ANGELES CITY WATER DISTRICT

OPERATION MANUAL ARTHUR P.S.

Production Department

INTRODUCTION

The Operations Division of the Production Department manages the supply, distribution and water quality for the concessionaires of Angeles City Water District.

This division balances the tasks of treating and distributing the water from groundwater supply while maintaining appropriate water storage levels to reliably meet all water system demands. At present, Angeles City Water District Production Department manages average monthly production of 1,552,013 cubic meters from 31 pumping stations where 6 of which have its own water treatment facility. Angeles City Water District has a total of 11 storage facilities. These pumping stations continuously supply water to the different barangays of Angeles City with a current service population of 252,040 (as of December 2015).

Operations and Water Quality share the responsibilities of monitoring the potability of water as required by the Philippine National Standard for Drinking Water (PNSDW). Providing the customers with the highest quality drinking water is the responsibility of every ACWD employee. It is the responsibility of the Water Quality Section to provide oversight to all aspects of ACWD operations to ensure that water quality is protected. Water quality is protected using a multi-barrier approach. Surveillance and monitoring is performed at multiple points from source to tap. ACWD's laboratory performs number of water quality tests each year as required under drinking water regulations.

FEEDER PUMP # 1

Location: Central Reservoir Complex, Friendship Hiway, Cutcut, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	TURBINE (J LINE)
RATED CAPACITY	:	124 m³/hr
TDH	:	18.84 meters
PUMP SETTING	:	31 m
BOWL SIZE	:	250 mm
SIZE OF RISER PIPE	:	200 mm
SIZE OF SHAFT	:	25 mm
DATE INSTALLED	:	March 12, 2012

ELECTRIC MOTOR

		Vertical HolloShaft U.S
TYPE OF MOTOR	:	Electrical Motor
HP RATING	:	40 Hp
VOLTAGE	:	440 volts
AMPERAGE	:	32 A
SPEED	:	1800 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	76.3 meters
SIZE OF CASING	:	300mm
SPECIFIC CAPACITY	:	
STATIC WATER LEVEL	;	5.15 meters
PUMPING WATER LEVEL	:	11.8 meters
DRAWDOWN	:	6.65 meters
DATE DRILLED	:	June 15,1994

FEEDER PUMP # 1

II. SCHEMATIC DIAGRAM

FEEDER PUMP # 1

III. OPERATION PROCEDURES

Operation Schedule: Minimum 22 hours of operation (6am to 4am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to reservoir.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/60=185ml/min.); MIXTURE – 7 cups/4.9 kg. Chlorine: 200L water
   3. Check Chlorine tank level (200 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

FEEDER PUMP # 2

Location: Central Reservoir Complex, Friendship Hiway, Cutcut, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Submersible Pump (Grunfos)
RATED CAPACITY	:	44.5 m^3/hr
RATED TDH	:	44.5 m (145.91 ft)
PUMP SETTING	:	47m (154 ft)
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
STAGES	:	4
DATE INSTALLED		

ELECTRIC MOTOR ;

TYPE OF MOTOR	:	Submersible Motor
HP RATING	:	20 Hp
VOLTAGE	:	440 volts
AMPERAGE	:	22 A
SPEED	:	3400 rpm
PHASE	:	3 ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	300mm (12”)
SPECIFIC CAPACITY	:	17.6 lps (279gpm)
STATIC WATER LEVEL	;	18.5 m (60.7 ft)
PUMPING WATER LEVEL	:	40.26 m (132 ft)
DRAWDOWN	:	21.76 m (71.4 ft)
DATE DRILLED	:	June 15,1994

FEEDER PUMP # 2

II. SCHEMATIC DIAGRAM

FEEDER PUMP # 2

III. OPERATION PROCEDURES

Operation Schedule: Minimum 22 hours of operation (6am to 4am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to reservoir.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/70=203ml/min.); MIXTURE – 6 cups/4.2 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

FEEDER PUMP # 3

Location: Villa Leoncia Subdivision, Friendship Hiway, Sto. Domingo, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Turbine Pump (J.LINE)
RATED CAPACITY	:	88 m³/hr
RATED TDH	:	66.5 meters
PUMP SETTING	:	27mbgl
BOWL SIZE	:	100mm (4 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
SIZE OF SHAFT	:	25mm
STAGES	:	4
DATE INSTALLED	:	June 27, 2013

ELECTRIC MOTOR ;

TYPE OF MOTOR	:	Vertical HolloShaft (U.S Motor)
HP RATING	:	60 Hp
VOLTAGE	:	440 Volts
AMPERAGE	:	77 A
SPEED	:	1800 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	72 mbgl
SIZE OF CASING	:	300 (12 in.)
SPECIFIC CAPACITY	:	40 lps
STATIC WATER LEVEL	:	3.58 mbgl
PUMPING WATER LEVEL	:	22.9 mbgl
DRAWDOWN	:	19.32 mbgl
DATE DRILLED	:	June 15,1994

