

Section Subject

5	Metropolitan Cebu Water District
	<b>Quality Management System</b>
	Procedures Manual

Page No.	1 Of 1
Issue No.	1
Revision No.	0
Effective Date	Jan. 01,01
	Issue No. Revision No.

Index No.

X

# **MCWD Operations Manual**

(Procedures)

Vol 1

Book 3 of 3

# **Procedures Manual Operations and Maintenance Processes**



Prepared: Evelyn C. Villarias Date:

Reviewed:Rosita C. Lao Date:

Approved: Dulce M. Abanilla



#### Index No. X Metropolitan Cebu Water District Quality Management System Page No. 1 of 2 Procedures Manual Issue No. 1 User's Guide 0 Section Revision No. Subject Legend and Symbols Effective Date Jan. 01,01

This procedures Manual uses symbols and conventions to facilitate understanding of the flow of the work and such work performed in the process. Generally, process flow diagram symbols are used and where necessary brief explanations of such are provided in the "details" portion of the documents. Thus the following symbols;

Symbol		Meaning
Start		Start Node
		Work Flow
		Process
		Document
		Multiple Document
12		Process Tag
	DAT	CONTROLLED COPY  TE:BY: FCL
gmi llaviers	polite	Frankle)
Prepared: Evelyn C. Villarias Date:	Reviewed: Rosita C. Lao Date:	Approved: Dulce M. Abanilla Date:



Prepared:Evelyn C. Villarias

Date:

Section

# Metropolitan Cebu Water District Quality Management System Procedures Manual

User's Guide

muex No.		. A	
P	age No.	2 of 2	
Is	sue No.	1	
Revis	sion No.	0	
Effecti	vo Dato	lan 01 01	

Approved: Dulce M. Abanilla

Date:

Index No

Subject Legend and Symbols Effective Date Jan. 01,01

This procedures Manual uses symbols and conventions to facilitate understanding of the flow of the work and such work performed in the process. Generally, process flow diagram symbols are used and where necessary brief explanations of such are provided in the "details" portion of the documents. Thus the following symbols:

Symbol	<u>Meaning</u>
No Yes	Decision Box
	Computer Data In
	Data Storage
	Page Connector
End	End Node
rillarias	CONTROLLED COPY DATE: SY: FCL

Reviewed: Rosita C. Lao

TABLE OF CONTENTS OPERATION PROCESSES updated

1	1	CXBV	
-		1	
1		17	
J	1.	m m	"

Metropolitan Cebu Water District  Quality Management System  Procedures Manual		Index No.	X
		Page No.	1a of 3
		Issue No.	1
Section	Table of Contents	Revision No.	2
Subject	OP Operations and Maintenance Processes (Book 1 Of 3)	Effective Date	June 2004

## INDEX CODE

OP-WQC/WSD

Prepared: Rosita C. Lao

Date:

