

PROCEDURES MANUAL

Document No. : **PM-OM-01** Eff. Date : **08-20-16**
Revision No. : **00** Pages : **1 of 3**

DESIGN AND DEVELOPMENT

I. OBJECTIVE

This procedure clearly defines the process to determine the pipe sizes, bill of quantities, duration and total cost of the project.

II. SCOPE

Water System Design

III. RESPONSIBILITY AND RESOURCES

Responsible person is the Operation and Maintenance Division Manager.

The Operation and Maintenance shall conduct data gathering, prepare plans and drawings, and program of works.

Resources required draftsman who shall prepare the drawings, team leader secure data on site which includes number of households, distances and elevations of the terrain with the use of measuring tape and level instrument. Computers with Auto-CAD software.

IV. DEFINITION OF TERMS

LWUA – Local Water Utilities Administration

PSA – Philippine Statistics Authority

POW – Program of Works

Auto-CAD – Auto-Computer Aided Design

V. REFERENCE DOCUMENTS

Previous completed projects

LWUA design handbook

VI. RECORDS GENERATED

Engineering's Field Book, Data files, Photographs, Auto-CAD file, Analysis, Plans and Drawings, POW

UNCONTROLLED COPY

Prepared by: **EDWARD L. REMO**
Process Owner

Approved by: **ENGR. EDWARD L. REMO**
General Manager



PROCEDURES MANUAL

DESIGN AND DEVELOPMENT

VII. PROCEDURE DETAILS AND FLOW

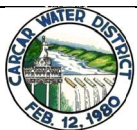
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	<pre> graph TD START([START]) --> Demand[Determine Demand] </pre>	1.1 Data gathering on number of households 1.2 Measure distances and elevations	1.1 Average number per household from PSA 1.2 Existing road and highways	1.1 Team Leader 1.2 Team Leader	1.1 Engineering's Field Book 1.2 Data files
2	<pre> graph TD Demand --> Supply[Check Supply] </pre>	2.1 Determine available supply at source or tapping point	2.1 Supply shall be more than the demand and potable	2.1 Division Manager	2.1 Data files and site photographs
3	<pre> graph TD Supply --> Design[Design] Design --> A((A)) A --> B((B)) B --> Design </pre>	3.1 Determine the appropriate pipe sizes 3.2 Prepare a plans and drawings 3.3 The team shall conduct review. 3.4 Division Head shall conduct verification of design.	3.1 Engineering Handbook 3.2 Data gathered	3.1 Division Manager 3.2 Draftsman	3.1 Auto-CAD file 3.2 Auto-CAD file
4	<pre> graph TD Design --> Analysis{Hydraulic Analysis} Analysis -- No --> B Analysis -- Yes --> A </pre>	4.1 Determine effectiveness of design	4.1 Epanet software 4.2 Engineering Hadbook	4.1 General Manager	4.1 Data files/ Analysis

UNCONTROLLED COPY

Doc No. : **PM-OM-01**
 Rev. No. : **00**

PROPRIETARY NOTICE
 THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY *CARCAR WATER DISTRICT*.

Eff. Date : **08-20-16**
 Pages : **2 of 3**



PROCEDURES MANUAL

DESIGN AND DEVELOPMENT

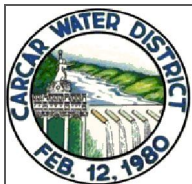
5		5.1 Review and approval by Division Manager and General Manager	5.1 Right-of-way, Growth trend	5.1 General Manager	5.1 Plans and Drawings
6		6.1 Determine bill of quantities 6.2 Determine total project cost and duration	6.1 Previous completed projects 6.2 Previous completed projects	6.1 Division Manager 6.2 Division Manager	6.1 POW 6.2 POW
7		7.1 Approval of the proposed project	7.1 Estimated return of investment	7.1 General manager	7.1 POW

UNCONTROLLED COPY

Doc No. : **PM-OM-01**
Rev. No. : **00**

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY *CARCAR WATER DISTRICT*.

Eff. Date : **08-20-16**
Pages : **3 of 3**



PROCEDURES MANUAL

Document No. : **PM-OM-02** Eff. Date : **08-20-16**
Revision No. : **00** Pages : **1 of 3**

INSTALLATION OF PIPELINES

I. OBJECTIVE

This procedure clearly defines the process to determine the pipe sizes, bill of quantities, duration and total cost of the project.

II. SCOPE

This covers the entire Carcar Water District's Water System Design Expansion and all its Interested Parties.

III. RESPONSIBILITY AND RESOURCES

Operation and Maintenance personnel
Division Manager
Draftsman
General Manager
Team Leader

IV. DEFINITION OF TERMS

RRW – Road Right-of-Way
DPWH – Department of Public Works and Highways

V. REFERENCE DOCUMENTS

Carcar Water District Operations Manual

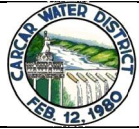
VI. RECORDS GENERATED

RRW form, Drawing and program of works, Certification of excavation permit (DPWH/ Municipality/ Barangay), Activity/ accomplishment monitoring form

UNCONTROLLED COPY

Prepared by: HENRY A. CUI
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

INSTALLATION OF PIPELINES

VII. PROCEDURE DETAILS AND FLOW

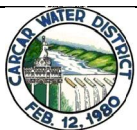
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START	1.1 Negotiate lot owner.	1.1 Owner should be the registered owner of the property	1.1 Operation and Maintenance personnel	1.1 RRW form
2	Work-out RRW	2.1 Approve by lot owner.	2.1 Assessor's lot plan	2.1 Division Manager	2.1 RRW form
3	Approval	2.1.1 If no then process shall go back to work-out RRW. 2.1.2 If yes then proceed to preparation of drawings and program of works.	3.1. All projects must have complete Plan and program of works	3.1 Division Manager 3.2 Draftsman	3.1 Drawings and program of works
4	Preparation of drawings and program of works	3.1 Preparation of program of works which includes cost estimate and work duration. Drawing/ plan is the reflection of actual work preparation.	4.1 All programs must be clear and understandable	4.1 Division Manager 4.2 General Manager	4.1 Drawings and program of works
5	Design	4.1 Review and approval by Division Manager and General Manager.	5.1 100% of permits completed before starting the project	5.1 Operation and Maintenance personnel	5.1 Certification of excavation permit
	Processing of permits	5.1 Apply permits for pipeline excavation to DPWH/ Municipality/ Barangay permit.			
	A				

UNCONTROLLED COPY

Doc No. : PM-OM-02
Rev. No. : 00

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT. ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : 08-20-16
Pages : 2 of 3