FEEDER PUMP # 3

II. SCHEMATIC DIAGRAM

FEEDER PUMP # 3

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to reservoir.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/60=185ml/min.); MIXTURE – 4 cups/2.8 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

FEEDER PUMP # 4

Location: Villa Leoncia Subdivision, Friendship Hiway, Sto. Domingo, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
CAPACITY	:	81 m³/hr
TDH	:	69.26 m (227.18 ft)
PUMP SETTING	:	54 M (177.12 ft.)
BOWL SIZE	:	200 mm (8 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	October 1, 1997

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible Motor
HP RATING	:	40 Hp
VOLTAGE	:	440 volts
AMPERAGE	:	52 A
SPEED	:	3600 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	250 mm (10 in.)
SPECIFIC CAPACITY	:	29.9 lps (473.9 gpm)
STATIC WATER LEVEL	;	30 m (98.40 ft.)
PUMPING WATER LEVEL	:	42.5 m (139.4 ft.)
DRAWDOWN	:	12.50 m (41 ft.)
DATE DRILLED	:	1995

FEEDER PUMP # 4

II. SCHEMATIC DIAGRAM

FEEDER PUMP # 4

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to reservoir.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (70/60=210ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

FEEDER PUMP # 5

Location: Rizal Extension, Corner Friendship Hiway, Cutcut, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Turbine (J.Line)
RATED CAPACITY	:	150 m³/hr
TDH	:	16.4 Meters
PUMP SETTING	:	29 mbgl
BOWL SIZE	:	250 mm (10 in.)
SIZE OF RISER PIPE	:	200 mm (8 in.)
SIZE OF SHAFT	:	25 mm (1 in.)
DATE INSTALLED	:	March 23, 2015

ELECTRIC MOTOR

TYPE OF MOTOR	:	Vertical HolloShaft U.S Motor
HP RATING	:	25 Hp
VOLTAGE	:	440 Volts
AMPERAGE	:	52 A
SPEED	:	1800 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	83.87 mbg
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPACITY	:	795 gpm (50.16 lps)
STATIC WATER LEVEL	;	5.6 mbgl
PUMPING WATER LEVEL	:	15 mbgl
DRAWDOWN	:	9.4 mbgl
DATE DRILLED	:	1997

FEEDER PUMP # 5

II. SCHEMATIC DIAGRAM

FEEDER PUMP # 5

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to reservoir.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (70/70=240ml/min.); MIXTURE – 8 cups/5.6 kg. Chlorine: 200L water
   3. Check Chlorine tank level (200 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

FEEDER PUMP # 6

Location: Rizal Extension, Corner Friendship Hi-way, Cutcut, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
RATED CAPACITY	:	35 m³/hr
TDH	:	66 meters
PUMP SETTING	:	79 meters
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	November 26, 2014

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible (Franklin Motors)
HP RATING	:	25 Hp
VOLTAGE	:	440 Volts
AMPERAGE	:	52 A
SPEED	:	3600 rpm
PHASE	:	3 ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	250 mm (10 in.)
SPECIFIC CAPCITY	:	400 gpm (25 lps)
STATIC WATER LEVEL	;	14.7 meters
PUMPING WATER LEVEL	:	66.5 meters
DRAWDOWN	:	51.8 meters
DATE DRILLED	:	1997

FEEDER PUMP # 6

II. SCHEMATIC DIAGRAM

FEEDER PUMP # 6

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to reservoir.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (70/70=240ml/min.); MIXTURE – 5 cups/3.5 kg. Chlorine: 200L water
   3. Check Chlorine tank level (200 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

FEEDER PUMP # 7

Location: Nepo 1st Corner Dama de Noche, Nepo Subdivision, Cutcut, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Turbine (J. Line)
RATED CAPACITY	:	86 m³/hr
TDH	:	16.17 Meters
PUMP SETTING	:	37.5 Meters
BOWL SIZE	:	200 mm (8 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
SIZE OF SHAFT	:	25 mm (1 in.)
DATE INSTALLED	:	October 31, 2012

ELECTRIC MOTOR ;

TYPE OF MOTOR	:	Vertical HolloShaft U.S Motor
HP RATING	:	20 Hp
VOLTAGE	:	440 Volts
AMPERAGE	:	77 A
SPEED	:	1800 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	68.3 m (224 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPACITY	:	400 gpm (25 lps)
STATIC WATER LEVEL	;	4 m
PUMPING WATER LEVEL	:	11.95 m
DRAWDOWN	:	7.95 m
DATE DRILLED	:	1995

FEEDER PUMP # 7

II. SCHEMATIC DIAGRAM

FEEDER PUMP # 7

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to reservoir.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (70/60=210ml/min.); MIXTURE – 4 cups/2.8 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