### PROCEDURE TITLE

WATER QUALITY MONITORING and CONTROL

WATER SOURCES DEVELOPMENT

OP - WQC/WSD - 001	Assessment of the Risks for Contaminan. & Pollutants in Potential & Developed Water Source
OP - WOC/WSD - 002	River Water & Surface Water Quality Assessment
OP - WQC/WSD - 003	Potability Testing for Constructed & Rehabilitated Wells, Pipelines & Other
01 11001100 000	Appurtenances
	WATER PRODUCTION
OP-POP	PUMP OPERATIONS
OP - POP 001	Pump Operation during Power Interruption and / or Breakdowns.
OP - POP - 002	Pump Start-up (after Power Interruption & Breakdowns).
OP - POP - 003	Pump Stoppage cause by Mechanical / Electrical Component Breakdown
OP - POP - 004	Routine Work of a Treatment Plant Operator
OP - POP - 005	Routine Work of a Pump Operator
OP-SMC	WATER SOURCES MONITORING and CONTROL
OP - SMC - 001	Soil Erosion Control
OP - SMC - 002	Dam Monitoring
OP - SMC - 003	Dam Perimeter Monitoring
OP - SMC - 004	MPI Water Production Monitoring & Control
OP - SMC - 005	Buhisan Valve Operations
	Preparation of Job Order at Buhisan Valve Operation
	Reduction Control of Flow from DAM to Tisa as per Request from EWRD Personnel
OP-SMC	WATER QUALITY MONITORING and CONTROL
OP - WQC/WPR - 001	Annual Reporting of the Complete Analytical Testing of Individual Water
	Production Sources.
OP - WQC/WPR - 002	Special Monitoring of Water Sources with Critical Quality - Water Parameter
OP - WQC/WPR - 003	Assessment & Monitoring the Saline Water Intrusion Levels on Production &
	Observation Wells.
OP - WQC/WPR - 004	Assessing the Corrosivity of Ground & St. face Water Sources
OP-FPO	FILTER PLANT OPERATIONS and MAINTENANCE
OP - FPO - 001	Declogging of the Slow Sand Filter Bed
OP-POM	PUMP MAINTENANCE
OP - POM - 001	Regular Pump Check-up & Monitoring
OP - POM - 002	Regular Pump Check-up / Monitoring & Repair
	Pump Corrective Maintenance GONTROLLED COP
	Pump Corrective Maintenarice (Field Repair)
OP - POM - 005	Electro-Mechanical Shop Services.
OP - POM - 006	Flectro-Mechanical Project Administration

Reviewed: Ronn

Date:

Approved: A

Date:

1. Paredes



Metropolitan Cebu Water District  Quality Management System  Procedures Manual		Index No.	X
		Page No.	1b Of 3
		Issue No.	1
Section	Table of Contents	Revision No.	1
Subject	OP Operations and Maintenance Processes (Book 1 Of 3)	Effective Date	June 2004

# INDEX CODE

## PROCEDURE TITLE

OP-WSM	WATER SOURCES MAINTENANCE
OP - WSM - 001	Well Rehab and Acquifer Enhancement
OP - WSM - 002	Well and Acquifer Performance Evaluation (Hydrogeology Investigation)
OP - WSM - 003	Request for Seedling Withdrawal
OP - WSM - 004	ISOCLOR MAP Updating
OP - WSM - 005	Maintenance of Raw Water Main

Prepared: Rosita C. Lao Date:

Date:

Reviewed Ronnie R. Legaspi

Approved: Armando H. Paredes

		Metropolitan Cebu Water District	Index No.	X
	\ (	Quality Management System	Page No.	2a Of 3
		Procedures Manual	Issue No.	1
W.mm.	Section	Table of Contents	Revision No.	2
4	Subject	OP Operations and Maintenance (Book 2 Of 3)	Effective Date	August 27,2003

### INDEX CODE

#### PROCEDURE TITLE

OP-PDM -	WATER PRODUCTION and DISTRIBUTION MONITORING & CONTROL
OP - PDM - 001	Planned Water Service Interruption
OP - PDM - 002	Planned Water Service Interruption Availment
OP - PDM - 003	Project Turn-over
OP - PDM - 004	Conforming a Fire Alarm
OP - PDM - 005	Responding a Fire Alarm
OP - PDM - 006	Operating the Booster Pump
OP - PDM - 007	Booster Station Shift Turn-over (And Turning Off Pump at the end of the Day's Operation)
OP - PDM - 008	Interrupting the Booster Pump Operation for a WSI
OP - PDM - 009	Addressing Booster Operation Problems
OP - PDM - 010	Addressing Water Supply Complaints

#### WATER TREATMENT

#### OP-WQC/WTR WATER QUALITY MONITORING and CONTROL

OP - WQC/WTR - 001 Backwashing Procedure of the Rapid Sand Filter

OP - WQC/WTR - 002 pH Adjustment & Treatment of Processed Surface Water

OP - WQC/WTR - 003 Designing & Installation of Automatic Chlorination System for Drinking Water Supply
OP - WQC/WTR - 004 Pouring Check up of pH, Turbidity & TDS of Pays Propagated & Finished Water Produ

OP - WQC/WTR - 004 Routine Check-up of pH, Turbidity & TDS of Raw, Processed, & Finished Water Products

OP - WQC/WTR - 005 Routine Chlorine Contents' Reading of the Finished Water Product at Tisa Filter Plant.

