




REPUBLIC OF THE PHILIPPINES
METROPOLITAN NAGA WATER DISTRICT
40 J. MIRANDA AVENUE, NAGA CITY

PIPELINE, LEAKAGE CONTROL & NON- REVENUE WATER MANAGEMENT DIVISION

PROCEDURES AND WORK INSTRUCTIONS MANUAL (PAWIM) (PAMDPW01) IMPROVEMENT OF WATERLINES

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	IMPROVEMENT OF WATERLINES		Effectivity Date:	March 2017
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Revision Status

This list identifies the revisions made in this section. The date refers to the date this section was made effective and implemented and not to the date the document was signed or printed.

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Metropolitan Naga Water District Quality Management System

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1. PURPOSE

1.1.This document describe the procedures for Improvement of Waterlines as one of the core processes of the MNWD.

1.2.The objectives of the Improvement of Waterlines:

- 1.2.1.** To achieve optimum utilization of the installed capacity of the distribution network with minimum losses.
- 1.2.2.** To ensure that the distribution network can operate satisfactory, function efficiently and continuously, and last as long as possible.

2. SCOPE

This procedure will apply to the MNWD Quality Management System one of the core processes which is Improvement of Waterlines, which focuses on the:

2.1. Improvement of Waterlines

- 2.1.1.** Air Release Valves
- 2.1.2.** Barricades and Valve Box Covers
- 2.1.3.** Concrete Boxes and Markers
- 2.1.4.** Fire Hydrants and Blow-offs
- 2.1.5.** Pressure Reliefs and Sustaining Valves

3. DEFINITION OF TERMS AND ACRONYMS

Refer to "[Annex A](#)" for the GLOSSARY OF TERMS and "[Annex B](#)" for ACRONYMS.

4. RESPONSIBILITIES

4.1. NON-REVENUE WATER MANAGEMENT SECTION


- 4.1.1.** Conduct and develop a surveillance program for the installation, improvement and maintenance of Air Release Valves, Barricades, Valve Box Covers, Concrete Boxes, Concrete Markers, Fire Hydrants, Blow-offs, Pressure Relief and Sustaining Valves.
- 4.1.2.** Establish procedures for setting up maintenance schedules.

5. PROCEDURE DETAILS:NON REVENUE WATER MANAGEMENT

This section describes the procedures involved in one of the core process of the District which is Improvement of Waterlines (see [Figure 1](#)).

5.1. AIR RELEASE VALVES

- 5.1.1.** Approved schedule prepared and submitted by the SWUMO.

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- 5.1.2. NRWMS encoder prepares, prints and records the AIO and forwards to SWUMO.
- 5.1.3. SWUMO reviews and evaluates AIO's.
- 5.1.4. WMH schedule assign AIO's.
- 5.1.5. WMF assist implement received AIO's and distributes it to assigned plumbers.
- 5.1.6. Plumbers request for materials needed and fills out Requisition and Issue Slip (RIS), if necessary to Property Office under the Administrative.
- 5.1.7. Upon issuance of the said materials, the plumbers proceeds at the site to conduct activities.
- 5.1.8. WMH checks and signs the accomplishment reports and submit to SWUMO.
- 5.1.9. SWUMO evaluates and signs the accomplishment reports and submit to DMA.
- 5.1.10. DMA reviews and signs the accomplished AIO's and forwards the said accomplishment report to NRWMS encoder for filing.

5.2. BARRICADES AND VALVE BOX COVERS

- 5.2.1. Approved schedule prepared and submitted by the SWUMO.
- 5.2.2. NRWMS encoder as schedule or/and requested by WMH. They prepares, prints and records the AIO and forwards to SWUMO.
- 5.2.3. SWUMO reviews and evaluates AIO's.
- 5.2.4. WMH schedule assign AIO's.
- 5.2.5. WMF assist implement received AIO's and distributes it to assigned plumbers.
- 5.2.6. Plumbers request for materials needed and fills out Requisition and Issue Slip (RIS), if necessary to Property Office under the Administrative Division (AD).
- 5.2.7. Upon issuance of the said materials, the plumbers proceeds at the site to conduct activities.
- 5.2.8. WMH checks and signs the accomplishment reports and submit to SWUMO.
- 5.2.9. SWUMO evaluates and signs the accomplishment reports and submit to DMA.
- 5.2.10. DMA reviews and signs the accomplished AIO's and forwards the said accomplishment report to NRWMS encoder for filing.

5.3. CONCRETE BOXES AND MARKERS

- 5.3.1. Approved schedule prepared and submitted by the SWUMO.
- 5.3.2. NRWMS encoder prepares, prints and records the AIO and forwards to SWUMO.
- 5.3.3. SWUMO reviews and evaluates AIO's.
- 5.3.4. WMH schedule assign AIO's.
- 5.3.5. WMF assist implement received AIO's and distributes it to assigned plumbers.
- 5.3.6. Plumbers request for materials needed and fills out Requisition and Issue Slip (RIS), if necessary to Property Office under the Administrative Division (AD).
- 5.3.7. Upon issuance of the said materials, the plumbers proceeds at the site to conduct activities.
- 5.3.8. WMH checks and signs the accomplishment reports and submit to SWUMO.
- 5.3.9. SWUMO evaluates and signs the accomplishment reports and submit to DMA.
- 5.3.10. DMA reviews and signs the accomplished AIO's and forwards the said accomplishment report to NRWMS encoder for filing.