FEEDER PUMP # 8

Location: Dama de Noche St., corner Ilang ilang St., Nepo Subd., Cutcut, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	SUBMERSIBLE(GRUNDFOS)
RATED CAPACITY	:	71.4 m³/hr;
TDH	:	45 Meters
PUMP SETTING	:	75 Meters
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
SIZE OF SHAFT	:	25 mm (1 in.)
DATE OPERATED	:	NOVEMBER 11, 2014

ELECTRIC MOTOR ;

TYPE OF MOTOR	:	SUBMERSIBLE
HP RATING	:	30 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	80 A
SPEED	:	3600 RPM
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 meters
SIZE OF CASING	:	250mm (10 in.)
SPECIFIC CAPACITY	:	25 LPS
STATIC WATER LEVEL	;	16-20 mbgl
PUMPING WATER LEVEL	:	40.5 mbgl
DRAWDOWN	:	34.5 Meters
DATE DRILLED	:	JUNE 18, 2014

FEEDER PUMP # 8

II. SCHEMATIC DIAGRAM

FEEDER PUMP # 8

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

H. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   2. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
I. Start motor. (PRESS "START" BUTTON)
J. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to reservoir.)
K. Full OPEN Valve 2 slowly and full CLOSE valve 1
L. Operating Chlorine feed Pump :
   6. Check tapping point for clogging.
   7. Check Dosing Pump Setting:
      (70/60=210ml/min.); MIXTURE – 4 cups/2.8 kg. Chlorine: 100L water
   8. Check Chlorine tank level (100 L)
   9. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   10. If chlorinator is DEFECTIVE, UNPLUGGED it.
M. Check stuffing box for excessive leak. (For turbine type pump)
N. Collect DATA and transmit to Central Pumping Station.
   5. Production
   6. Electric Consumption (KWH)
   7. Pressure (PSI)
   8. Water Level (meter)
H. Perform GOOD housekeeping job.

FEEDER PUMP # 9

Location: Circumferential Road, Barangay Cutcut, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	SUBMERSIBLE(GRUNDFOS)
RATED CAPACITY	:	52 m³/hr; 15 LPS
TDH	:	65 Meters
PUMP SETTING	:	74.33 Meters
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
NO. OF STAGE	:	4 STAGES
DATE OPERATED	:	SEPTEMBER 16, 2015

ELECTRIC MOTOR ;

TYPE OF MOTOR	:	SUBMERSIBLE
HP RATING	:	25 Hp
VOLTAGE	:	440 Volts
AMPERAGE	:	35 A
SPEED	:	3600 RPM
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	196.3 meters
SIZE OF CASING	:	250mm (10 in.)
SPECIFIC CAPACITY	:	
STATIC WATER LEVEL	;	12.8 mbgl
PUMPING WATER LEVEL	:	56.8 mbgl
DRAWDOWN	:	44 Meters
DATE DRILLED	:	

FEEDER PUMP # 9

II. SCHEMATIC DIAGRAM

FEEDER PUMP # 9

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

O. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   3. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.

P. Start motor. (PRESS "START" BUTTON)

Q. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to reservoir.)

R. Full OPEN Valve 2 slowly and full CLOSE valve 1

S. Operating Chlorine feed Pump :
   11. Check tapping point for clogging.
   12. Check Dosing Pump Setting:
       (70/60=210ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   13. Check Chlorine tank level (100 L)
   14. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   15. If chlorinator is DEFECTIVE, UNPLUGGED it.

T. Check stuffing box for excessive leak. (For turbine type pump)

U. Collect DATA and transmit to Central Pumping Station.
   9. Production
   10. Electric Consumption (KWH)
   11. Pressure (PSI)
   12. Water Level (meter)

H. Perform GOOD housekeeping job.

MABINI PUMPING STATION

Location: Mabini Street, Barangay San Nicolas, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
RATED CAPACITY	:	154 m³/hr
TDH	:	53.35 meters
PUMP SETTING	:	36.5 meters
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	JULY 03, 2011

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible Motor (Pleuger)
HP RATING	:	50 Hp
VOLTAGE	:	440 Volts
AMPERAGE	:	70 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPACITY	:	50 lps (792.5 gpm)
DATE DRILLED	:	2003

ACTUAL OPERATING DATA

(AS OF JULY 3,2011)

ACTUAL CAPACITY	:	155 m³/hr (682.5 gpm)
STATIC WATER LEVEL	:	13.2 m (43.3 ft.)
PUMPING WATER LEVEL	:	27 m (88.56 ft.)
DRAWDOWN	:	13.8 m (45.26 ft.)
TDH :	:	52.35 m (171.72 ft.)
CURRENT	:	I_1 = 54, I_2 = 58, I_3 = 61 Amps
OPERATING PRESSURE	:	36 PSI

MABINI PUMPING STATION

II. SCHEMATIC DIAGRAM

MABINI PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to distribution line.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (75/60=230ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