OP - WQC/WTR - 006 General Clarification & Purification Process of the Raw Water

OP - WQC/WTR - 007 Control and Preventive of Biological Foulants in Processed Surface Water

#### OP-CHL/WTR / CHLORINATION

OP - CHL/WTR - 001 Chlorination for Direct-Supply Wells

OP - CHL/WTR - 002 Installation and Operation of Direct Supply Well Chlorination

OP - CHL/WTR - 003 Designing & Installation Process - Chlorination for Direct Supply Wells

#### WATER STORAGE

OP-PDM OP-WQC/WST WATER PRODUCTION and DISTRIBUTION MONITORING & CONTROL WATER QUALITY MONITORING and CONTROL

OP - WQC/WST - 001 Water Sampling of Reservoirs

OP - WQC/WST - 002 Disinfecting Reservoirs

OP - WQC/WST - 003 Biological growth Assessmen In Water Tanks

Prepared: Rosita C. Lao

Reviewed: Ronnie R. Legaspi
Date: Date: 12.10.6

Approved: Armando H. Paredes

TABLE OF CONTENTS OPERATION PROCESSES updated

ocuti i	Quality Management System		Index No.	X
			Page No.	2b Of 3
		Procedures Manual	Issue No.	1
	Section	Table of Contents	Revision No.	2
32	Subject	OP Operations and Maintenance (Book 2 Of 3)	Effective Date	August 27,2003

### INDEX CODE

### PROCEDURE TITLE

OP-CHL

CHLORINATION

OP - CHL/WST - 001 Chlorination Procedure for Reservoir & Tanks

#### OP - RESERVOIR and MAINTENANCE

#### WATER DISTRIBUTION

#### OP-MMN METER MAINTENANCE

OP - MMN - 001 New Meter Testing

OP - MMN - 002 Meter Testing (Pulled-out Meters)

OP - MMN - 003 Meter Testing Complaint

OP - MMN - 004 Meter Replacement (PM)

OP - MMN - 005 Meter Accuracy Evaluation (Batch)

OP - MMN - 006 Meter Replacement (CM)

OP - MMN - 007 Request for Trace-up

OP - MMN - 008 Water Levy Meter Installation (New)

OP-VOP VALVE OPERATIONS

OP- PMI PIPELINES MONITORING and INSPECTION

OP - PMI - 001 SC Leak Detection Works - North

OP - PMI - 002 Water Service Monitoring and Inspection/ Water Pilferage Prosecution

Prepared: Rosita C. Lao

Date:

Date:

Reviewed:

Grinle R. Legaspi

Approved: Armando H. Paredes

TABLE OF CONTENTS OPERATION PROCESSES updated

	all
W.mm.y	Section

# Metropolitan Cebu Water District

# Quality Management System Procedures Manual

Index No.	Χ
Page No.	3 Of 3
Issue No.	1
Revision No.	2
Effective Date	August 27,2003

	10010	-
Subject	OP Operations and Maintenance (Book 3 Of 3)	
	Subject	Subject OP Operations and Maintenance (Book 3 Of 3)