PROCEDURES MANUAL

INSTALLATION OF PIPELINES

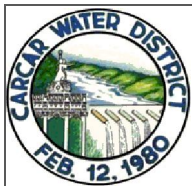
6	<pre>graph TD; A((A)) --> B[Installation of pipelines]; B --> C[Conduct pipeline hydro test and disinfection]; C --> D{Pass?}; D -- No --> C; D -- Yes --> E[Interconnection of pipelines]; E --> F[Backfilling compaction and restoration]; F --> G[END];</pre>	6.1 Observe proper excavation and backfilling include sand bedding, caution tape, and then installation of pipelines.	6.1 <i>Carcar Water District Operations Manual</i>	6.1 Operation and Maintenance personnel	6.1 Activity/ accomplishment monitoring form
7		7.1 Before tapping interconnection, the new installed pipelines subject to conduct hydro testing together with disinfection by charging enough chlorine granules. Hydro testing applies a specified maximum pressure for not less than 24 hours.	7.1 <i>Carcar Water District Operations Manual</i>	7.1 Operation and Maintenance personnel	7.1 Activity/ accomplishment monitoring form
8		8.1 If failed determine the leak location then repair and process shall go back to conduct pipeline hydro test and disinfection.	8.1 <i>Quality Control</i>	8.1 Team Leader 8.2 Division Manager	8.1 Activity/ accomplishment monitoring form
9		8.2 If passed proceed to interconnection of pipelines.			
10		9.1 Identify the two existing point of pipelines and apply interconnection.	9.1 <i>Carcar Water District Operations Manual</i>	9.1 Operation and Maintenance personnel	9.1 Activity/ accomplishment monitoring form
		10.1 Backfilling compaction and restoration.	10.1 <i>Carcar Water District Operations Manual</i>	10.1 Operation and Maintenance personnel	10.1 Activity/ accomplishment monitoring form

UNCONTROLLED COPY

Doc No. : **PM-OM-02**
Rev. No. : **00**

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT. ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : **08-20-16**
Pages : **3 of 3**



PROCEDURES MANUAL

Document No. : **PM-OM-02** Eff. Date : **08-20-16**
Revision No. : **00** Pages : **1 of 3**

INSTALLATION OF PIPELINES

I. OBJECTIVE

This procedure clearly defines the process to determine the pipe sizes, bill of quantities, duration and total cost of the project.

II. SCOPE

This covers the entire Carcar Water District's Water System Design Expansion and all its Interested Parties.

III. RESPONSIBILITY AND RESOURCES

Operation and Maintenance personnel
Division Manager
Draftsman
General Manager
Team Leader

IV. DEFINITION OF TERMS

RRW – Road Right-of-Way
DPWH – Department of Public Works and Highways

V. REFERENCE DOCUMENTS

Carcar Water District Operations Manual

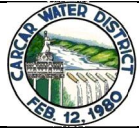
VI. RECORDS GENERATED

RRW form, Drawing and program of works, Certification of excavation permit (DPWH/ Municipality/ Barangay), Activity/ accomplishment monitoring form

UNCONTROLLED COPY

Prepared by: HENRY A. CUI
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

INSTALLATION OF PIPELINES

VII. PROCEDURE DETAILS AND FLOW

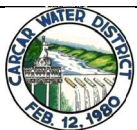
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START	1.1 Negotiate lot owner.	1.1 Owner should be the registered owner of the property	1.1 Operation and Maintenance personnel	1.1 RRW form
2	Work-out RRW	2.1 Approve by lot owner.			
2	Approval	2.1.1 If no then process shall go back to work-out RRW.	2.1 Assessor's lot plan	2.1 Division Manager	2.1 RRW form
3	Preparation of drawings and program of works	2.1.2 If yes then proceed to preparation of drawings and program of works.			
3		3.1 Preparation of program of works which includes cost estimate and work duration. Drawing/ plan is the reflection of actual work preparation.	3.1. All projects must have complete Plan and program of works	3.1 Division Manager 3.2 Draftsman	3.1 Drawings and program of works
4	Design	4.1 Review and approval by Division Manager and General Manager.	4.1 All programs must be clear and understandable	4.1 Division Manager 4.2 General Manager	4.1 Drawings and program of works
5	Processing of permits	5.1 Apply permits for pipeline excavation to DPWH/ Municipality/ Barangay permit.	5.1 100% of permits completed before starting the project	5.1 Operation and Maintenance personnel	5.1 Certification of excavation permit
	A				

UNCONTROLLED COPY

Doc No. : PM-OM-02
Rev. No. : 00

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO NAME OF COMPANY ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY NAME OF COMPANY.

Eff. Date : 08-20-16
Pages : 2 of 3



PROCEDURES MANUAL

INSTALLATION OF PIPELINES

6	<pre>graph TD; A((A)) --> B[Installation of pipelines]; B --> C[Conduct pipeline hydro test and disinfection]; C --> D{Pass?}; D -- No --> C; D -- Yes --> E[Interconnection of pipelines]; E --> F[Backfilling compaction and restoration]; F --> G[END];</pre>	6.1 Observe proper excavation and backfilling include sand bedding, caution tape, and then installation of pipelines.	6.1 <i>Carcar Water District Operations Manual</i>	6.1 Operation and Maintenance personnel	6.1 Activity/ accomplishment monitoring form
7		7.1 Before tapping interconnection, the new installed pipelines subject to conduct hydro testing together with disinfection by charging enough chlorine granules. Hydro testing applies a specified maximum pressure for not less than 24 hours.	7.1 <i>Carcar Water District Operations Manual</i>	7.1 Operation and Maintenance personnel	7.1 Activity/ accomplishment monitoring form
8		8.1 If failed determine the leak location then repair and process shall go back to conduct pipeline hydro test and disinfection.	8.1 <i>Quality Control</i>	8.1 Team Leader 8.2 Division Manager	8.1 Activity/ accomplishment monitoring form
9		8.2 If passed proceed to interconnection of pipelines.			
10		9.1 Identify the two existing point of pipelines and apply interconnection.	9.1 <i>Carcar Water District Operations Manual</i>	9.1 Operation and Maintenance personnel	9.1 Activity/ accomplishment monitoring form
		10.1 Backfilling compaction and restoration.	10.1 <i>Carcar Water District Operations Manual</i>	10.1 Operation and Maintenance personnel	10.1 Activity/ accomplishment monitoring form

UNCONTROLLED COPY

Doc No. : **PM-OM-02**
Rev. No. : **00**

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO NAME OF COMPANY ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY NAME OF COMPANY.

Eff. Date : **08-20-16**
Pages : **3 of 3**



PROCEDURES MANUAL

Document No. : **PM-OM-03** Eff. Date : **08-20-16**
Revision No. : **00** Pages : **1 of 2**

MAINTENANCE OF PIPELINES

I. OBJECTIVE

This procedure clearly defines the process of finding and fixing leaks reduces pumping and treatment costs and minimizes the risks of contamination, water outages and property damage.

II. SCOPE

This procedure only applies for preventive maintenance of pipes.

III. RESPONSIBILITY AND RESOURCES

Responsible person are the leak detection operator & Operation team leaders.

Resources required operator who shall conduct leak detection survey. The team leaders secure the actual data which include low pressure monitoring, flow meter suddenly high consumption & routine target schedule.

IV. DEFINITION OF TERMS

Leak Detection Survey – is to detect where the exact location of leaks by using leak detector instrument.

Carcar Water District Pipe Network – is the reflection of pipelines with location and sizes.

Flow Meter – is a device that measures a large volume of water delivered to a property.

V. REFERENCE DOCUMENTS

Carcar Water District Pipe Network.