BAGONGBAYAN PUMPING STATION

Location: Alim St., corner Lualhati St., Bagumbayan Subd., Brgy. Cutcut, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
RATED CAPACITY	:	75 m³/hr
TDH	:	57.33 m (188 ft.)
PUMP SETTING	:	39 m (128 ft.)
BOWL SIZE	:	125 mm (5 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	January 3, 2015

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible (Franklin Motor)
HP RATING	:	30 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	82 Amps
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	152 m (498.6ft.)
SIZE OF CASING	:	200 mm (8 in.)
SPECIFIC CAPACITY	:	400 GPM (25 lps)
STATIC WATER LEVEL	;	6 m (20 ft.)
PUMPING WATER LEVEL	:	36.2 m (118.7 ft.)
DRAWDOWN	:	30.2 m (99 ft.)
DATE DRILLED	:	

BAGONGBAYAN PUMPING STATION

II. SCHEMATIC DIAGRAM

BAGONGBAYAN PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to distribution line.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (70/60=210ml/min.); MIXTURE – 4 cups/2.8 kg. Chlorine: 200L water
   3. Check Chlorine tank level (200 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

SAINT VINCENT PUMPING STATION

Location: Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump
RATED CAPACITY	:	122 m³/hr
TDH	:	53.53 meters
PUMP SETTING	:	71 meters
BOWL SIZE	:	125 mm (5 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	June 12, 2012

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible Motor
HP RATING	:	50 Hp
VOLTAGE	:	440 volts
AMPERAGE	:	65 Ampere
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	186.7 meters
SIZE OF CASING	:	250mm x 200mm
SPECIFIC CAPACITY	:	
STATIC WATER LEVEL	:	13.6 meters
PUMPING WATER LEVEL	:	31 meters
DRAWDOWN	:	17.4 meters
DATE DRILLED	:	August 20, 2011

SAINT VINCENT PUMPING STATION

II. Schematic Diagram

SAINT VINCENT PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 8 hours of operation

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for 30 seconds or as needed.
   (Note: Interchange valve position from discharge line to Elevated Tank.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/70=203ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.

F. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
G. Perform GOOD housekeeping job.

OLD PAMPANG PUMPING STATION

Location: Barangay Pampang, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
RATED CAPACITY	:	61 m^3/hr
TDH	:	76.26 m (250.14 ft.)
PUMP SETTING	:	38.7 m (127 ft.)
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible Motor (Grundfos)
HP RATING	:	30 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	80 A
SPEED	:	3600 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	250mm (10 in.)
SPECIFIC CAPACITY	:	20.78 lps (330 gpm)
STATIC WATER LEVEL	;	25.00 m (82 ft)
PUMPING WATER LEVEL	:	49.50 m (162.36 ft.)
DRAWDOWN	:	24.50 m (80.36 ft.)
DATE DRILLED	:	September 1, 1986

OLD PAMPANG PUMPING STATION

II. SCHEMATIC DIAGRAM

OLD PAMPANG PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 22 hours of operation (6am to 4am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to distribution line.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (70/60=210ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 200L water
   3. Check Chlorine tank level (200 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

FOREST PARK HOMES PUMPING STATION

Location: Forest Park Homes, Barangay Pampang, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Submersible Pump (Grunfos)
RATED CAPACITY	:	149 m³/hr (gpm)
TDH	:	57 Meters
PUMP SETTING	:	37 mbgl
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	December 26, 2012

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible Motor (Pleuger)
HP RATING	:	50 Hp
VOLTAGE	:	440 Volts
AMPERAGE	:	65 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	178.4 Meters
SIZE OF CASING	:	250 mm (10 in.)
SPECIFIC CAPACITY	:	59.4 lps (941.6 gpm)
STATIC WATER LEVEL	:	7.45 mbgl
PUMPING WATER LEVEL	:	29.5 mbgl
DRAWDOWN	:	22.05 mbgl
DATE DRILLED	:	2005

FOREST PARK HOMES PUMPING STATION

II. SCHEMATIC DIAGRAM

FOREST PARK HOMES PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 22 hours of operation (6am to 4am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to distribution line.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/70=203ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

ROSEWOOD PUMPING STATION

Location: Rosewood Subdivision, Friendship Circumferential Road, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
RATED CAPACITY	:	75 m³/hr
TDH	:	70.7 meters
PUMP SETTING	:	32 m (104.96 ft)
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	June 11, 2014

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible Motor (Pleuger)
HP RATING	:	50 Hp
VOLTAGE	:	440 Volts
AMPERAGE	:	65 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	189.53 meters
SIZE OF CASING	:	250 mm (10 in.)
SPECIFIC CAPACITY	:	59 lps (925 gpm)
STATIC WATER LEVEL	:	6.37 meters
PUMPING WATER LEVEL	:	16.9 meters
DRAWDOWN	:	10.53 meters
DATE DRILLED	:	2007

ROSEWOOD PUMPING STATION

II. Schematic Diagram

ROSEWOOD PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 22 hours of operation (6am to 4am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   2. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to distribution line.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   6. Check tapping point for clogging.
   7. Check Dosing Pump Setting:
      (60/60=185ml/min.); MIXTURE – 2 cups/1.4 kg. Chlorine: 100L water
   8. Check Chlorine tank level (100 L)
   9. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   10. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   5. Production
   6. Electric Consumption (KWH)
   7. Pressure (PSI)
   8. Water Level (meter)
H. Perform GOOD housekeeping job.