**Table of Contents** 

	INDEX CODE	PROCEDURE TITLE	
	OP-WQC/WDI W	ATER QUALITY MONITORING and CONTROL	
		Water Sampling at Designated Points / Sites of the Production Sources & the Destination Network	
	OP - WQC/WDI - 002	Assessment of Water Sample Viability for Microbiological and Chemical Analysis	
	OP - WQC/WDI - 003	Microbiological and Chemical Analysis of Water Sample from Designated Area On-Site Chlorine Residual, pH, & Conductivity Testing at the Water Distribution	
		Network	
	OP - WQC/WDI - 005	Intralaboratory Quality Assurance Implementation and Assessment	
	OP - WQC/WDI - 006	Evaluation, Interpretation and Documentation of Analytical Results Isolating an Area affected by Microbiological Contamination	
	OD WOCWINI NOS	Handling Internal WOCD Job Order with History Cards at Distribution Sampling Point	
	OP - WQC/WDI - 009	Handling External WQCD Job Order for Rehabilitation Activity at Distribution Sampling	
	OD WOOMDI 010	Point Strategic Hydrant / Blow-off Valve Flushing Activity	
	OP - WQC/WDI - 010	Re-assessment of Contaminated Distribution Networks After Rehab	
	OP-SCI	SERVICE CONNECTIONS INSTALLATION	
	OP - SCI - 001	Processing of Application of New Service Connection	
	OP - SCI - 002	Applying for Reconnection	
	OP - SCI - 003	Installation of New Service Connection	
	OP - SCI - 004	Temporary Disconnection Due to Delinquency	
	OP - SCI - 005	Reconnection	
	OP - SCI - 006	Un-accomplished Reconnection JO	
	OP - SCI - 007	Permanent Disconnection	
	OP - SCI - 008	Permanent Mainline Disconnection	
	OP - SCI - 009	Tapping	
	OP - SCI - 010	Change in Customer Service Requirement	
	OP - SCI - 011	Processing of Application for Change of Consumer's Name	
	OP - SCI - 012 OP-PRH	Pre-Service Orientation 07-501-013 - New Service Connection plats PIPELINES REHABILITATION to GIS Map	col
	OP - PRH - 001	Service Connection Rehabilitation	
	OP - PRH - 002	Service Connection Rehab (Job Order) – North	
	OP - PRH - 003	Preparation of JO for Walk-in Complaint	
	OP - PRH - 004	Preparation of MAC Job Order (External)	
	OP-PMN	PIPELINES MAINTENANCE	
	OP - PMN - 001	Leak Repair Procedure	
	OP - PMN - 002	Pipelines Repair Procedure	ii.
	OP-PRR	PAVEMENT RESTORATION DEC 13 2000	1
	OP - PRR - 001	Road Restoration Proceduse - PMD South	-
	OP - PRR - 002	Road Restoration Procedure - PMD North	
	from	May Davids Amenda & Baradas	
100	Prepared: Rosita C. La		
	Date: /	Date: /2/106 Date:	

Water Sampling at Desig. Points or Sites of the Prod. Sources & Dist. Network

SAN CE	

Metropolitan Cebu Water District  Quality Management System  Procedures Manual		Index No. OP - WQC/WDI - 0		
		Pa	1 of 4	
		Iss		
Section	18 - S - 40-4	Revisi	ion No.	0
Subject Water Sampling at Designated Points/Sites of the Production Sources and the Distribution Effe Network.		Effectiv	re Date	Jan. 01, 01

#### 1.0 OBJECTIVE:

To implement the different water sampling techniques employed in assessing the water quality of points and sites of production sources and distribution network. designated

#### 2.0 SCOPE:

This entails all water sampling activities and techniques employed at raw water sources, surface water, reservoir, distribution pipelines, hydrants & stub-outs, artesian wells, domestic sampling faucets, observation wells, and waste water lines.

#### 3.0 DEFINITION OF TERMS:

Distribution Network

- refers to the interconnected pipelines and fittings and appurtenances that carry

and convey drinking water from the source into the different water

concessionaires

Domestic Sampling Facilities - refer to household service line faucets, wherein water can be accessible for

sampling.

Observation Well

- refers to a constructed well either MCWD erected or privately-owned which is

used for assessing the quality in comparison with the existing quality exhibited

by production well sources.

Stub-outs

- refer to a 1" to 2" pipe tapped to a distribution pipeline which will serve as an

access for water service line connections to consumers.