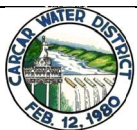
VI. RECORDS GENERATED

Job order request and Leak detection logbook.

UNCONTROLLED COPY

Prepared by: WENCESLAO C. ABALO
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

MAINTENANCE OF PIPELINES PROCEDURE

VII. PROCEDURE DETAILS AND FLOW

No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START				
	Tools & Equipment preparation	1.1 Checking of tools & leak detector equipments, include (flashlight, spray paint rolling measure & logbook	1.1 Check all tool & equipment before proceed to the site 1.2 Daily, Night Time	1.1 Leak Detection personnel	1.1 Memorandum receipt of tools & equipment.
2	Proceed to specific area for leak detection	2.1 The team comes to the site with 1 Barangay representative (tanod) for the safety purposes	2.1 Safety first purposes	2.1 Leak Detection personnel	2.1 Leak Detection logbook 2.1 Leak Detection Schedule
3	Conduct leak detection activity	3.1 The operator move slowly with a maximum of half a meter apart aligned the pipelines. Use leak pen to check the tap stands	3.1 The leak detection team commits to perform 500 to 1000 linear meters per activity.	3.1 Leak Detection Operator	3.1 Leak Detection logbook
4	Spray Paint Marking	4.1 Once the operator detected the leaks, the operator put a mark using spray paint	4.1 90% of Detected marking have leaks	4.1 Leak Detection personnel	4.1 Leak Detection logbook
5	Record to the logbook	5.1 All Detected leaks with marking must record in the logbook for request preparation	5.1 100% of leaks recorded within the day	5.1 Leak Detection personnel	5.1 Job Order form for request & complains
6	Check & Repair	6.1 Checking of marked leaks & repair after receiving the request	6.1 Finding of leaks excavated with the minimum of 1 meter radius	6.1 Assigned team	6.1 Leak Detection logbook
	Negative → Positive → END				

UNCONTROLLED COPY

Doc No. : PM-OM-03
Rev. No. : 00

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

: 08-20-16
Pages : 2 of 2



PROCEDURES MANUAL

Document No. : **PM-OM-04** Eff. Date : **08-20-16**
Revision No. : **00** Pages : **1 of 3**

MAJOR LEAK REPAIR PROCEDURE

I. OBJECTIVE

This procedure clearly defines the process to minimize water losses and contamination.

II. SCOPE

This covers the entire Carcar Water District's Water System Design Expansion and all its Interested Parties.

III. RESPONSIBILITY AND RESOURCES

Operation and Maintenance personnel
Public Information Officer
Division Manager
Storekeeper
PACD personnel

IV. DEFINITION OF TERMS

RIS – Requisition Issuance Slip

V. REFERENCE DOCUMENTS

Carcar Water District Operations Manual
Carcar Water District Citizen's Charter

VI. RECORDS GENERATED

Maintenance Order Form, Tools Logbook, Equipment Logbook, Carcar Water District Pipe Network/ Gate Valve Location Files, RIS, Minutes of Operations' Coordination Meeting, CWD Repair Leak Checklist

UNCONTROLLED COPY

Prepared by: HENRY A. CUI
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

MAJOR LEAK REPAIR PROCEDURE

VII. PROCEDURE DETAILS AND FLOW

No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START				
1	Receive maintenance order form	1.1 Receive maintenance order form.	1.1 <i>Carcar Water District Citizen's Charter</i>	1.1 Operation and Maintenance personnel	1.1 Maintenance Order Form
2	Check and prepare tools and equipment	2.1 Check and prepare appropriate tools and equipment needed in leak repair.	2.1 <i>Carcar Water District Operations Manual</i>	2.1 Operation and Maintenance personnel	2.1 Tools Logbook 2.2 Equipment Logbook
3	Isolate the area and identify the gate valves in affected areas	3.1 To determine the coverage area for possible low pressure/ no water. 3.2 Public information as needed.	3.1 <i>Carcar Water District Operations Manual</i> 3.2 <i>Residents of the affected areas should be informed at least 2 hrs. before the interruptions</i>	3.1 Operation and Maintenance personnel 3.2 Public information officer	3.1 Carcar Water District Pipe Network/ Gate Valve Location Files 3.2 Not Applicable
4	Install barricade then proceed excavation of 1.00M x 2.00M	4.1 Install barricade then proceed excavation of 1.00M x 2.00M for working space.	4.1 <i>Carcar Water District Operations Manual</i>	4.1 Operation and Maintenance personnel	4.1 Gate Pass
5	Request appropriate fittings	5.1 Request appropriate fittings needed in leak repair.	5.1 <i>Accuracy of request of the materials</i>	5.1 Operation and Maintenance personnel 5.2 Division Manager 5.3 Storekeeper	5.1 RIS

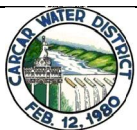
A

UNCONTROLLED COPY

Doc No. : PM-OM-04
Rev. No. : 00

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCARWATER DISTRICT.

Eff. Date : 08-20-16
Pages : 2 of 3



PROCEDURES MANUAL

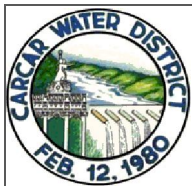
MAJOR LEAK REPAIR PROCEDURE

6	A	Close gate valves	6.1 Close gate valves in affected areas.	6.1 <i>Carcar Water District Operations Manual</i>	6.1 Operation and Maintenance personnel	6.1 Minutes of Operations' Coordination Meeting
7		Repair leakage	7.1 Repair leakage.	7.1 <i>Carcar Water District Operations Manual</i> 7.2 <i>Carcar Water District Citizen's Charter</i>	7.1 Operation and Maintenance personnel	7.1 Maintenance Order Form
8		Backfilling and compaction	8.1 Backfilling and compaction.	8.1 <i>Carcar Water District Operations Manual</i>	8.1 Operation and Maintenance personnel	8.1 Not Applicable
9		Open gate valves	9.1 Open gate valves in affected areas.	9.1 <i>Carcar Water District Operations Manual</i>	9.1 Operation and Maintenance personnel	9.1 Minutes of Operations' Coordination Meeting
10		Flush pipeline then restoration	10.1 Flush pipeline then restoration.	10.1 <i>Carcar Water District Operations Manual</i>	10.1 Operation and Maintenance personnel	10.1 Minutes of Operations' Coordination Meeting
11		Fill-up and submit the maintenance order form and CWD repair leak checklist	11.1 Fill-up the maintenance order form and CWD repair leak checklist then submit to PACD personnel.	11.1 <i>Maintenance order form and CWD repair leak checklist should be properly filled out</i>	11.1 Operation and Maintenance personnel 11.2 PACD personnel	11.1 Maintenance Order Form 11.2 CWD Repair Leak Checklist
		END	UNCONTROLLED COPY			

Doc No. : PM-OM-04
Rev. No. : 00

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCARWATER DISTRICT.

Eff. Date : 08-20-16
Pages : 3 of 3



PROCEDURES MANUAL

Document No. : **PM-OM-05** Eff. Date : **08-20-16**
Revision No. : **00** Pages : **1 of 3**

MAINTENANCE OF PIPELINES

I. OBJECTIVE

This procedure clearly defines the process to minimize water losses and contamination.

