reliably be calculated

- the metering installation, in which the metering component is incorporated, is within the applicable accuracy tolerances set out in Table 1 of Schedule 10.1 after taking into account all known influences including temperature and temperature co-efficient measurements.

Audit observation

Influx conducts comparative recertification but does not conduct onsite calibration of metering components.

Audit commentary

Influx conducts comparative recertification but does not conduct onsite calibration of metering components.

Audit outcome

Not applicable

5.73 On Site Metering Component Calibration (Clause 9(2) Of Schedule 10.8)

Code related audit information

If the ATH calibrates a metering component on site using manual methods, computers, or automated equipment for the capture, processing, manipulation, recording, reporting, storage, or retrieval of calibration data, it must ensure that its computer software:

- is documented in the ATH's procedures

- can manipulate the variables that affect the performance of the metering component in a manner that will produce results that would correctly indicate the level of compliance of the metering component with this Code.

Audit observation

Influx conducts comparative recertification but does not conduct onsite calibration of metering components.

Audit commentary

Influx conducts comparative recertification but does not conduct onsite calibration of metering components.

Audit outcome

Not applicable

5.74 On site metering component calibration records (Clause 9(3) of Schedule 10.8)

Code related audit information

An ATH that certifies a metering component on site must include confirmation in the metering component certification report that:

- it has calculated the uncertainty of measurement taking into account all environmental factors for both the metering component being calibrated and the working standards

- the calculation of the uncertainty comprises all uncertainties in the chain of calibration

- the ATH has used a calibration procedure to calibrate the metering component that was included in the ATH's most recent audit and is appropriate for on-site calibration.

Audit observation

Influx conducts comparative recertification but does not conduct onsite calibration of metering components.

Audit commentary

Influx conducts comparative recertification but does not conduct onsite calibration of metering components.

Audit outcome

Not applicable

5.75 Data Storage Device Certification Expiry Date (Clause 37 of Schedule 10.7)

Code related audit information

Before certifying a meter installation which incorporates a data storage device, the ATH must determine the expiry date of the data storage device. The ATH must record the expiry date in the certification report for the metering installation and the certification report for the data storage device.

Audit observation

I checked the certification records for 52 metering installations to confirm compliance.

Audit commentary

All data storage devices are integrated with the meters and in all cases the data storage devices expiry date is the same as the meter.

Audit outcome

Compliant

5.76 All Functions and Activities must be completed (Clause 10.42(2))

Code related audit information

Where Part 10 requires the ATH to complete a function or activity before a metering installation is certified, the ATH must complete that function or activity as part of the process for certifying the metering installation.

Audit observation

I checked the records for 52 metering installations and 13 examples of faulty metering installation investigations to confirm compliance.

Audit commentary

There was no evidence of incomplete functions in the 52 certification records.

Influx the ATH replaced a faulty pilot contactor with a ripple relay at ICP 0000900724TU04D and did not recertify the metering installation. As the ripple relay does not have the same characteristics of the pilot contactor it replaced, the ATH is required to recertify the metering installation. Non-compliance is recorded as Influx did not recertify the metering installation after the modification as required by the Code.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.76 With: Clause 10.42(1) From: 19-Oct-22 To: 16-Mar-23	Certification not conducted after modification of a metering installation. Potential impact: Low Actual impact: Low Audit history: Once 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**
Influx will look to update our process so that when certifying an installation with a load control device, a ripple load control device will be installed.	April 2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Training and discussions with owners of load control devices.	April 2023	

6. INSPECTION OF METERING INSTALLATIONS

6.1 General Inspection Requirements (Clause 44 (1) (a) to (e) of Schedule 10.7)

Code related audit information

When carrying out an inspection of a metering installation, the ATH must:

- check and confirm that the data storage device in the metering installation operates as required

- check and confirm that the expected remaining lifetime of each battery in the metering installation will be reasonably likely to meet or exceed the metering installation certification expiry date

- ensure that no modifications have been made to the metering installation without the change having been documented and certification requirements satisfied

- visually inspect all seals, enclosures, metering components, and wiring of the metering installation for evidence of damage, deterioration, or tampering

- ensure that the metering installation and its metering components carry appropriate certification stickers.

Audit observation

I checked five completed inspection reports to confirm compliance.

Audit commentary

Influx has not completed any inspections of metering installations containing data storage devices. The inspection reports checked confirmed all of the other points above were checked on-site and recorded in the inspection report.

Audit outcome

Compliant

6.2 Raw Meter Data Test (Clause 44(1)(F) Of Schedule 10.7)

Code related audit information

When carrying out an inspection of a category 1 metering installation, the ATH must also check and confirm there is no difference between the volume of electricity recorded by the master accumulation register of a data storage device, and the sum of the meter registers.

