Senior Project
Metro-Cal Lab Accreditation

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BACKGROUND

- Metro-Cal Lab is a quality assurance and a training partner.
- It delivers:
  - Premiere technical and management training programs.
  - expert operations.
  - engineering support and world class consulting services.
- They offer Oversaw Administrations for:
  - Measurement Equipment Calibration and Maintenance Tracking
  - Measurement Equipment Inventory Management
  - Training and Development System Matrix

BACKGROUND

- Their services are classified into two: technical and managed.
- **Technical services consist :**
  - mechanical and electronic measurement equipment calibration.
  - product validation testing and inspection.
  - measurement equipment.
  - repair and maintenance .
  - purchase of new equipment.

  Managed services consist:
  - measurement equipment calibration and maintenance tracking.
  - equipment inventory management and training.
  - development of a system matrix.

METRO-CAL LAB LOCATION


1401

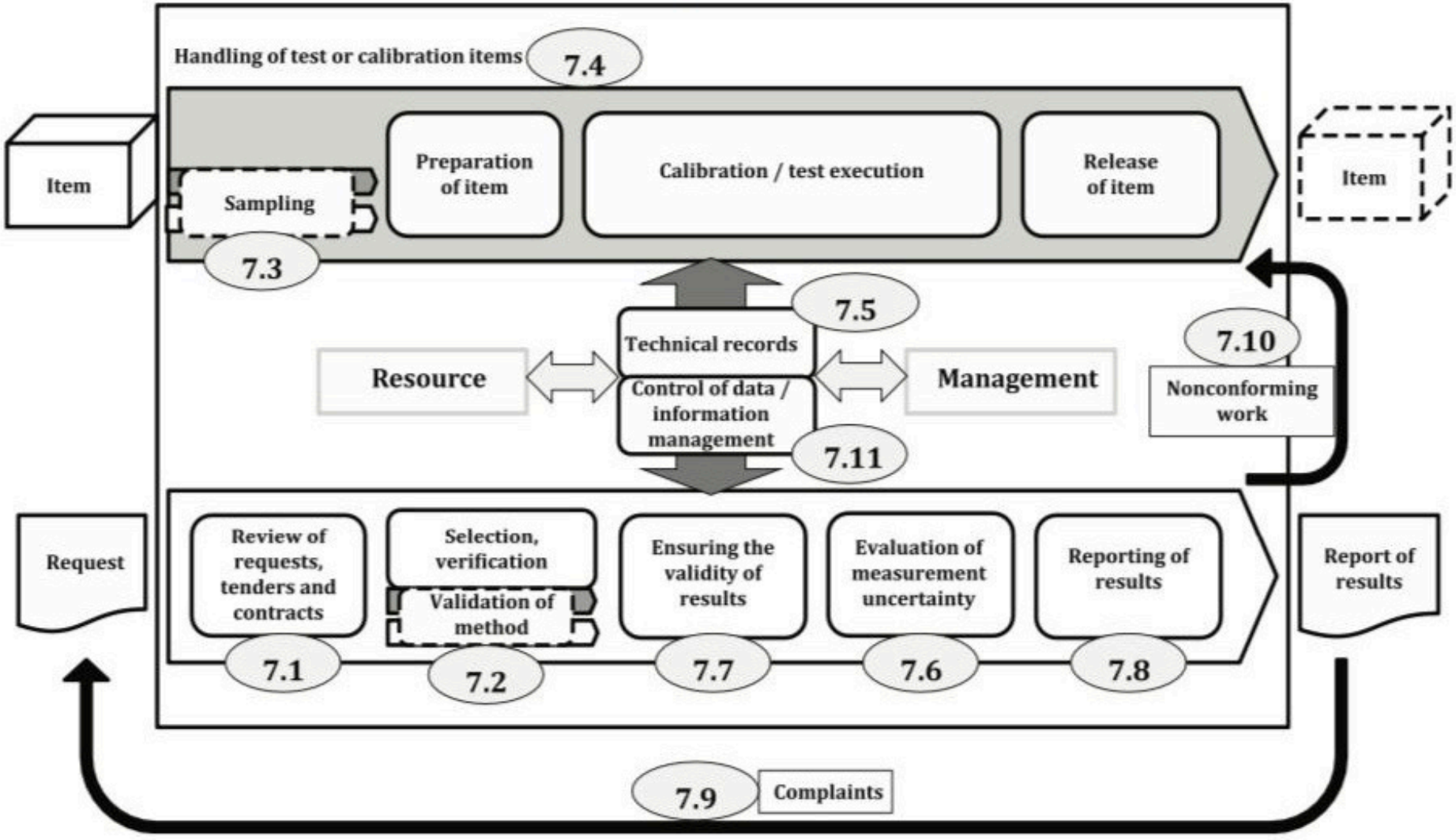
PROBLEM DESCRIPTION :