II. SCOPE

This covers the entire Carcar Water District's Water System Design Expansion and all its Interested Parties.

III. RESPONSIBILITY AND RESOURCES

Operation and Maintenance personnel
Division Manager
Storekeeper
PACD personnel

IV. DEFINITION OF TERMS

RIS – Requisition Issuance Slip

V. REFERENCE DOCUMENTS

Carcar Water District Operations Manual
Carcar Water District Citizen's Charter

VI. RECORDS GENERATED

Maintenance Order Form, Tools Logbook, Equipment Logbook, RIS, Minutes of Operations' Coordination Meeting, CWD Repair Leak Checklist.

UNCONTROLLED COPY

Prepared by: HENRY A. CUI
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

MINOR LEAK REPAIR PROCEDURE

VII. PROCEDURE DETAILS AND FLOW

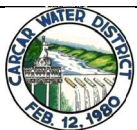
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START ↓ Receive maintenance order form	1.1 Receive maintenance order form.	1.1 Carcar Water District Citizen's Charter	1.1 Operation and Maintenance personnel	1.1 Maintenance Order Form
2	↓ Check and prepare tools and equipment	2.1 Check and prepare appropriate tools and equipment needed in leak repair.	2.1 Carcar Water District Operations Manual	2.1 Operation and Maintenance personnel	2.1 Tools Logbook 2.2 Equipment Logbook
3	↓ Excavate 1.00M x 1.00M	3.1 Excavation 1.00M x 1.00M for working place.	3.1 Carcar Water District Operations Manual	3.1 Operation and Maintenance personnel	3.1 Not applicable
4	↓ Request appropriate fittings	4.1 Request appropriate fittings needed in leak repair.	4.1 Accuracy of request of the materials	4.1 Operation and Maintenance personnel 4.2 Division Manager 4.3 Storekeeper	4.1 RIS
5	↓ Close control valve	5.1 Close control valve.	5.1 Carcar Water District Operations Manual	5.1 Operation and Maintenance personnel	5.1 Not Applicable
6	↓ Repair leakage ↓ A	6.1 Repair leakage.	6.1 Carcar Water District Operations Manual 6.2 Carcar Water District Citizen's Charter	6.1 Operation and Maintenance personnel	6.1 Maintenance Order Form

Doc No. : PM-OM-05
Rev. No. : 00

UNCONTROLLED COPY

PROPRIETARY NOTICE
ON PROPRIETARY TO CARCAR WATER DISTRICT.ANY DISCLOSURE OR USE IS
PT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : 08-20-16
Pages : 2 of 3



PROCEDURES MANUAL

MINOR LEAK REPAIR PROCEDURE

	<p style="text-align: center;">A</p> <pre> graph TD A((A)) --> B[Backfilling and compaction] B --> C[Open control valve] C --> D[Check the supply and all connection lines] D --> E[Flush pipeline then restoration] E --> F[Fill-up and submit the maintenance order form and CWD repair leak checklist] F --> G[END] </pre>				
7	Backfilling and compaction	7.1 Backfilling and compaction.	7.1 <i>Carcar Water District Operations Manual</i>	7.1 Operation and Maintenance personnel	7.1 Not Applicable
8	Open control valve	8.1 Open control valve.	8.1 <i>Carcar Water District Operations Manual</i>	8.1 Operation and Maintenance personnel	8.1 Not Applicable
9	Check the supply and all connection lines	9.1 Check the supply and all connection lines.	9.1 <i>Carcar Water District Operations Manual</i>	9.1 Operation and Maintenance personnel	9.1 Not Applicable
10	Flush pipeline then restoration	10.1 Flush pipeline then restoration.	10.1 <i>Carcar Water District Operations Manual</i>	10.1 Operation and Maintenance personnel	10.1 Minutes of Operations' Coordination Meeting
11	Fill-up and submit the maintenance order form and CWD repair leak checklist	11.1 Fill-up the maintenance order form and CWD repair leak checklist then submit to PACD personnel.	11.1 Maintenance order form and CWD repair leak checklist should be properly filled out	11.1 Operation and Maintenance personnel 11.2 PACD personnel	11.1 Maintenance order form 11.2 CWD repair leak checklist
	END				

UNCONTROLLED COPY

Doc No. : **PM-OM-05**
Rev. No. : **00**

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT. ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : **08-20-16**
Pages : **3 of 3**



PROCEDURES MANUAL

Document No. : **PM-OM-06** Eff. Date : **08-20-16**
Revision No. : **00** Pages : **1 of 2**

PRODUCTION OF WATER

I. OBJECTIVE

This procedure clearly defines the process of producing good quality of water demanded by the consumers in economic manners and increase level of water supply for customer satisfaction.

II. SCOPE

This covers the entire Carcar Water District's Spring and Well Production.

III. RESPONSIBILITY AND RESOURCES

Responsible person are the Production team.

Resources require personnel to operate pumps, reading of flow meters, monitor pressure gauges & reservoirs. They gather data such as low pressure reading, turbidity test result, discharge rate and meter accuracy, level of reservoir and level of spring.

IV. DEFINITION OF TERMS

PSI – Pounds per square inch

V. REFERENCE DOCUMENTS

Carcar Water District Operations Manual

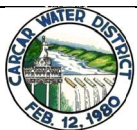
VI. RECORDS GENERATED

Flow Meter Reading Logbook, Pressure Gauges Record Logbook, Turbidity Test Result File, Flow Rate Record and Reservoir Monitoring Logbook

UNCONTROLLED COPY

Prepared by: WENCESLAO C. ABALO
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

PRODUCTION OF WATER PROCEDURE

VII. PROCEDURE DETAILS AND FLOW

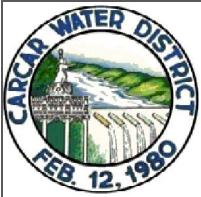
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START				
	Identify sources & flow meters	1.1 Springs runs through gravity and pumps and wells run by pumps.	1.1 Pumps based on demand time	1.1 Production team personnel	1.1 Spring & wells record
2	Pump operation	2.1 Run & stop the pump check pressure gauges, reservoir monitoring, checking of turbidity and checking of water level.	2.1 Operation of pumps based on pressure monitoring with no less than 10 psi for the highest elevation	2.1 Pump tender or pump operator	2.1 Pump operation logbook
3	Check the status of flow meters	3.1 Flow meters check weekly and conduct flow rate measurement.	3.1 Checking of flow rate based on original spring or well data. Checking of meter based on calibration result	3.1 Team leaders and production personnel	3.1 Flow rate record
4	Conduct reading of flow meters	4.1 Collect daily flow meter reading and calculate.	4.1 Monitoring daily consumption to identify the daily average used	4.1 Production personnel	4.1 Daily record of flow meter reading
5	<div> <div>Daily production result</div> <div>Low/</div> <div>Normal</div> </div>	5.1 The sum of total production of all sources is equal to the total Production of Water daily. 5.1.1 If low/ high then process shall go back to pump operation. 5.1.2 If normal then end the process.	5.1 Production of water result is not more than 15% of the entire demand	5.1 Production personnel	5.1 Daily production report
	END				

UNCONTROLLED COPY

Doc No. : PM-OM-06
Rev. No. : 00

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT. ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : 08-20-16
Pages : 2 of 2



PROCEDURES MANUAL

Document No. : **PM-OM-07** Eff. Date : **08-20-16**

Revision No. : **00** Pages : **1 of 2**

LINE SURVEY PROCEDURE

I. OBJECTIVE

This procedure clearly defines the process to identify the types of pipes, the sizes & the date of acquisition.