CUAYAN PUMPING STATION

Location: Barangay Cuayan, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump
RATED CAPACITY	:	34 m³/hr
TDH	:	74 m (243 ft.)
PUMP SETTING	:	56.0 m (184 ft.)
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	April 12, 2006

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible Motor
HP RATING	:	25 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	54 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPACITY	:	14 lps (218 gpm)
STATIC WATER LEVEL	;	35 m (115ft.)
PUMPING WATER LEVEL	:	54.30 m (178 ft.)
DRAWDOWN	:	19.30 m (63.3 ft.)
DATE DRILLED	:	1995

CUAYAN PUMPING STATION

II. Schematic Diagram

CUAYAN PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 22 hours of operation (6am to 4am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to Elevated Tank.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (70/70=240ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

ANUNAS PUMPING STATION

Location: Riverside Subdivision, Brgy. Anunas, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
RATED CAPACITY	:	56.24 m³/hr
TDH	:	
PUMP SETTING	:	55 meters
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	July 28, 2011

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible (Franklin Motor)
HP RATING	:	30 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	80 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPACITY	:	26 lps (400 gpm)
STATIC WATER LEVEL	:	24 meters
PUMPING WATER LEVEL	:	51 meters
DRAWDOWN	:	27 meters
DATE DRILLED	:	2005

ANUNAS PUMPING STATION

II. Schematic Diagram

ANUNAS PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 22 hours of operation (6am to 4am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to Elevated Tank.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/60=185ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

SAPANGBATO PUMPING STATION

Location: Purok 2, Brgy. Sapangbato, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
RATED CAPACITY	:	32 m³/hr
TDH	:	110.21 m (361.5 ft.)
PUMP SETTING	:	123.2 mbgl
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	May 25, 2013

ELECTRIC MOTOR ;

TYPE OF MOTOR	:	Submersible Motor (Pleuger)
HP RATING	:	40 Hp
VOLTAGE	:	440 Volts
AMPERAGE	:	65 A
SPEED	:	3600 rpm
PHASE	:	3 ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	186.1 Meters
SIZE OF CASING	:	250 mm (10 in.)
SPECIFIC CAPACITY	:	
STATIC WATER LEVEL	;	84.60 mbgl
PUMPING WATER LEVEL	:	123.2 mbgl
DRAWDOWN	:	38.6 mbgl
DATE DRILLED	:	2003

SAPANGBATO PUMPING STATION

II. Schematic Diagram

SAPANGBATO PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 18 hours of operation (6am to 4am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to Elevated Tank.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/60=185ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

TOWN AND COUNTRY PUMPING STATION

Location: Town&Country Homes Subdivision, Brgy. Sto. Domingo, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
RATED CAPACITY	:	68 m³/hr
TDH	:	67.5 m(221.39 ft.)
PUMP SETTING	:	43 mbgl
BOWL SIZE	:	125 mm (5 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	May 11, 2013

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible Motor (Pleuger)
HP RATING	:	30 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	82 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	189 Meters
SIZE OF CASING	:	200 mm (10 in.)
SPECIFIC CAPACITY	:	25 lps (400 gpm)
STATIC WATER LEVEL	;	18.1 mbgl
PUMPING WATER LEVEL	:	34.15 mbgl
DRAWDOWN	:	16 mbgl
DATE DRILLED	:	September 1993

TOWN AND COUNTRY PUMPING STATION

II. Schematic Diagram

TOWN AND COUNTRY PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to distribution line.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/70=203ml/min.); MIXTURE – 4 cups/2.8 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

BELEN HOMESITE PUMPING STATION

Location: Macapagal Street, Brgy. Sto. Cristo, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Turbine
RATED CAPACITY	:	98 m³/hr
TDH	:	53.61m (175.85 ft.)
PUMP SETTING	:	27 m (90 ft.)
BOWL SIZE	:	200 mm (8 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
SIZE OF SHAFT	:	32 mm (1 1/4 in.)
DATE INSTALLED	:	November 16,2005

ELECTRIC MOTOR

TYPE OF MOTOR	:	Vertical Hollow Shaft U.S. Electric Motor
HP RATING	:	50 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	150 A
SPEED	:	1800 rpm
PHASE	:	3 Ø
FREQUENCY	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPACITY	:	38.49 lps (600 gpm)
DATE DRILLED	:	1992

BELEN HOMESITE PUMPING STATION

II. Schematic Diagram

BELEN HOMESITE PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 22 hours of operation (6am to 4am)

H. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   2. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.