- Metro-Cal Lab needs to be accredited to be ISO 17025 if not, it will be facing a threat of losing business and/or failing to grow.
- The MetroCal-Lab management and production systems have not been verified. Therefore, they are at risk for not meeting the ISO/IEC17025 standard.
- Procedure and uncertainty budgets need to be established for all equipment that MetroCal-Lab will be including in their scope of accreditation.

ISO 17025

- ISO/IEC 17025:2017 determines the general requirements for the skill, fair-mindedness, and predictable activity of research laboratories . ISO/IEC 17025:2017 is the material to all associations performing research center exercises, paying little heed to the quantity of work force.
- The management system and MCL's technical competence verified through ISO/IEC 17025 accreditation ensures precision, total quality, and customer satisfaction.
- The standard promotes confidence in the operation of laboratories.
- The two primary areas in ISO/IEC 17025 are The executives Prerequisites and Specialized Necessities. The executives prerequisites are fundamentally identified with the activity and viability of the quality administration framework inside the research facility. Specialized prerequisites incorporate variables that decide the accuracy and unwavering quality of the tests and adjustments acted in lab.
- ISO/IEC 17025 was initially issued by the International Organization for Standardization in 1999.

CALIBRARTION PROCESS



MetroCal Lab El Paso, TX	Calibration Procedure	Page 1 of 4 Rev: A
Written by: Agustin Contreras	**Approved by:** Agustin Contreras	**Date:** 01/16/04

1. **PURPOSE & SCOPE**

   To establish a process for verifying, adjusting, calibrating and re-verifying equipment used for testing and calibration

   To ensure that appropriate calibration intervals are established and adjusted based on actual results over time

2. **RESPONSIBILITY**

   It is the primary responsibility of the Laboratory Manager to establish and maintain this process.

   All laboratory personnel are responsible for ensuring equipment used is calibrated and for notifying the Laboratory Manager if equipment is damaged or yielding questionable results.

3. **PROCEDURES**

   Master and/or reference standards will only be used for calibration purposes.

   Reference standards will be calibrated before and after adjustments.

   All Measuring & Test Equipment (M&TE) used or leased for activities by **MetroCal Lab** or its employees at the facilities will be added to calibration system. All applicable M&TE will also be added to the Master Recall System and calibration will be maintained as detailed in these calibration procedures.

   In an event where M&TE used is found to be out-of-tolerance, or otherwise nonconforming, the **Laboratory Manager**, or designee, will make an investigation to determine if there was an impact to production activities. If so, the **Laboratory Manager**, or designee, will notify the customer(s)

CALIBRATION PROCEDURE FORM

MetroCal Lab

Calibration and Metrology Services

Certificate of Calibration

Certificate Number: 200220-MC202

Rev. 2/7/2015

Printed on: Feb.,20/2020 — Certificate Record 1 of 1

Instrument Identification

Company: GIDEP.

Address:

Manufacturer: **AIMCO**

Desc.: **Pnuematic Tool**

Model No.: **UAT-100**

Serial No.: **T87168**

Customer Instrument ID.: **EP-T87168**

Order Number: **46554**

Notes: *Torque values are within tolerance*

Calibration Date: Feb.,20/2020

Calibration Due Date: Aug.,20/2020

Calibration Frequency: 6 months

Enviromental Conditions During Calibration

Temperature: 68°F

Humidity: 38%

Calibration Location:

Technincian: **Agustin Contreras**

As Found: **In Tolerance** As Left: **In Tolerance**

Metro Cal Lab certifies that the instrument listed above meets or exceeds published manufactureing specificatios. This instrument has been calibrated in accordance with Metro Cal Lab's Procedure Number CP033 and relevant section of the Federal Specifications GGG-W-686D. Calibration complies with the ANSI/NCSL Z540 & ISO/IEC 17025 MetrpCal Lab maintain reference standards of measurement which are traceable to the National Instituteos Standards and Technology, or other authorized National Standards. The results contained herein relate only to the item calibrated. This certificate shall not be reproduce except in full, without the written approval of Metro Cal Lab.Any number of factors may cause the calibrationitem to drift out of calibration before the recommeded interval has expired.
Any number of factor s can cause a unit to drift out of tolerance at any time following it's calibration. Limitations on the uses of tis instrumentare detailed in the OEM's operating instructions.