II. SCOPE

This covers the entire Carcar Water District's Water System Design Expansion and all its Interested Parties.

III. RESPONSIBILITY AND RESOURCES

All Teams

Responsible person are the team leaders.

Resources required operator who shall conduct line survey. The team leaders secured the actual data which include low pressure monitoring, flow meter suddenly high consumption & routine target schedule.

IV. DEFINITION OF TERMS

PSI – Pounds per square inch

V. REFERENCE DOCUMENTS

Carcar Water District Pipe Network

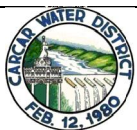
VI. RECORDS GENERATED

Pressure gauge record, Flow meter logbook, Maintenance order form

UNCONTROLLED COPY

Prepared by: WENCESLAO C. ABALO
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

LINE SURVEY PROCEDURE

VII. PROCEDURE DETAILS AND FLOW

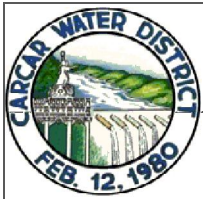
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START				
1	<pre> graph TD START([START]) --> D1{Check pressure gauges and flow meters} D1 -- Okay --> END([END]) D1 -- Not Okay --> S2[Conduct line survey] </pre>	<p>1.1 Check pressure gauges based on normal reading and flow meters in unusual continuous flow.</p> <p>1.1.1 If not okay line survey should be conducted.</p> <p>1.1.2 If okay then end of process.</p>	<p>1.1 Pressure gauges read not less than 10 psi or based on standard on the specific area. <i>Flow meter read based on daily consumption</i></p>	1.1 All Teams	<p>1.1 Pressure gauge record</p> <p>1.2 Flow meter logbook</p>
2	Conduct line survey	2.1 Check pipe location, tap stands, water meters and service connections.	2.1 Prepare immediate report for the result of line survey	2.1 All Teams	2.1 Maintenance order form
3	Immediate response for the request	3.1 The assigned team conducts immediate response for the request if it is for repair or for replacement.	3.1 The CWD personnel responded not more than 1 hour after receiving the request	3.1 All Teams	3.1 Maintenance order form
4	<pre> graph TD S2[Conduct line survey] --> D2{Final check of pressure gauges and flow meters} D2 -- Not Okay --> S2 D2 -- Okay --> END([END]) </pre>	<p>4.1 After performing all activities the team conducts the final check of pressure gauges and flow meters.</p> <p>4.1.1 If not okay then process shall go back to conduct line survey.</p> <p>4.1.2 If okay then end of process.</p>	<p>4.1 Pressure gauges read not less than 10 psi or based on standard on the specific area. <i>Flow meter read based on daily consumption</i></p>	4.1 All Teams	4.1 Pressure gauges record and flow meter daily logbook

UNCONTROLLED COPY

Doc No. : **PM-OM-07**
Rev. No. : **00**

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT. ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : **08-20-16**
Pages : **2 of 2**



PROCEDURES MANUAL

Document No. : PM-OM-08 Eff. Date : 08-20-16

Revision No. : 00 Pages : 1 of 2

PHYSICAL-CHEMICAL TEST FOR WATER

I. OBJECTIVE

This procedure clearly defines the process of annual testing for **physical**-chemical parameters for the quality of water.

II. SCOPE

Supply safety potable water.

III. RESPONSIBILITY AND RESOURCES

Accredited Laboratory/ Carcar Water District Personnel.

IV. DEFINITION OF TERMS

Physical-Chemical Test for Water – parameters for testing of water

Accredited Laboratory – is to perform testing and evaluating water

Carcar Water District Personnel – is the person involved in conducting **Physical**-Chemical Testing

RCL – Recommended Contaminant Level

MDL – Method Detection Limit

IDL – Instrument Detection Limit

ND – Contamination

V. REFERENCE DOCUMENTS

Philippine National Standards for Drinking Water (PNSDW), 2007.

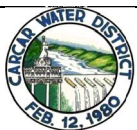
VI. RECORDS GENERATED

Purchase Request, **Physical**-Chemical Test Result for Water

UNCONTROLLED COPY

Prepared by: JOBERT D. BABANTO
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

PHYSICAL-CHEMICAL TEST FOR WATER

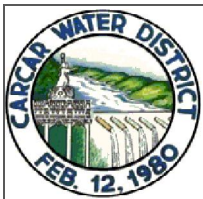
VII. PROCEDURE DETAILS AND FLOW

No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
01		1.1 CWD Personnel make a Request.	<i>Location for Testing</i> <i>Once a year, every April or May</i>	Carcar Water District Personnel	Purchase Request
02		2.1 Approved by the General Manager.	<i>Request should be with complete signatories</i>	General Manager	Purchase Request
03		3.1 Take sample of 1.5 liters to the designated location for Laboratory.	<i>Designated Location for Testing</i>	Accredited Laboratory/ Carcar Water District Personnel	Not Applicable
04		4.1 Checked the result of RCL, MDL, IDL and ND (if any) is beyond Detection Limit from accredited laboratory. 4.1.1 If failed then apply for corrective action based on PNSDW 2007, process shall go back to Request for Testing. 4.1.2 If passed then end of process.	<i>Philippine National Standards for Drinking Water (PNSDW), 2007</i> <div style="border: 2px solid red; padding: 5px; text-align: center; color: red;">UNCONTROLLED COPY</div>	Accredited Laboratory/ Carcar Water District Personnel	Physical-Chemical Test Results for Water

Doc No. : **PM-OM-08**
 Rev. No. : **00**

PROPRIETARY
 THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : **08-20-16**
 Pages : **2 of 2**



PROCEDURES MANUAL

Document No. : **PM-OM-09** Eff. Date : **08-20-16**

Revision No. : **00** Pages : **1 of 2**

WATER TREATMENT

I. OBJECTIVE

This procedure clearly defines the process that can be used to achieve safe levels of chlorine in drinking water supply delivered to every concessionaire.

II. SCOPE

This covers the entire Carcar Water District's Operations and Maintenance and its Interested Parties.