I. Start motor. (PRESS "START" BUTTON)

J. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to distribution line.)

K. Full OPEN Valve 2 slowly and full CLOSE valve 1

L. Operating Chlorine feed Pump :
   6. Check tapping point for clogging.
   7. Check Dosing Pump Setting:
      (60/60=185ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 200L water
   8. Check Chlorine tank level (200 L)
   9. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   10. If chlorinator is DEFECTIVE, UNPLUGGED it.

M. Check stuffing box for excessive leak. (For turbine type pump)

N. Collect DATA and transmit to Central Pumping Station.
   5. Production
   6. Electric Consumption (KWH)
   7. Pressure (PSI)
   8. Water Level (meter)

H. Perform GOOD housekeeping job.

MAGALANG AVENUE PUMPING STATION

Location: Magalang Avenue, Marisol Village, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump (Grundfos)
RATED CAPACITY	:	84 m³/hr
TDH	:	43.71 m (143.38 ft.)
PUMP SETTING	:	28 mbgl (91.84 ft.)
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	July 31, 2013

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible (Franklin Motor)
HP RATING	:	25 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	68 A
SPEED	:	3600 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	60 meters
SIZE OF CASING	:	200 mm (8 in.)
SPECIFIC CAPACITY	:	
STATIC WATER LEVEL	;	8.32 mbgl
PUMPING WATER LEVEL	:	16.9 mbgl

:

DATE DRILLED	:	

MAGALANG AVENUE PUMPING STATION

II. Schematic Diagram

MAGALANG AVENUE PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   3. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to distribution line.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   11. Check tapping point for clogging.
   12. Check Dosing Pump Setting:
       (60/70=203ml/min.); MIXTURE – 5 cups/3.5 kg. Chlorine: 200L water
   13. Check Chlorine tank level (200 L)
   14. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   15. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   9. Production
   10. Electric Consumption (KWH)
   11. Pressure (PSI)
   12. Water Level (meter)
H. Perform GOOD housekeeping job.

MC ARTHUR HI WAY PUMPING STATION

Location: Mc Arthur Hi-way, Brgy. Ninoy Aquino, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Submersible Pump
RATED CAPACITY	:	82 m³/hr
TDH	:	36.6 meters
PUMP SETTING	:	27.2 meters
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	October 23, 2014

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible Motor
HP RATING	:	20 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	54 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	250 mm (10 in.)
SPECIFIC CAPACITY	:	25 lps (400 gpm)
STATIC WATER LEVEL	;	11 meters
PUMPING WATER LEVEL	:	15.47 meters
DRAWDOWN	:	4.47 meters
DATE DRILLED	:	September, 1993

MC ARTHUR HI WAY PUMPING STATION

II. SCHEMATIC DIAGRAM

MC ARTHUR HI WAY PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to distribution line.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/70=203ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 200L water
   3. Check Chlorine tank level (200 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

STA. TERESITA PUMPING STATION

Location: P. Balagtas Street, Brgy. Sta. Teresita, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump
RATED CAPACITY	:	30 m³/hr
TDH	:	47.31 m (155.18 ft.)
PUMP SETTING	:	30.48 m (100 ft.)
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	

ELECTRIC MOTOR

TYPE OF MOTOR	:	Submersible Motor
HP RATING	:	15 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	28 A
SPEED	:	3600 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	264 m (865.92 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPACITY	:	
STATIC WATER LEVEL	:	10.6 m (34.768 ft.)
PUMPING WATER LEVEL	:	29 m (95.12 ft.)
DRAWDOWN	:	18.4 m (60.35 ft.)
DATE DRILLED	:	1990

STA. TERESITA PUMPING STATION

II. Schematic Diagram

STA. TERESITA PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: 24 hours of operation (6am to 6am)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   1. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS “START” BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to Distribution line.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/60=185ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 200L water
   3. Check Chlorine tank level (200 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Pressure (PSI)
   4. Water Level (meter)
H. Perform GOOD housekeeping job.

METROGATE PUMPING STATION

Location: Metrogate Subdivision, Brgy. Capaya II, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump
RATED CAPACITY	:	88 m³/hr
TDH	:	40.61 meters
PUMP SETTING	:	28.97 meters
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	February 24, 2014

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible Motor
HP RATING	:	50 Hp
VOLTAGE	:	440 volts
AMPERAGE	:	53 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	186.5 meters
SIZE OF CASING	:	300 mm (12in.)
SPECIFIC CAPACITY	:	
STATIC WATER LEVEL	;	8 meters
PUMPING WATER LEVEL	:	20.9 meters
DRAWDOWN	:	12.9 meters
DATE DRILLED	:	2006

METROGATE PUMPING STATION

II. Schematic Diagram

METROGATE PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 16 hours of operation (6am to 10 pm)

A. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   2. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to Elevated Tank.)
D. Full OPEN Valve 2 slowly and full CLOSE valve 1
E. Operating Chlorine feed Pump :
   6. Check tapping point for clogging.
   7. Check Dosing Pump Setting:
      (70/70=240ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   8. Check Chlorine tank level (100 L)
   9. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   10. If chlorinator is DEFECTIVE, UNPLUGGED it.
F. Check stuffing box for excessive leak. (For turbine type pump)
G. Collect DATA and transmit to Central Pumping Station.
   5. Production
   6. Electric Consumption (KWH)
   7. Pressure (PSI)
   8. Water Level (meter)
H. Perform GOOD housekeeping job.