Calibration Standards

Instrument No.	Model	Description	Cal Date	Due Date	NIST Traceable No.	Calibration Procedure Uncertainty Expressed at 95%confidence (K=2)
38166-MCL	System6-AC	Torque Calibration System	3/9/2019	3/9/2020	Report# 190309300	+/-0.63% of Indicated Load

Torque Wrench Data

Results:

Units	Set @
ft-lbf	65

Range	Drive Size
51-96	C.H.

Tolerance
60 tp 70 ft-lbf
+/- 4% Indicated Load
(per Fed. Spec. GGG-W-686D)

	As Found			As Left		
Test No.	Standard	Preset	Error %	Standard	Preset	Error %
1	65.3	65	-0.46	65.3	65	-0.46
2	65.7	65	-1.08	65.7	65	-1.08
3	65.9	65	-1.38	65.9	65	-1.38
Average	65.6	65	-0.97	65.6	65	-0.97

Certified by: Technician MC100

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Email: mclabinfo@metrocal-lab.com • Web: http://www.metrocal-lab.com

Insp. by: AC-MC100
On-Site Calibration

CERTIFICATE AFTER CALIBRATION

- This is an actual calibration certificate provided by Metro-Cal.

PERRY JOHNSON ACCREDITING BODY

- Perry Johnson is the third party that is going to accredit Metro-Cal Lab.
- Perry L. Johnson, a world head in quality, built up Perry Johnson Laboratory Accreditation, Inc. (PJLA) in 1999. PJLA is a private outsider accreditation body situated in the United States that approves the competency of testing and adjustment research facilities, review bodies, reference material makers, and examining associations using universal and national norms. PJLA is completely upheld by our investor, Mr. Perry L. Johnson.
- Perry Johnson has two divisions which include: **Accrediting and Consulting services.**

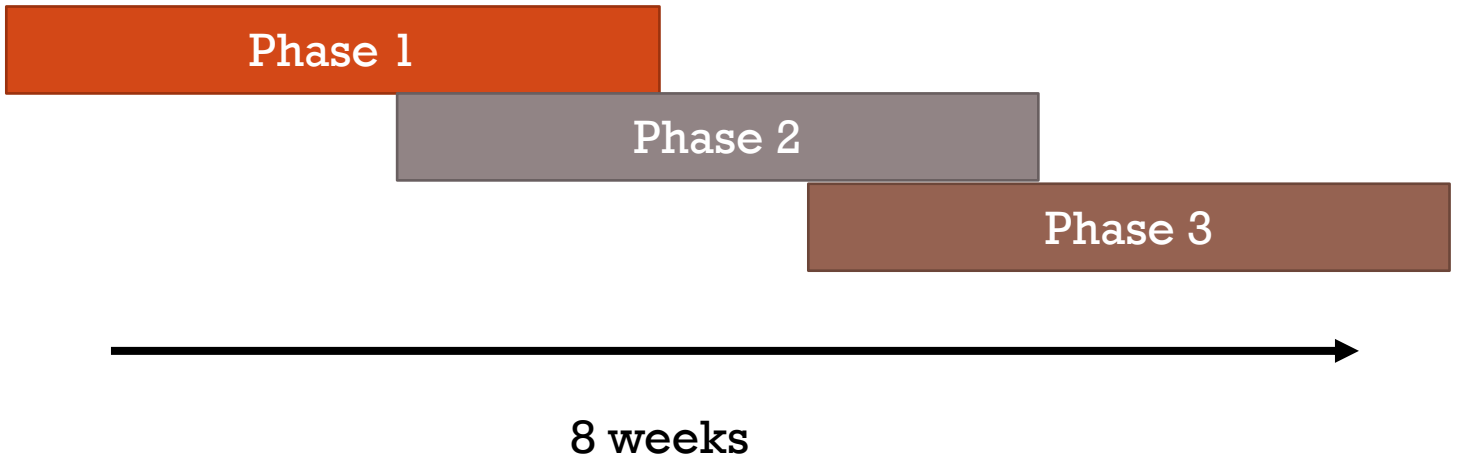
PROJECT MANAGEMENT PLAN

Scope and Schedule:

Phase 1: Calibration Procedures – 4 weeks

Phase 2: ISO/IEC Accreditation – 4 weeks

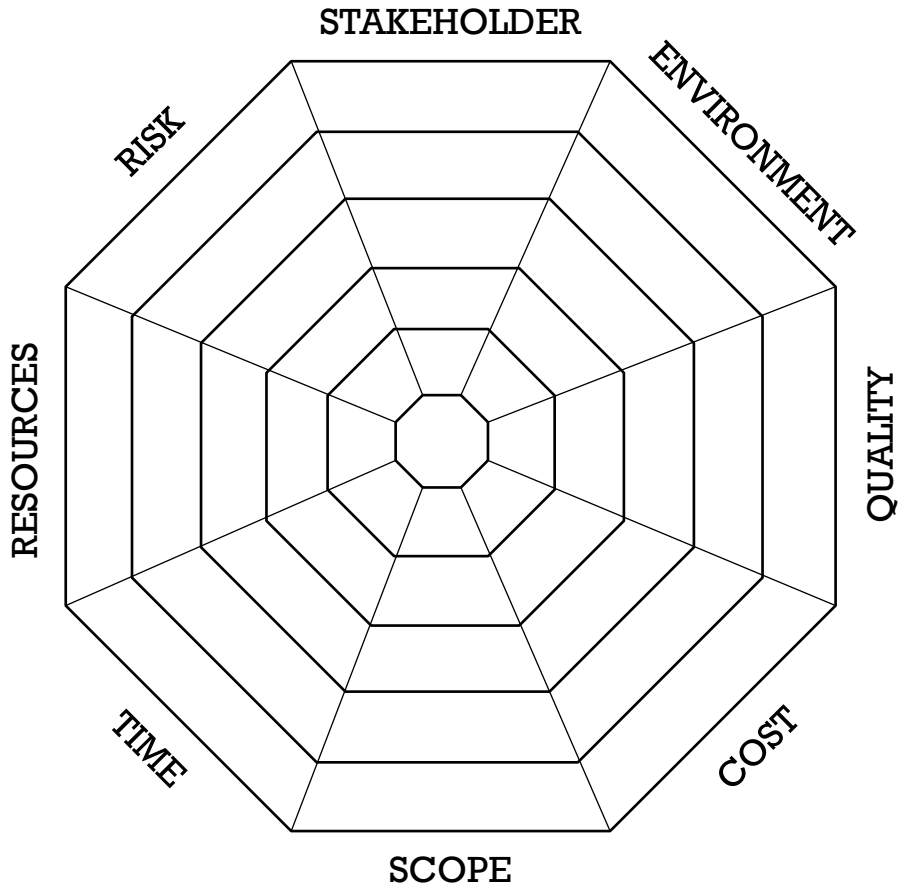
Phase 3: Production System – 4 weeks



CONSTRAINTS & ASSUMPTIONS

Constraints

- **Time** - Time needed will be more than the duration period of this semester.
- **Schedule** - class schedule might be inconvenience with the industrial contact time, therefore communication challenge.
- **Resources** - is very essential to any project therefore,it might slow down the organization before it become ISO/IEC 17025.



Assumptions

- **Major assumptions are:**
  - The major elements of a QMS(Quality Management Solution) are in place.
  - Necessary equipment is already in the lab.

OBJECTIVES/SCOPE

Main objective:

- Metro-Cal Lab to be accredited as ISO/IEC 17025.

Minor objectives:

- Develop the quality management system to the ISO9001 standard.
- To be able to qualify the calibration procedure of any given tests that were carried out as by ISO/IEC 17025 standards.
- Design and implement an efficient and effective production system.
- To be able to ensure its strategy is fixed once being accredited as ISO/IEC 17025.
- Update the manual to current version.

METHODOLOGY

Agile:

1. **Iterative** ➡ It is a repeated cycle of operations.
   I. Checking ISO17025 requirements and comparing with MCL policy
   II. Updating the metrocal manual using general accreditation guidance
2. **Incremental** ➡ one in which a software is built and delivered in pieces, each piece or increment represents a complete subset of functionality.
   I. Use NATA company manual to create metrocal manual
3. **Adaptive** ➡ allows system to adjust to sudden changes

SCHEDULE

- The duration of the project is roughly two months (March 3rd to May 7th) The following are the days and activities that were carried out:
- March 3rd- Day 1, Discussion and review the project.
- March 6th-Day 2, Discussing project management plan in solving the problem.
- March 25th -Day 3, online meeting agreed to check for the requirements from the ISO17025 and compare with the MCL policy manual.
- March 27th -Day 4, Update the old manual of Metro-Cal , each person has a section to work.
- May 5th – Day 5, Final Presentation and continue working on Updating the Manual.