III. RESPONSIBILITY AND RESOURCES

Team Leaders

IV. DEFINITION OF TERMS

Disinfection/ Chlorination – is a treatment method by using chlorine

Chlorine – is a highly efficient disinfectant

Ppm – parts per million

RIS – Requisition Issuance Slip

V. REFERENCE DOCUMENTS

Philippine National Standards for Drinking Water (PNSDW), 2007

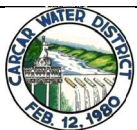
VI. RECORDS GENERATED

RIS and Daily Chlorine Residual Form, Calculating Q * 0.3 ppm to 1.5 ppm, Preventive Maintenance Logbook, Daily Chlorine Residual Logbook

UNCONTROLLED COPY

Prepared by: WENCESLAO C. ABALO
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

WATER TREATMENT PROCEDURE

VII. PROCEDURE DETAILS AND FLOW

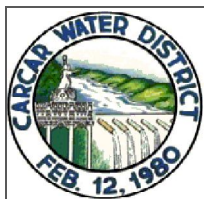
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START				
	↓				
1	Disinfection/ Chlorination	1.1 Clean empty drums, fill-up with water and mix with chlorine based on computation.	1.1 <i>Treated Based on Philippine National Standards for Drinking Water, 2007</i>	1.1 Team leaders	1.1 RIS and Daily Chlorine Residual Form, Calculating $Q * 0.3 \text{ ppm}$ to 1.5 ppm
	↓				
2	Check chlorinator	2.1 Check chlorinator and chlorine dosage.	2.1 <i>Dosage not less than 0.3 ppm and not more than 1.5 ppm</i>	2.1 Team leaders	2.1 Preventive Maintenance Logbook
	↓				
3	<div style="border: 1px solid blue; padding: 5px; text-align: center;"> Conduct chlorine testing daily </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Below Above Standard within the Standard </div>	3.1 Flush pipelines, conduct internal testing using test kit. 3.1.1 If below/ above the standard then process shall go back to checking chlorinator. 3.1.2 If within the standard then end the process.	3.1 <i>Assigned personnel for their corresponding area obliged to conduct testing daily</i>	3.1 Team leaders	3.1 Daily Chlorine Residual Logbook
	↓				
	END				

UNCONTROLLED COPY

Doc No. : **PM-OM-09**
Rev. No. : **00**

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT. ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : **08-20-16**
Pages : **2 of 2**



PROCEDURES MANUAL

Document No. : **PM-OM-10** Eff. Date : **08-20-16**

Revision No. : **00** Pages : **1 of 2**

CLEANING OF RESERVOIR

I. OBJECTIVE

This procedure clearly defines the process to improve the water quality and ensure compliance with Philippine National Standards for Drinking Water (PNSDW), 2007.

II. SCOPE

This procedure relates to water reservoir operations and maintenance.

III. RESPONSIBILITY AND RESOURCES

Operation and Maintenance personnel

IV. DEFINITION OF TERMS

Reservoir – a storage space for water

V. REFERENCE DOCUMENTS

Carcar Water District Operations Manual
Philippine National Standards for Drinking Water (PNSDW), 2007

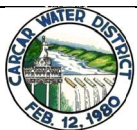
VI. RECORDS GENERATED

Reservoir Cleaning Logbook

UNCONTROLLED COPY

Prepared by: HENRY A. CUI
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

CLEANING OF RESERVOIR

VII. PROCEDURE DETAILS AND FLOW

No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START				
1	Public Information	1.1 Public information as needed.	1.1 Residents of the affected areas should be informed 1 day before the clean-up	1.1 Operation and Maintenance personnel	1.1 Reservoir Cleaning Logbook
2	Prepare Tools and Equipment	2.1 Prepare tools and equipment.	2.1 Tools and equipment should be completely prepared	2.1 Operation and Maintenance personnel	2.1 Reservoir Cleaning Logbook
3	Check/ Monitor Reservoir Water Level	3.1 Check/ monitor the status of the reservoir after peak hour to determine the water loss.	3.1 Carcar Water District Operations Manual	3.1 Operation and Maintenance personnel	3.1 Reservoir Cleaning Logbook
4	Close Inlet Valve then Start to Clean and Open Drain Valve	4.1 Close inlet valve to stop water run through reservoir then start to clean and open drain valve to remove the dirt, sediments and stains. 4.2 Wash inside walls; ceiling and floor of the reservoir using a pressurize spray.	4.1 Carcar Water District Operations Manual	4.1 Operation and Maintenance personnel	4.1 Reservoir Cleaning Logbook
5	Disinfection	5.1 Disinfect reservoir (inside) with dissolved chlorine granules.	5.1 Carcar Water District Operations Manual	5.1 Operation and Maintenance personnel	5.1 Reservoir Cleaning Logbook
6	Close Drain Valve and Open Inlet Valve	6.1 Close the drain valve and open inlet valve then back to operation.	6.1 Carcar Water District Operations Manual	6.1 Operation and Maintenance personnel	6.1 Reservoir Cleaning Logbook
	END				

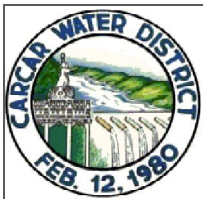
Doc No. : PM-OM-10
Rev. No. : 00

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR
EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISS

UNCONTROLLED COPY

USE IS

Eff. Date : 08-20-16
Pages : 2 of 2



PROCEDURES MANUAL

Document No. : **PM-OM-11** Eff. Date : **08-20-16**

Revision No. : **00** Pages : **1 of 3**

REPLACEMENT OF PIPELINES

I. OBJECTIVE

This procedure clearly defines the process to identify the types of pipes, the sizes and the date of acquisition.

II. SCOPE

This covers the entire Carcar Water District's Water System Design Expansion and all its Interested Parties.

III. RESPONSIBILITY AND RESOURCES

Responsible person are the Operation & Maintenance.

Resources required CAD operator who shall prepare plan. The operation prepares the actual data which include the status of pipes, types, sizes and date of acquisition.

IV. DEFINITION OF TERMS

G.I. – Galvanized iron

Hydro testing – to determine and verify pipeline strength

Disinfection – a treatment method by using chlorine

V. REFERENCE DOCUMENTS

Carcar Water District Pipe Network

VI. RECORDS GENERATED

Completion Report, Data Files, Drawings and Program Of Works, Filing of Permits, Daily pipe laying record logbook, Hydro testing record logbook

UNCONTROLLED COPY

Prepared by: HENRY A. CUI
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

REPLACEMENT OF PIPELINES

VII. PROCEDURE DETAILS AND FLOW

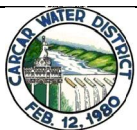
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START				
1	Evaluation of pipelines	1.1 Review the status of pipe which includes the types, sizes and date of installation	1.1 Conducted at least once a year 1.2 Pipeline operates more than 20 years or G.I. / Steel pipes are subject for replacement	1.1 Operation and Maintenance personnel	1.1 Completion report
2	Conduct Pipeline Survey	2.1 During survey the in charge shall conduct pipe location, sizes of propose pipe replace and the total length of pipe to be replace	2.1 To have a complete details for program and drawing	2.1 Operation and Maintenance personnel	2.1 Data Files
3	Preparation of Drawings and Program Of Works	3.1 Preparation of Program of Works which includes cost estimate and work duration. Drawing/ Plan is the reflection of actual work preparation	3.1. All projects must have complete Plan and program of works	3.1 Division Manager 3.2 Draftsman	3.1 Drawings and Program Of Works 3.2 Drawings and Program Of Works
4	Design	4.1 Review and approval by Division Manager and General Manager	4.1. All programs must be clear and understandable	4.1 Division Manager 4.2 General Manager	4.1 Drawings and Program Of Works 4.2 Drawings and Program Of Works
5	Processing of permits	5.1 Apply permits for pipeline excavation to DPWH/ Municipality/ Barangay permit	5.1 100% of permits completed before starting the project	5.1 Operation and Maintenance personnel	5.1 Filing of Permits
	A				