VILLA BELEN SOUTH PUMPING STATION

Location: Villa Belen Subdivision, Barangay Sto. Cristo, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump (GRUNFOS)
RATED CAPACITY	:	74 m³/hr
TDH	:	70 m (229.6ft.)
PUMP SETTING	:	46.9 m (153.832 ft.)
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	August 16, 2011

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible Motor (PLEUGER)
HP RATING	:	40 Hp
VOLTAGE	:	440 volts
AMPERAGE	:	59 Ampere
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL (C.D.TEST)

PUMP USED	:	SP95-4/54.5 HP (PLEUGER)
DEPTH OF WELL	:	200 m (656ft.)
SIZE OF CASING	:	300 mm (12in.)
SPECIFIC CAPACITY	:	1.09
STATIC WATER LEVEL	:	7.13 m (23.39ft.)
PUMPING WATER LEVEL	:	42.89m (140.68ft.)
DRAWDOWN	:	35.76m (117.3ft.)
DATE DRILLED	:	March 2011

VILLA BELEN SOUTH PUMPING STATION

II. Schematic Diagram

VILLA BELEN SOUTH PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 12 hours of operation (7am to 7 pm)

H. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   3. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.

I. Start motor. (PRESS "START" BUTTON)

J. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to Elevated Tank.)

K. Full OPEN Valve 2 slowly and full CLOSE valve 1

L. Operating Chlorine feed Pump :
   11. Check tapping point for clogging.
   12. Check Dosing Pump Setting:
       (60/70=203ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   13. Check Chlorine tank level (100 L)
   14. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   15. If chlorinator is DEFECTIVE, UNPLUGGED it.

M. Check stuffing box for excessive leak. (For turbine type pump)

N. Collect DATA and transmit to Central Pumping Station.
   9. Production
   10. Electric Consumption (KWH)
   11. Pressure (PSI)
   12. Water Level (meter)

H. Perform GOOD housekeeping job.

VILLA BELEN SOUTH PUMPING STATION

IV. OPERATION PROCEDURES FOR DIRECT PUMPING OPERATION

A. Before starting the motor, Double check all the valves position.
   1. **Valve 1** - ¼ OPEN**; Valve 2** - Full CLOSE; **Valve 3**-Full Close; **Valve 4**-Full open; **Valve 5**-full close; **Valve 6-**full open.
   2. **Full close Pressure gauge valve before starting.**
B. Start motor. (PRESS "START" BUTTON)
C. Flush deep well for one (1) minute or as needed.
D. Full OPEN Valve 2 slowly and full CLOSE valve 1 when the water is clear.
E. Check all valves for possible leak.
F. Operating Chlorine feed Pump :
   1. Check tapping point for clogging.
   2. Check Dosing Pump Setting:
      (60/70=203 ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   3. Check Chlorine tank level (100 L)
   4. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   5. If chlorinator is DEFECTIVE, UNPLUGGED it.
G. Check stuffing box for excessive leak. (For turbine type pump)
H. Collect DATA and transmit to Central Pumping Station.
   1. Production
   2. Electric Consumption (KWH)
   3. Full open P. gauge valve and read pressure (PSI)
   4. Water Level (meter)
I. Perform GOOD housekeeping job.

SAINT IGNATIUS PUMPING STATION

Location: St. Ignatius Subdivision, Barangay Sto. Cristo, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump (GRUNFOS)
RATED CAPACITY	:	96 m³/hr
TDH	:	
PUMP SETTING	:	37 meters
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	December 29, 2014

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible Motor (PLEUGER)
HP RATING	:	50 Hp
VOLTAGE	:	440 volts
AMPERAGE	:	59 Ampere
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

	:	
DEPTH OF WELL	:	200 m (656ft.)
SIZE OF CASING	:	300 mm (12in.)
SPECIFIC CAPACITY	:	1.09
STATIC WATER LEVEL	:	11.3 meters
PUMPING WATER LEVEL	:	25.3 meters
DRAWDOWN	:	14 meters
DATE DRILLED	:	March 2011

SAINT IGNATIUS PUMPING STATION

II. Schematic Diagram

SAINT IGNATIUS PUMPING STATION

III. OPERATION PROCEDURES

Operation Schedule: Minimum 12 hours of operation (7am to 7 pm)

O. Before starting the motor, check valve (Valve 1 & Valve 2) positions.
   4. Valve 1 - ¼ OPEN; Valve 2 - Full CLOSE.

P. Start motor. (PRESS "START" BUTTON)

Q. Flush deep well for one (1) minute or as needed.
   (Note: Interchange valve position from discharge line to Elevated Tank.)