Prepared 4/28/01 Date:

Reviewed: Date:

7/03/01

Approved: Date:

Water Sampling at Desig. Points or Sites of the Prod. Sources & Dist. Netw rk Index No. OP - WG C/ WDI - 001 Metropolitan Cebu Water District Quality Management System Page No. 2 of 4 Procedures Manual Issue No. 1 0 Section Revision No. Water Sampling at Designated Points/Sites of the Production Sources and the Distribution Subject Effective Date Jan. 01.01 Network. 4.0 PROCEDURE PROCESS FLOW RESPONSIBILITY DETAILS / REFERENCES Start Identify and gather initial data for the WQCD Staff / Division Identify and gather initial data designated sampling Manager for the designated sampling points points/site. Location maps Mobilize and identify sampling site 2 Mobilize and identify sampling WQCD Staff / Field Engineer site: a.) Raw Surface Water Source b.) Surface Water Reservoir c.) Water Tank/Reservoir/Co ncrete d.) Distribution Pipeline e.) Hydrants/Stub-pout f.) Artesian Well g.) Domestic Sampling Faucet h.) Observation Well i.) Wastewater lines (Special) DATE .

Prepared. Date:

Reviewed:

/ 7/03/01

Approved: Judy Date: 7/20/07

Water Sampling at Desig. Points or Sites of the Prod. Sources & Dist. Network Metropolitan Cebu Water District Index No. OP - WQ C WDI - 001 Quality Management System Page No. 3 of 4 Procedures Wanual Issue No. 1 Section esta (Gra) Revision No. 0 Water Sampling at Designated Points/Sites of Subject the Production Sources and the Distribution Effective Date Jan. 01,01 Network 4.0 PROCEDURE PROCESS FLOW RESPONSIBILITY DETAILS/REFERENCES Collect water samples basing on the type of WQCD Staff / Lab With the type of analyte analyte parameters Technician parameters and specified and specified sample sample bottle, collect sample at designated sampling site: a.) Raw Surface Water Source b.) Surface Water Reservoir/Dam c.) Concrete & Metal Water Tank/Reservoir d.) Distribution Pipeline e.) Hydrants/Stub-outs Artesian Well f.) Domestic Sampling Faucet g.) Observation Well h.) Waste waster lines DATE: Sample data labeled FRM - WQC/WDI-001 A, b, ... FRM - WQC/WDI-003 Sample field data forms obtained from forms cabinet and labeled upon water sample collection. Prepared Reviewed: Approved Date: Date: Date:

Water Sampling at Desig. Points or Sites of the Prod. Sources & Dist. Network Metropolitan Cebu Water District Index No. OP - WQC/ WDI - 001 Quality Management System 4 of 4 Page No. Procedures Manual Issue No. Section Revision No. 0 Water Sampling at Designated Points/Sites of the Production Sources and the Subject Effective Date Jan. 01, 01 Distribution Network. 4.0 PROCEDURE PROCESS FLOW RESPONSIBILITY DETAILS/REFERENCES Identify water sample by providing the WQCD Staff / Lab 4. Identify water sample by pertinent data Technician furnishing all pertinent data indicated at standard sample labels and attach this data to sample collected. Seal sample and transport into WQCD Staff / Lab 5. Seal sample and transport into laboratory Technician laboratory. Endorse sample to 6 laboratory WQCD Staff / Analysts 6. Endorse sample to laboratory. (Sample data logbook) Analysts received the sample Sample data endorse. Sample data endorsed in logbook the logbook and field. End DATE: Prepared. Reviewed-Approved: 7/03/01 Date: Date:

Assessment of Water Sample Viability for Microbiological & Chemical Analysis

(13	COUL IN	
18	A CAMPA	
1	100	
16	· AW OTT · S	
-	600 (III)	

Metropolitan Cebu Water District  Quality Management System  Procedures Manual		Index No. OP-WQC-WDI-002		
		Page No. 1 Issue No.		1 of 3
				1
Section	MATERIAL DE LES	Revis	ion No.	
Subject Assessment of Water Sample Viability for Microbiological & Chemical Analysis		Effectiv	e Date	Jan. 01, 0

#### 1.0 OBJECTIVE:

To Assess the viability and integrity of the water sample submitted for microbiological and chemical analysis in compliance with the requirements for accuracy of result.

#### 2.0 SCOPE:

All water samples from private clients, production sources, random and fixed sampling points, potability samples, special samples, and samples from the water - levied companies or individuals.