UNCONTROLLED COPY

Doc No. : PM-OM-11
Rev. No. : 00

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT
EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT

Eff. Date : 08-20-16
Pages : 2 of 3



PROCEDURES MANUAL

REPLACEMENT OF PIPELINES

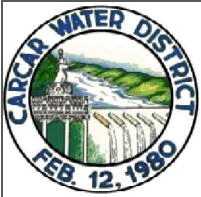
<p>6</p> <p>7</p> <p>8</p>	<pre> graph TD A((A)) --> B[Retrieval and Replacement of Pipelines] B --> C[Conduct pipeline hydro test and Disinfection] C --> D{Pass?} D -- NO --> B D -- YES --> E[Interconnection Of Pipelines] E --> F[END] </pre>	<p>6.1 Observe proper excavation and backfilling include sand bedding, caution tape and restoration of pipelines</p> <p>7.1 Before tapping interconnection, the new installed pipelines subject to conduct hydro testing together with disinfection by charging enough chlorine granules. Hydro testing applies a specified maximum pressure for not less than 24 hours</p> <p>8.1 Identify the two existing point of pipelines and apply interconnection</p>	<p><i>6.1 Excavation & Restoration process based on Carcar Water District Manual</i></p> <p><i>7.1 Standard Disinfection and Hydro testing based on Carcar Water District Manual</i></p> <p><i>8.1 100% accomplished based on Carcar Water District Standard</i></p>	<p>6.1 Operation and Maintenance personnel</p> <p>7.1 Operation and Maintenance personnel</p> <p>8.1 Operation and Maintenance personnel</p>	<p>6.1 Daily pipe laying record logbook</p> <p>7.1 Hydro testing record logbook</p> <p>8.1 Completion report</p>
----------------------------	---	---	--	--	--

UNCONTROLLED COPY

Doc No. : **PM-OM-11**
Rev. No. : **00**

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT. ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : **08-20-16**
Pages : **3 of 3**



PROCEDURES MANUAL

Document No. : **PM-OM-12** Eff. Date : **08-20-16**

Revision No. : **00** Pages : **1 of 2**

CALIBRATION OF WATER METER

I. OBJECTIVE

This procedure clearly defines the process to ensure that every different person apply similar standard in measuring and calibrating performance of water meter. To ensure that every meter in every consumer is calibrated based on standard procedure.

II. SCOPE

This covers the entire Carcar Water District's Operations and Maintenance and its Interested Parties.

III. RESPONSIBILITY AND RESOURCES

Calibration Team
Computer Operator
Commercial Division

The team leader shall conduct monitoring of water meter per zone and to secure all data including 3 months dropping from average consumption, stock-up and reported leaks.

IV. DEFINITION OF TERMS-

Water meter calibration – is ensuring that the bills are accurate, preventing lost revenue and providing water meter customers certainty that the readings are correct

V. REFERENCE DOCUMENTS

Carcar Water District Operations Manual

VI. RECORDS GENERATED

BCwin Computer Program, Calibration Form, Calibration Logbook, Meter History Card, Change Meter Logbook

UNCONTROLLED COPY

Prepared by: WENCESLAO C. ABALO
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

CALIBRATION OF WATER METER PROCEDURE

VII. PROCEDURE DETAILS AND FLOW

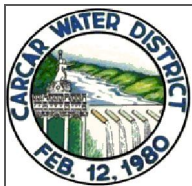
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START				
	Zone Monitoring	1.1 Identify the previous 3 months reading with decreasing the average consumption	1.1 <i>Succeeding 3 months below average consumption is subject for calibration</i>	1.1 Calibration Team	1.1 BCwin Computer Program
2	Print of proof list	2.1 Print of proof list required as a guide for the site calibration	2.1 <i>Proof list must be found in CWD program</i>	2.1 Computer operator	2.1 BCwin Computer Program
3	Conduct calibration on site	3.1 Site calibration including of informing the concessionaires, conduct 2 times of test (minimum and nominal test), cleaning the water meter and cleaning of tap stand	3.1 <i>Minimum test 10 liters in 10 minutes and Nominal test 10 liters in 2 minutes with the tolerance of $\pm 5\%$</i>	3.1 Calibration Team	3.1 Calibration Form, Calibration Logbook
4	Checking result and check service connection	4.1 After performing calibration test the in charge person inform the concessionaires the result of testing and check the service connection	4.1 <i>Informing of concessionaire and checking of valves after completing calibration activity.</i>	4.1 Calibration Team	4.1 Not Applicable
5	Findings and Recommendation	5.1 Base on the result there many kinds of findings like stock-up, old meter, defective and failed. Those are subject for change meter	5.1 <i>Prioritized all stock-up, defective, old meter more than 10 years and failed in calibration for change meter. Based in CWD manual</i>	5.1 Calibration Team	5.1 Meter History Card
6	Change Meter	6.1 Reported meters are subject for change meter	6.1 <i>All meters reported within the day or first hour of the next working day</i>	6.1 Commercial Division	6.1 Change Meter Logbook
	END				

UNCONTROLLED COPY

Doc No. : **PM-OM-12**
Rev. No. : **00**

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT
EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT

Eff. Date : **08-20-16**
Pages : **2 of 2**



PROCEDURES MANUAL

Document No. : **PM-OM-13** Eff. Date : **08-20-16**

Revision No. : **00** Pages : **1 of 2**

BILLING FOR UNMETERED BILLED

I. OBJECTIVE

This procedure defines the entire process in the withdrawal of water from hydrants as requested by the Interested Parties.

II. SCOPE

This covers the entire Carcar Water District's Spring and Well Production.

III. RESPONSIBILITY AND RESOURCES

Assigned personnel in areas where fire hydrants are located.

IV. DEFINITION OF TERMS

CU.M. – Cubic Meter

PAC-D – Public Assistance and Complaints Desk

Interested Parties – Local Government Unit (LGU) and Other Agencies

V. REFERENCE DOCUMENTS

Withdrawal Slip and Official Receipt

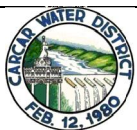
VI. RECORDS GENERATED

Withdrawal Slip, Official Receipt and Flow Meter Logbook

UNCONTROLLED COPY

Prepared by: HENRY A. CUI
Process Owner

Approved by: ENGR. EDWARD L. REMO
General Manager



PROCEDURES MANUAL

WATER WITHDRAWAL FOR UNMETERED BILLED

VII. PROCEDURE DETAILS AND FLOW

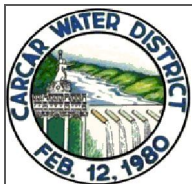
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
1	START				
	↓				
1	Fill up withdrawal slip	1.1 To quantify the volume and amount of water withdraw	1.1 No approved withdrawal slip, no extraction of water	1.1 Assigned Team	1.1 Withdrawal Slip
	↓				
2	Pay to the Cashier	2.1 Interested Parties must pay to the Cashier	2.1 Base on withdrawal slip	1.2 Division Manager	
	↓				
2		2.2 Cashier will be issued an Official Receipt	2.2 Base on the agreed standardization of proper billing for unmetered billed	2.1 Interested Parties	2.1 Official Receipt
	↓				
3	Water Withdrawal	3.1 PAC-D personnel will contact to assigned Team to extract the water	3.1 PAC-D will inform immediately the assigned personnel	2.2 Cashier	
	↓				
3		3.2 Assigned personnel must check the Official Receipt	3.2 To ensure the exact quantity of water withdrawn	3.1 PAC-D personnel	3.1 Withdrawal Slip
	↓				
3		3.3 Assigned personnel must read the flow meter before and after the extraction of water and to be written in the Withdrawal Slip/ Flow Meter Logbook	3.3 The Withdrawal Slip must be returned to the PAC-D personnel and filed	3.2 Assigned Team	3.2 Flow Meter Logbook
	↓				
	END				