EXPECTED RESULTS

- MCL policy aligned with the requirements of ISO17025:2017.
  - MCL manual updated from the ISO17025:2005 version.
  - All requirements addressed
- ISO 17025 accredited by Perry Johnson.
- Improved operational systems.
- Maximize profit.
- Quantified management system.
- Qualified calibration procedure.
- More Projects in the future.

PJLA Testing

MCL POLICY ALIGNED WITH THE REQUIREMENTS OF ISO17025:2017

Aligning the MCL Policy Manual with ISO17025:2017 requirements first required a review of the current MCL manual and the requirement.

- A documentation review of the current manual was performed, i.e. content compared to individual clauses in the standard.
- All of the content in the current manual was based on the 2005 standard including policy, procedure, and forms.
- Most clauses of the 2005 standard were address by content in the manual. However, no 2017 specific clauses were addressed.
- Document numbering and standard clause references were outdated and need to be included in update.

After review, the team went to work updating the manual.

- Manual section numbering was updated to match clause numbering of the 2017 requirement.
- A 17025 Assessment tool was used to make notes about status and required action.

USING A 17025 ASSESSMENT TOOL

MetroCal 17025 Assessment Tool.xlsx

	A	B	C	D	E	F
1	Resource Requirements					
2	Item No.	Requirement	Comply (Y/N)	Issues or Concerns	Action Item(s) (Number each action)	% (0-10
4	6	**General**				
5	6.1	The laboratory shall have available the necessary resources to perform its laboratory activities.		*Currently in section 4.4, need to update. There is evidence that resources are insufficient. Work is being submitted late.*	*1. Need to update policy manual numbering to reflect 2017* *2. Determine corrective action to supply required resources.*	*0*
6	6.2	**Personnel**				
7	6.2.1	All personnel are to act impartially, be competent and adhere to the laboratory's management system.		*There is nothing addressed in current manual.*	*Need to update manual numbering to reflect 2017 and need to review evidence.*	*0*
8	6.2.2	The competence requirements for each function influencing the results of laboratory activities must be documented.		*(Enter issues and/or concerns.)*	*Need to update manual numbering to reflect 2017 and need to review evidence.*	*0*
9	6.2.3	It must be ensured that personnel are competent to perform the activities for which they are responsible and to evaluate the significance of deviations.		*(Enter issues and/or concerns.)*	*(Enter action plan with numbered action items.)*	*0*
10	6.2.4	Duties, responsibilities and authorities shall be communicated to personnel.		*Job descriptions exist for:* *However, there is no evidence that the following jobs exist:* *Also, there is no evidence that some of the personnel designa*	*Need to update manual numbering to reflect 2017 and need to review eviden*	*0*
11	6.2.5	Procedures and records need to be maintained for personnel covering: a) determination of competence requirements; b) to e) selection, training, supervision and authorisation; and f) monitoring of competence.		*(Enter issues and/or concerns.)*	*(Enter action plan with numbered action items.)*	*0*
12	6.2.6	Personnel must be authorised to perform specific activities including: a) develop, modify, verify and validate methods; b) analysis of results, statements of conformity and opinions / interpretations; c) report, review and authorise results.		*(Enter issues and/or concerns.)*	*(Enter action plan with numbered action items.)*	*0*
13	6.3	Facilities and Environmental Conditions		*(Enter issues and/or concerns.)*	*(Enter action plan with numbered action items.)*	*0*
14	6.3.1	The facilities and environmental conditions need to be suitable to the activities performed and not adversely affect the validity of results.		*(Enter issues and/or concerns.)*	*(Enter action plan with numbered action items.)*	*0*
15	6.3.2	The requirements for suitable facilities and environmental conditions to perform laboratory activities shall be documented.		*(Enter issues and/or concerns.)*	*(Enter action plan with numbered action items.)*	*0*
16	6.3.3	The laboratory shall monitor, control and record environmental conditions in accordance with the relevant specifications, methods and procedures or when they influence the validity of results.		*(Enter issues and/or concerns.)*	*(Enter action plan with numbered action items.)*	*0*
17	6.3.4	Measures to control facilities are to be implemented, monitored and periodically reviewed and include: a) access; b) prevention of contamination;		*(Enter issues and/or concerns.)*	*(Enter action plan with numbered action items.)*	*0*