Audit observation

Influx has not conducted any inspections where data storage devices are present.

Audit commentary

Influx has not conducted any inspections where data storage devices are present.

Audit outcome

Not applicable

6.3 Prepare Inspection Report (Clause 44(2) Of Schedule 10.7)

Code related audit information

An ATH must prepare an inspection report for each inspection of a metering installation that it carries out, which includes the following:

- details of the checks carried out, the results, and the installation certification expiry date

- the serial numbers of all components in the metering installation

- any non-compliances and the action taken to remedy the non-compliance

- the name of the inspector and the date on the inspection.

Audit observation

I checked five completed inspection reports to confirm compliance.

Audit commentary

The inspection reports checked contained all the relevant information including the name of the inspector and date of inspection.

Audit outcome

Compliant

6.4 Provide Inspection Report to MEP (Clause 44(3) Of Schedule 10.7)

Code related audit information

The ATH must, within 10 business days of carrying out the inspection, provide the inspection report to the MEP.

Audit observation

I checked the timeframes for sending inspection reports to MEPs.

Audit commentary

Influx is also the MEP therefore they have the records as soon as the inspection is complete. Compliance is achieved.

Audit outcome

Compliant

6.5 Inspections for Category 2 & Above Installations (Clause 46(2) of Schedule 10.7)

Code related audit information

When carrying out an inspection of a category 2 or higher metering installation, the ATH must also conduct the following additional checks:

- a visual inspection of each metering component in the metering installation for damage, tampering, or defect

- if the current transformer can be safely accessed, check the position of the current transformer tap to ensure it is still appropriate for the expected maximum current for the metering installation

- check for the presence of appropriate voltages at the metering installation

- check the voltage circuit alarms and fault indicators.

Audit observation

No Category 2 inspections were conducted during the audit period.

Audit commentary

No Category 2 inspections were conducted during the audit period.

Audit outcome

Not applicable

7. PROCESS FOR HANDLING FAULTY METERING INSTALLATIONS

7.1 Investigation of Faulty Metering Installations (Clause 10.43(3) of Part 10)

Code related audit information

As a participant, the ATH must inform the MEP if it believes a metering installation is faulty, inaccurate, defective, or not fit for purpose.

Audit observation

I checked the results of the process followed for nine examples of faulty metering installations.

Audit commentary

In all nine cases, the MEP was notified immediately.

Audit outcome

Compliant

7.2 Testing of Faulty Metering Installations (Clause 10.44 of Part 10)

Code related audit information

When advised by an MEP that a metering installation is faulty, inaccurate, defective, or not fit for purpose, the ATH must test the metering installation as soon as practical and provide a statement of situation.

Audit observation

I checked the results of the process followed for nine examples of faulty metering installations.

Audit commentary

In all nine cases, appropriate testing and reporting was conducted immediately. The meters were replaced, and the metering installations were recertified in six cases where the meters were found to be faulty. Three of the cases were where faulty control devices had been bridged by another party and Influx was requested to attend and rectify. In two of these cases the faulty control devices were replaced with control devices with the same characteristics so recertification was not required. In the third case a pilot contactor was replaced with a ripple relay and Influx did not recertify the metering installation. Non-compliance is recorded in **section 5.76**. as Influx did not recertify the metering installation as required by the Code. In all nine cases details of the testing completed, and actions taken were recorded in the returned paperwork. The paperwork contains sufficient information to report to relevant parties and meet the requirements for a statement of situation.

Audit outcome

Compliant

7.3 Statement of Situation (Clause 10.46(1) of Part 10)

Code related audit information

The ATH must include the following in the statement of situation:

- the details and results of the tests carried out

- a conclusion, with reasons, as to whether or not the metering installation is faulty

- an assessment of the risk to the completeness and accuracy of the raw meter data

- the remedial action proposed or undertaken

- any correction factors to apply to raw meter data to ensure that the volume information is accurate

- the period over which the correction factor must be applied to the raw meter data.

Audit observation

I checked the results of the process followed for nine examples of faulty metering installations.

Audit commentary

In all nine cases, appropriate testing and reporting was conducted immediately. The metering installations were rectified in all nine cases. Details of the testing completed, and actions taken were recorded in the completed paperwork. The paperwork contains sufficient information to report to relevant parties and meet the requirements for a statement of situation.

Audit outcome

Compliant

7.4 ATH to keep records of modifications to correct defects (Clause 10.47 of Part 10)

Code related audit information

When taking action to remedy an inaccuracy or defect within a metering installation, the ATH must ensure that records of any modifications that are carried out to the metering installation are kept for each metering component of the metering installation in the metering records and in a manner reasonable in the circumstances to ensure that further investigation can be carried out.