#### 3.0 DEFINITION OF TERMS:

- VIABILITY the condition of the water sample that makes it truly representative of the state of the points from which it is taken, at the time it is collected, and complies with the minimum requirements for analysis.
- FIXED SAMPLING POINT a strategically located concessionaire whose domestic water line is in designated as representative sample, the sampling of which is done twice a month to monitor the water quality of the area.
- RANDOM SAMPLING POINT a randomly selected domestic line and sampled twice a month to monitor any sudden upsurge of contamination.
- PRIVATE SAMPLES a sample from a privately owned deep well or pump, tested to monitor the quality of their
- Accuracy combination of bias and precision of an analytical procedure, which reflects the closeness of a measured value to a true value.
- POTABILITY SAMPLES the sample collected from newly installed pipeline to determine the efficiency of disinfection.

PRODUCTION SAMPLES - the sample collected form production wells routinely analyzed for water quality.

SPECIAL SAMPLES - the samples collected before and after water meter to pinpoint the source of contamination in an already identified contaminated area.

Prepared:	Men	Re
Date:	1 42901	Da

eviewed:

1- Kalena

DATE

Approved: Date:

7/00/07

Assessment of Water Sample Viability for Microbiological & Chemical Analysis Metropolitan Cebu Water District Index No. OP-WQC-WDI-002 Quality Management System Page No. 2 of 3 Procedures Manual Issue No. 1 Section Revision No. 0 Assessment of Water Sample Viability for Subject Microbiological & Chemical Analysis Effective Date Jan.01,01 4.0 PROCEDURE PROCESS FLOW RESPONSIBILITY DETAILS / REFERENCES Start Laboratory Technician Submit samples taken from: Submission of sample Private Clients/ 1.) Fixed Sampling Points MCWD Consumers 2.) Random Samples Principal Engr. C 3.) Production Wells 1.) 4.) Private 5.) Special Samples 2.) 6.) Potability 7.) Water Levy 3.) Type of forms filled up according; requesting party. 2 Complete Data Laboratory Tech. Fill-up the required forms Private Clients/ 1.) FRM-WQC/WDI-001 MCWD Consumers 2.) FRM-WQC/WDI-002 Principal Engr. 3.) FRM-WQC/WDI-003 Check for compliance 3 to requirements Water Analyst Check for compliance to Bacteriologist requirements of sample viability: 1.) Allowable time limit 2.) Proper collection technique 3.) Correct entry of data DATE: Prepared Reviewed: Approved: Date: Date: Date: 7/20/07

Assessment of Water Sample Viability for Microbiological & Chemical Analysis



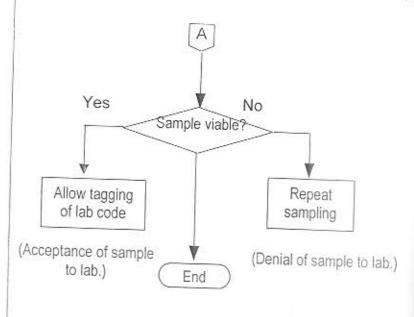
interobloingical	& Chemical	Ana	alysis
Quality Management System		Index No. OP-WQC-WD	
		Page No. 3 o	
	Issue 1	Vo.	1
name (mod)	Revision N	Vo.	0
Assessment of Water Sample Viability for Microbiological & Chemical Analysis	Effective Da	ate	Jan.01,01
	Metropolitan Cebu Water District	Metropolitan Cebu Water District Index No.  Procedures Manual  Assessment of Water Sample Viability for	Metropolitan Cebu Water District Index No. OF Procedures Manual  Assessment of Water Sample Viability for

# 4.0 PROCEDURE

PROCESS FLOW

RESPONSIBILITY

DETAILS/REFERENCES



Repeat sampling is suggested to requesting party.



Prepared:	: 12	$\cap$ $\cap$ $\cdot$
alkeyon !	Reviewed: / daleng	Approved tunde
1/190/01	7/03/07	7/20/07