4 General 5 | 5 Structural 5 | 6 Resource 5 | 7 Process 5 | 8 Mgmt System 5 | Blnk 5

The manual includes these sections to which the MCL production system needs to comply:

4.0 General (assigned to Eisa Alsadi)

5.0 Structural (assigned to Eisa Alsadi)

6.0 Resource (assigned to Marwa Alfaji and Mashare Alzanzi)

7.0 Process (assigned to Bader and Eduardo)

8.0 Management System (assigned to Aihblin)

17025 SECTIONS TO UPDATE

1 Scope 1
2 Normative references 1
3 Terms and definitions 1
4 General requirements 3
4.1 Impartiality 3
4.2 Confidentiality 3
5 Structural requirements 4
6 Resource requirements 5
6.1 General 5
6.2 Personnel 5
6.3 Facilities and environmental conditions 6
6.4 Equipment 6
6.5 Metrological traceability 8
6.6 Externally provided products and services 8
7 Process requirements 9
7.1 Review of requests, tenders and contracts 9
7.2 Selection, verification and validation of methods 10
7.2.1 Selection and verification of methods 10
7.2.2 Validation of methods 11
7.3 Sampling 12
7.4 Handling of test or calibration items 12
7.5 Technical records 13
7.6 Evaluation of measurement uncertainty 13
7.7 Ensuring the validity of results 13
7.8 Reporting of results 14
7.8.1 General 14
7.8.2 Common requirements for reports (test, calibration or sampling) 15
7.8.3 Specific requirements for test reports 15
7.8.4 Specific requirements for calibration certificates 16
7.8.5 Reporting sampling – specific requirements 16
7.8.6 Reporting statements of conformity 17
7.8.7 Reporting opinions and interpretations 17
7.8.8 Amendments to reports 17
7.9 Complaints 17
7.10 Nonconforming work 18
7.11 Control of data and information management 19
8 Management system requirements 19
8.1 Options 19
8.1.1 General 19
8.1.2 Option A 20
8.1.3 Option B 20
8.2 Management system documentation (Option A) 20
8.3 Control of management system documents (Option A) 20
8.4 Control of records (Option A) 21
8.5 Actions to address risks and opportunities (Option A) 21
8.6 Improvement (Option A) 22
8.7 Corrective actions (Option A) 22
8.8 Internal audits (Option A) 23
8.9 Management reviews (Option A) 23

ISO 17025 STANDARDS (SECTION 6)

6 Resource requirements

6.1 General

The laboratory shall have available the personnel, facilities, equipment, systems and support services necessary to manage and perform its laboratory activities.

6.2 Personnel

6.2.1 All personnel of the laboratory, either internal or external, that could influence the laboratory activities shall act impartially, be competent and work in accordance with the laboratory's management system.

6.2.2 The laboratory shall document the competence requirements for each function influencing the results of laboratory activities, including requirements for education, qualification, training, technical knowledge, skills and experience.

6.2.3 The laboratory shall ensure that the personnel have the competence to perform laboratory activities for which they are responsible and to evaluate the significance of deviations.

6.2.4 The management of the laboratory shall communicate to personnel their duties, responsibilities and authorities.

6.2.5 The laboratory shall have procedure(s) and retain records for:

a) determining the competence requirements;

b) selection of personnel;

c) training of personnel;

d) supervision of personnel;

e) authorization of personnel;

f) monitoring competence of personnel.

6.2.6 The laboratory shall authorize personnel to perform specific laboratory activities, including but not limited to, the following:

a) development, modification, verification and validation of methods;

b) analysis of results, including statements of conformity or opinions and interpretations;

c) report, review and authorization of results.

6.3 Facilities and environmental conditions

6.3.1 The facilities and environmental conditions shall be suitable for the laboratory activities and shall not adversely affect the validity of results.

NOTE Influences that can adversely affect the validity of results can include, but are not limited to, microbial contamination, dust, electromagnetic disturbances, radiation, humidity, electrical supply, temperature, sound and vibration.

6.3.2 The requirements for facilities and environmental conditions necessary for the performance of the laboratory activities shall be documented.

6.3.3 The laboratory shall monitor, control and record environmental conditions in accordance with relevant specifications, methods or procedures or where they influence the validity of the results.

6.3.4 Measures to control facilities shall be implemented, monitored and periodically reviewed and shall include, but not be limited to:

a) access to and use of areas affecting laboratory activities;

b) prevention of contamination, interference or adverse influences on laboratory activities;

c) effective separation between areas with incompatible laboratory activities.