Audit observation

I checked the results of the process followed for nine examples of faulty metering installations.

Audit commentary

In all nine cases, appropriate testing and reporting was conducted immediately. The metering installations were rectified in all nine cases. Details of the testing completed, and actions taken were recorded in the completed paperwork. The paperwork contains sufficient information to report to relevant parties and meet the requirements for a statement of situation.

Audit outcome

Compliant

8. Conclusions

The audit found 13 non-compliances, makes one recommendation and raises three issues for consideration by the Authority.

Influx has improved the accuracy of information in certification records with changes to certification reports being implemented during the audit period. Six of the areas of non-compliance relate to a small number of instances of inaccurate information in certification reports prior to the changes being fully implemented.

Influx conducted statistical sampling of a population of 6,104 ICPs containing EDMI Mk7A, Mk7C and Mk10D Class 1 meters. Non-compliance is recorded in two sections of the audit for the application of an incorrect certification period. Table 5 of AS/NZS 1284 states that Class 1 meters can be recertified for a maximum period of five years. Influx has treated the meters as "General purpose" and has applied the certification period of seven years. I have raised two issues in **section 5.26** for the Authority to consider in relation to statistical recertification.

The remaining non-compliances relate to certification practices as follows:

- incorrect calibration laboratory recorded on metering component sticker for four metering installations,
- the minimum load requirement for raw meter data test on Category 2 meter not met for one metering installation,
- Influx did not measure the load applied and when conducting a raw meter data test for all 33 Category 1 metering installations checked,
- one metering installation certified with CTs burden lower than the lowest burden test point specified in the standard without confirmation from the CT manufacturer, and
- certification not conducted after modification of a metering installation.

I have made a recommendation in **section 5.1** that Influx record all details of test conditions including power factor in the certification report and review the calibration reports of meters to determine if the calibration results are similar to the test results in the field at similar load points. I have raised an issue for consideration by the Authority recommending that the minimum load requirement for Category 2 certification tests is reviewed.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The future risk rating provides some guidance on this matter and recommends a next audit frequency of six months. I recommend a next audit frequency of 18 months as nine of the 13 areas of non-compliance have been addressed during the audit period through changes to metering installation certification report templates and ATH processes.

9. Influx Response

Influx thanks Brett Piskulic from Veritek for his input into the review of our Test House compliance. We have taken learnings from the process that we believe will further strengthen our ability to comply with the Electricity Authorities requirements.

Auditors' conclusions followed by Influx response –

- Influx has improved the accuracy of information in certification records with changes to certification reports being implemented during the audit period. Six of the areas of non-compliance relate to a small number of instances of inaccurate information in certification reports prior to the changes being fully implemented.
    - *Influx response – As stated above we made changes to our certification reports last year that have cleared this issue.*
- Influx conducted statistical sampling of a population of 6,104 ICPs containing EDMI Mk7A, Mk7C and Mk10D Class 1 meters. Non-compliance is recorded in two sections of the audit for the application of an incorrect certification period. Table 5 of AS/NZS 1284 states that Class 1 meters can be recertified for a maximum period of five years. Influx has treated the meters as "General purpose" and has applied the certification period of seven years. I have raised two issues in **section 5.26** for the Authority to consider in relation to statistical recertification.
    - *Influx response – Discussions with the EA are underway around this as all believe that statistical recertification validation periods should not be compromised by using a better than required Class of Meter.*

The remaining non-compliances relate to certification practices as follows:

- incorrect calibration laboratory recorded on metering component sticker for four metering installations,
    - *Influx response – Training and information has been sent to all contractors to avoid this in the future, therefore clearing this issue.*
- the minimum load requirement for raw meter data test on Category 2 meter not met for one metering installation,
    - *Influx response – The minimum load (10A per phase) required was used and therefore clears this item.*
- Influx did not measure the load applied and when conducting a raw meter data test for all 33 Category 1 metering installations checked,
    - *Influx response – Identified and code change application is sitting with the EA.*
- one metering installation certified with CTs burden lower than the lowest burden test point specified in the standard without confirmation from the CT manufacturer, and
    - *Influx response – Site has been recertified and updates to our certification paperwork completed, therefore the issue is cleared.*

- certification not conducted after modification of a metering installation.
    - *Influx response – Issue identified and discussions with load control owners will be conducted.*

Overall, we believe we perform at a high level in the management and daily operation of the ATH. Due to a large number of the issues already being cleared prior to the audit, we would recommend the audit cycle be set to a minimum of 24 months.

This would appropriately reflect how our business performs.