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5.4. FIRE HYDRANTS AND BLOW-OFFS

- 5.4.1. Approved schedule prepared and submitted by the SWUMO.
- 5.4.2. NRWMS encoder prepares, prints and records the AIO and forwards to SWUMO.
- 5.4.3. SWUMO reviews and evaluates AIO's.
- 5.4.4. WMH schedule assign AIO's.
- 5.4.5. WMF assist implement received AIO's and distributes it to assigned plumbers.
- 5.4.6. Plumbers request for materials needed and fills out Requisition and Issue Slip (RIS), if necessary to Property Office under the Administrative Division (AD).
- 5.4.7. Upon issuance of the said materials, the plumbers proceeds at the site to conduct activities.
- 5.4.8. WMH checks and signs the accomplishment reports and submit to SWUMO.
- 5.4.9. SWUMO evaluates and signs the accomplishment reports and submit to DMA.
- 5.4.10. DMA reviews and signs the accomplished AIO's and forwards the said accomplishment report to NRWMS encoder for filing.

5.5. PRESSURE RELIEF AND SUSTAINING VALVES

- 5.5.1. Approved schedule prepared and submitted by the SWUMO.
- 5.5.2. NRWMS encoder prepares, prints and records the AIO and forwards to SWUMO.
- 5.5.3. SWUMO reviews and evaluates AIO's.
- 5.5.4. WMH schedule assign AIO's.
- 5.5.5. WMF assist implement received AIO's and distributes it to assigned plumbers.
- 5.5.6. Plumbers request for materials needed and fills out Requisition and Issue Slip (RIS), if necessary to Property Office under the Administrative Division (AD).
- 5.5.7. Upon issuance of the said materials, the plumbers proceeds at the site to conduct activities.
- 5.5.8. WMH checks and signs the accomplishment reports and submit to SWUMO.
- 5.5.9. SWUMO evaluates and signs the accomplishment reports and submit to DMA.
- 5.5.10. DMA reviews and signs the accomplished AIO's and forwards the said accomplishment report to NRWMS encoder for filing.

6. FORMS AND TEMPLATES

- 6.1. Complaint/Report – "[PAMDF01](#)"
- 6.2. Assignment/ Implementation Order Template – "[PAMDF02](#)"
- 6.3. Valve Information Sheet – "[PAMDF03](#)"
- 6.4. Daily Accomplishment Report Form – "[PAMDF04](#)"
- 6.5. Requisition and Issue Slip – "[PAMDF05](#)"

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ANNEX A

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GLOSSARY OF TERMS


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TERMS	DEFINITION
DATA LOGGER	A GADGET USED TO RECORD DATA SUCH AS PRESSURE AND FLOW AT PRE-DETERMINED TIME INTERVALS.
DISTRICT METER AREA	A DISCRETE AREA OF A WATER DISTRIBUTION NETWORK WITH ONLY ONE INFLOW AND COMPLETELY ISOLATED.
GROUND MICROPHONE	AN EQUIPMENT USED TO PINPOINT THE LOCATION OF A LEAK USUALLY AFTER CONDUCTING LEAK NOISE CORRELATION.
LEAK NOISE CORRELATOR	AN EQUIPMENT USED TO LOCATE THE POSSIBLE POINT OF THE LEAKAGE
LEAK DETECTION	A METHOD IN WHICH THE EXISTENCE OF A LEAK WITHIN A DISTRIBUTION NETWORK IS DETERMINED.
LISTENING STICK	A SMALL COMPACT ELECTRONIC DESIGNED FOR USED BY LEAKAGE TECHNICIANS ON LEAKAGE SURVEYS FOR PINPOINTING THE LOCATION OF THE LEAK.
MINIMUM NIGHT FLOW	THE MEASURED RATE OF FLOW INTO ANY DISTRIBUTION NETWORK OR DISTRICT METER AREA DURING THE MINIMUM DEMAND PERIOD ON A GIVEN NIGHT.
NON-REVENUE WATER	A WATER THAT HAS BEEN PRODUCED AND IS "LOST" BEFORE IT REACHES THE CUSTOMER.
PRESSURE MANAGEMENT	ONE OF THE MOST IMPORTANT WATER DEMAND MANAGEMENT INTERVENTIONS THAT CAN BE IMPLEMENTED BY A WATER UTILITY IN ITS EFFORTS TO REDUCE LEAKAGE.
PRESSURE RELIEF VALVE	A TYPE OF VALVE USED TO CONTROL OR LIMIT THE PRESSURE IN A DISTRIBUTION SYSTEM.
PRESSURE SUSTAINING VALVE	A TYPE OF VALVE USED TO MAINTAIN A MINIMUM PRESSURE.

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ACRONYM	DEFINITION
DMA	DISTRICT METER AREA
IT	INSTRUMENT TECHNICIAN
LWUA	LOCAL WATER UTILITIES ADMINISTRATION
NRW	NON-REVENUE WATER
NRWMS	NON-REVENUE WATER MANAGEMENT SECTION
PRV	PRESSURE RELIEF VALVE
PSV	PRESSURE SUSTAINING VALVE
SWUMO	SUPERVISING WATER UTILITIES MANAGEMENT OFFICER
MNWD	METROPOLITAN NAGA WATER DISTRICT
NRWMS	NON-REVENUE WATER MANAGEMENT SECTION
AIO	ASSIGNMENT/IMPLEMENTATION ORDER
RIS	REQUISITION AND ISSUE SLIP
DAR	DAILY ACCOMPLISHMENT REPORT
WMF	WATER MAINTENANCE FOREMAN
WMH	WATER MAINTENANCE HEAD
DM-A	DIVISION MANAGER A
AD	ADMINISTRATIVE DIVISION

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	FLOWCHART	Revision No.:	0
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Improvement of Waterlines