6.3.5 When the laboratory performs laboratory activities at sites or facilities outside its permanent control, it shall ensure that the requirements related to facilities and environmental conditions of this document are met.

6.4 Equipment

6.4.1 The laboratory shall have access to equipment (including, but not limited to, measuring instruments, software, measurement standards, reference materials, reference data, reagents, consumables or auxiliary apparatus) that is required for the correct performance of laboratory activities and that can influence the results.

NOTE 1 A multitude of names exist for reference materials and certified reference materials, including reference standards, calibration standards, standard reference materials and quality control materials. ISO 17034 contains additional information on reference material producers (RMPs). RMPs that meet the requirements of ISO 17034 are considered to be competent. Reference materials from RMPs meeting the requirements of ISO 17034 are provided with a product information sheet/certificate that specifies, amongst other characteristics, homogeneity

- Some of the items that were updated for section 6 include:
  - 6.0 Resource requirements
  - 6.2 Personnel
  - 6.3 Facilities and environmental conditions
  - 6.4 Equipment
  - 6.5 Metrological traceability
  - 6.6 Externally provided products and services

METRO-CAL 2017 MANUAL UPDATES CONT'D

- **Section 6 Resource**
- **6.2 Personnel**
  - Duties and responsibilities of various personnel is well outlined.
  - 6.2.5 and 2.6.6 not in the 2017 Metro-Cal manual, needed an update so that they reflect the provided guidance manual.

- **6.3 Facilities and Environmental Conditions**
  - Metro-cal old manual labeled it personnel, instead of the facilities and environmental conditions.
  - It is Concerned with ensuring that environmental conditions can't affect the results.
  - Items 6.3.4 and 6.3.5 are not available in the current 2017 manual therefore, need to be updated

METROCAL 2017 MANUAL UPDATES CONT'D

- **6.4 Equipment**
  - labeled as facilities and environmental conditions on the old 2005 Metro-Cal manual, is supposed to be equipment.
  - Equipment shall be capable of achieving the measurement accuracy and uncertainty required to provide valid results.
  - The item 6.4.6 to 6.4.13 were not on the Metro-Cal 2017 manual, this requires an update, which we carried out so that the document is in line with the guidance.

- **6.5 Metrological traceability**
  - The items in these parts are supposed to be under metrological traceability and not equipment.
  - All items in this section are available, these items are supposed to be properly numbered in that they adhere to the guidance provided.

METRO-CAL 2017 MANUAL UPDATES CONT'D

- 6.6 Externally provided products and services
  - It is labeled as measurements Traceability in the Metro-Cal 2017 manual, it is supposed to be externally provided products and services.
  - all the items in the part were available in the 2017 manual, only that they were wrongly numbered.
  - Conclusion, most items were available in the metrocal 2017 manual,the only issue was wrong numbering of the items, which is the one that we updated.

ISO 17025 STANDARDS (SECTION 7)

1 **Scope** 1
2 **Normative references** 1
3 **Terms and definitions** 1
4 **General requirements** 3
4.1 Impartiality 3
4.2 Confidentiality 3
5 **Structural requirements** 4
6 **Resource requirements** 5
6.1 General 5
6.2 Personnel 5
6.3 Facilities and environmental conditions 6
6.4 Equipment 6
6.5 Metrological traceability 8
6.6 Externally provided products and services 8
7 **Process requirements** 9
7.1 Review of requests, tenders and contracts 9
7.2 Selection, verification and validation of methods 10
7.2.1 Selection and verification of methods 10
7.2.2 Validation of methods 11
7.3 Sampling 12
7.4 Handling of test or calibration items 12
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8 **Management system requirements** 19
8.1 Options 19
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8.1.2 Option A 20
8.1.3 Option B 20
8.2 Management system documentation (Option A) 20
8.3 Control of management system documents (Option A) 20
8.4 Control of records (Option A) 21
8.5 Actions to address risks and opportunities (Option A) 21
8.6 Improvement (Option A) 22
8.7 Corrective actions (Option A) 22
8.8 Internal audits (Option A) 23
8.9 Management reviews (Option A) 23

c. Follows the procedures for non-conformances related to subcontractors and suppliers.

d. Asks its clients to provide their consent before any work is allowed to be subcontracted.
(Subcontractor Authorization Request QF6.2.2.4.2)

e. May require sub-contractors to read any quality system documents applicable to their work activities.

f. Requires all subcontractors to sign legally binding confidentiality agreements and declare any situations within their organization which may cause conflicts of interest.
(ConfidentialityAgreement QF6.2.2.3)

7.1 Process Requirements

7.2 Review of Requests, Tenders and Contracts

7.2.1 Metrocal has a procedure for the Review of Requests, Tenders and Contracts (See LQSP4.4.1).

7.2.2 The MCLs uses nationally recognized and current testing methods.

7.2.3 Test results requiring a statement of conformity to a standard or regulation shall identify the reference, the criteria, and the calculation method if applicable. Metrocal does not issue calibration certificates.