UNCONTROLLED COPY

Doc No. : PM-OM-13
Rev. No. : 00

PROPRIETARY NOTICE
THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT. ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.

Eff. Date : 08-20-16
Pages : 2 of 2



PROCEDURES MANUAL

Document No. : **PM-OM-14** Eff. Date : **12-9-16**
Revision No. : **00** Pages : **1 of 2**

BACTERIOLOGICAL TESTING

I. OBJECTIVE

Monthly testing to assure the quality and safety potable water supply.

II. SCOPE

Supply safety potable water.

III. RESPONSIBILITY AND RESOURCES

Accredited Laboratory / Carcar Water District Personnel.

IV. DEFINITION OF TERMS

Bacteriological Testing – water testing for total Coli form, Fecal Coli forms, E. coli and HPC in drinking water.

Accredited Laboratory – is to perform testing and evaluating water.

Carcar Water District Personnel – is the person involved in conducting Bacteriological Testing.

V. REFERENCE DOCUMENTS

Philippine National Standards for Drinking Water (PNSDW), 2007.

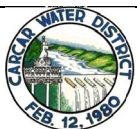
VI. RECORDS GENERATED

Purchase Request, Bacte Test Data, Bacteriological Testing Result

UNCONTROLLED COPY

Prepared by: **JOBERT D. BABANTO**
Process Owner

Approved by: **ENGR. EDWARD L. REMO**
General Manager



PROCEDURES MANUAL

BACTERIOLOGICAL TESTING

VII. PROCEDURE DETAILS AND FLOW

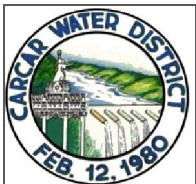
No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
01		1.1 Prepare purchase request for Bacteriological Testing.	<i>Location for Testing</i> <i>Once a month</i>	Carcar Water District Personnel	Purchase Request
02		2.1 Approved by the General Manager.	<i>Request should be with complete signatories</i>	General Manager	Purchase Request
03		3.1 Flush pipelines into tap stand then gets chlorine residual. 3.2 Collect water sample to the designated location for Laboratory test. 3.3 Submit all water samples to the Accredited Laboratory then the result will be given within 2 – 3 working days.	<i>Designated Location for Testing</i>	3.1 Carcar Water District Personnel 3.2 Accredited Laboratory / Carcar Water District Personnel 3.3 Accredited Laboratory / Carcar Water District Personnel	Bacte Test Data
04		4.1 Identify the failed areas for another water testing. 4.1.1 If failed then process shall go back to request for testing. 4.1.2 If passed then ends the process.	<i>Philippine National Standards for Drinking Water (PNSDW), 2007</i> <div style="border: 2px solid red; padding: 5px; color: red; font-weight: bold;">UNCONTROLLED COPY</div>	Accredited Laboratory / Carcar Water District Personnel	Bacteriological Testing Result

Doc No. : **PM-OM-14**
 Rev. No. : **00**

PROPRIETARY
 THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO
 EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN

SURE OR USE IS
 CT.

Eff. Date : **12-9-16**
 Pages : **2 of 2**

	PROCEDURES MANUAL	Document No. : PM-OM-15 Eff. Date : 12-9-16 Revision No. : 00 Pages : 1 of 2
	CUSTOMER SERVICE	

I. OBJECTIVE

This procedure defines the entire process to identify and assess customers' needs to achieve satisfaction.

II. SCOPE

This covers the entire Carcar Water District's Customer Service and all its Interested Parties.

III. RESPONSIBILITY AND RESOURCES

PACD Personnel, Alternate Personnel

IV. DEFINITION OF TERMS

PACD Personnel – person-in-charged for the effectively receive feedback and monitor customer satisfaction in conformity with Rule VI of the IRR of RA 9485.

Alternate PACD Personnel – person who will replace the PACD Personnel in his/her absence.

PACD – Public Assistance and Complaints Desk

IRR – Implementing Rules and Regulations

RA – Republic Act

Rule VI of the IRR of RA 9485 – Section 5. Public Assistance Desk – Each office or agency shall establish a public assistance/ complaints desk in all their offices, where an officer or employee knowledgeable on frontline services shall at all times be available for consultation and advice. The desk shall be attended to even during break time.

V. REFERENCE DOCUMENTS

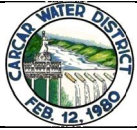
Carcar Water District Citizens' Charter

VI. RECORDS GENERATED

Maintenance Order Form

UNCONTROLLED COPY

Prepared by: <u>FELIX N. BARGAYO JR.</u> Process Owner	Approved by: <u>ENGR. EDWARD L. REMO</u> General Manager
--	--



PROCEDURES MANUAL

CUSTOMER SERVICE

VII. PROCEDURE DETAILS AND FLOW

No.	Process Flow	Description of Activity	Guidelines/Criteria/Policy	Responsible Person	Retained Information
01	<pre> graph TD START([START]) --> RC[Receive Complaints] </pre>	1.1 Receive complaints thru phone call/ personally report to the office.	<i>Carcar Water District Citizen's Charter</i>	PACD Personnel/ Alternate PACD Personnel	Not Applicable
02	<pre> graph TD FOM[Fill-up Maintenance Order Form] </pre>	2.1 Determine the type of complaints either for repair/ inspection.	<i>Complete fill-up of maintenance order form</i>	PACD Personnel/ Alternate PACD Personnel	Maintenance Order Form
03	<pre> graph TD ATPT[Assign the Team to Perform the Task] --> END([END]) </pre>	3.1 Relay the reported complaints to assign the team to perform the task thru cell phone/ handheld radio. 3.2 Present the maintenance order form to assigned team.	<i>Carcar Water District Citizen's Charter</i>	PACD Personnel/ Alternate PACD Personnel	Maintenance Order Form

UNCONTROLLED COPY

Doc No.	: PM-OM-15	PROPRIETARY NOTICE THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY TO CARCAR WATER DISTRICT. ANY DISCLOSURE OR USE IS EXPRESSLY PROHIBITED EXCEPT UPON WRITTEN PERMISSION BY CARCAR WATER DISTRICT.	Eff. Date	: 12-9-16
Rev. No.	: 00		Pages	: 2 of 2