7.2.4 The MCL requires legally binding contracts for certification related testing activities. All other testing may be completed in the form of request. Metrocal shall decline to undertake the testing if there is a lack of competence or capability for any of the required activities.

7.2.5 Deviations from the agreement and non-conformities a□ecting the accuracy of reported testing results shall be reported to the client as soon as apparent. Any deviations requested by the customer shall be documented. Requested deviations which are unethical shall not be considered or accepted.

7.2.6 Amendments to the contract or request may require additional review including revision to the evaluation plan, re-assignment of personnel or resources, and distribution of additional documents and information.

7.2.7 Metrocal a□ords clients cooperation to clarify the client's request and to monitor the lab's performance in relation to the work performed, provided that the laboratory ensures confidentiality of other clients. Clients are welcome to visit Metrocal as long as a minimum of 48 hours notice is provided. The Program Manager shall maintain a minimum of weekly communication with clients when the time frame of applicable tests merit it.

7.2.8 Records of pertinent discussions, reviews, requests, tenders and contracts shall be retained per the record control procedure. Verbal requests shall be confirmed in writing.

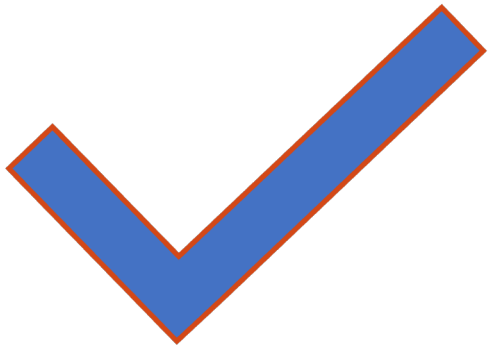
7.3 Selection, Verification and Validation of Methods

7.3.1 **Selection, and Verification of Methods** (Demonstration of Capability Procedure LQSP5.2.1)

7.3.1.1 The MCL uses appropriate methods and procedures for all tests and calibrations within its scope. Methods published in "Standard Methods For The Examination of Water And Wastewater (23rd Edition)" are used. Metrocal has rewritten the methods as Lab Standard Operating Procedures (SOP) to facilitate ease of use by Metrocal personnel.

7.3.1.2 All reference materials required by authorized personnel are available to them. Personnel are

- Some of the items that were updated for section 7 include:
  - 7.1.1 Procedure
  - 7.1.3 Decision Rule Clarified with Customer
  - 7.1.4 Before lab activities start, Differences should be resolved
  - 7.1.5 Customer must be informed of any deviations in contract



METROCAL 2017 MANUAL UPDATES CONT'D

- **Section 7 Process**
- **7.1.1 Procedure**
- Procedure form exists; some verification needed to match 2017 Metro-Cal Manual.
- Action Needed to verify role of Lab Manager and the document Calibration Submission Form.
- **7.1.3 Decision Rule Clarified with Customer**
- There exists a form that agrees to nonconformities with customer before and after the procedure is done. Lab Manager is responsible for decisions regarding nonconformities.
- Action needed; Revise form for new actions.

METRO-CAL 2017 MANUAL UPDATES CONT'D

- **7.1.4 Before lab activities start, Differences should be resolved**
- Form Exists for Inspection and explanation of Process before laboratory activities are started.
- Action needed, revise form so actions do not impact the integrity of the laboratory or validity of results.

7.1.5 Customer must be informed of any deviations in contract

- Two Forms Exist One Nonconformity and a corrective from which explain that customer if there is any deviation and if it is acceptable
- No action needed the form exists, customer is to be informed of any problems that should deviate from the initial contract before anything is done.

REFERENCES

- http://metrocal-lab.com/AboutUs.htm
- https://www.ishn.com/articles/107811-isoiec-17025--competence-of-testing-and-calibration-laboratories
- https://www.qimtonline.com/mod/glossary/showentry.php?eid=1381&displayformat=dictionary
- https://www.pjlabs.com/about-pjla
- **Metro Cal Lab**
- **Google Images**

Thank You!

Questions?