R. Full OPEN Valve 2 slowly and full CLOSE valve 1

S. Operating Chlorine feed Pump :
   16. Check tapping point for clogging.
   17. Check Dosing Pump Setting:
       (60/70=203ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   18. Check Chlorine tank level (100 L)
   19. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   20. If chlorinator is DEFECTIVE, UNPLUGGED it.

T. Check stuffing box for excessive leak. (For turbine type pump)

U. Collect DATA and transmit to Central Pumping Station.
   13. Production
   14. Electric Consumption (KWH)
   15. Pressure (PSI)
   16. Water Level (meter)

J. Perform GOOD housekeeping job.

SAINT IGNATIUS PUMPING STATION

IV. OPERATION PROCEDURES FOR DIRECT PUMPING OPERATION

I. Before starting the motor, Double check all the valves position.
   3. **Valve 1** - ¼ OPEN**; Valve 2** - Full CLOSE; **Valve 3**-Full Close; **Valve 4**-Full open; **Valve 5**-full close; **Valve 6-**full open.
   4. **Full close Pressure gauge valve before starting.**

J. Start motor. (PRESS "START" BUTTON)

K. Flush deep well for one (1) minute or as needed.

L. Full OPEN Valve 2 slowly and full CLOSE valve 1 when the water is clear.

M. Check all valves for possible leak.

N. Operating Chlorine feed Pump :
   6. Check tapping point for clogging.
   7. Check Dosing Pump Setting:
      (60/70=203 ml/min.); MIXTURE – 3 cups/2.1 kg. Chlorine: 100L water
   8. Check Chlorine tank level (100 L)
   9. Report immediately to the Maintenance Division any LEAK/DEFECTIVE parts.
   10. If chlorinator is DEFECTIVE, UNPLUGGED it.

O. Check stuffing box for excessive leak. (For turbine type pump)

P. Collect DATA and transmit to Central Pumping Station.
   5. Production
   6. Electric Consumption (KWH)
   7. Full open P. gauge valve and read pressure (PSI)
   8. Water Level (meter)

K. Perform GOOD housekeeping job.

MARQUEE PLACE PUMPING STATION

Location: Marquee Place Subdivision, Pulung Maragul, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Motor (Grundfos)
RATED CAPACITY	:	112 m³/hr
TDH	:	33.58 m(110.16 ft.)
PUMP SETTING	:	39 m (128 ft.)
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	December 2009

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible Motor (HITACHI)
HP RATING	:	30 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	82 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	190 m (623.2 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPCITY	:	43 LPS (682.54 gpm)
STATIC WATER LEVEL	;	12.2 m (40ft.)
PUMPING WATER LEVEL	:	19.5 m (64 ft.)
DRAWDOWN	:	7.3 m 24 ft.)
DATE DRILLED	:	May 10, 2009

MARQUEE PLACE PUMPING STATION

II. Schematic Diagram

MARQUEE PLACE PUMPING STATION

III. OPERATION PROCEDURES

Operation schedule: Minimum of 12 hours (6:00 AM – 6 PM)

A. To FILL Sedimentation/Aeration tank:
   1. Start deepwell pump.
      a. Before starting the motor; check valve (Valve 1 & Valve 2) positions.
      Valve 1- 1/4 OPEN; Valve 2 -FULL CLOSE. Start motor by pressing START button.
      b. Flush well for one (1) minute or as needed.
   2. Fill sedimentation Tank. Full OPEN valve 2 and valve 3A; Full CLOSE valve 1.
      a. Make sure the Chlorinator is working properly. If not, perform manual chlorination process. For a more effective mixing, circulate water using recycle pump (3 HP). Full OPEN valve 3B and valve 3C.
      b. Let the chlorine react (oxidation process) for a minimum of 30 minutes.

B. To FILTER water:
   1. From Sedimentation tank A to Filter 1 and Filter 2:
      a. Full OPEN valve 4A and valve 4B
      b. Full OPEN valve 5A and valve 6B

   2. Valve position for filling cistern: see attached FILTER drawing.
      a. Full OPEN filter valve 1 (FV1)
      b. Full CLOSE filter valve 2 (FV2)
      c. Full CLOSE filter valve 3 (FV3)
      d. Full OPEN filter valve 4 FV4)
      e. Full CLOSE filter valve 5 (FV5)

C. To RINSE filters: attached FILTER drawing.
   1. Full OPEN filter valve 1 (FV1)
   2. Full CLOSE filter valve 2 (FV2)
   3. Full CLOSE filter valve 3 (FV3)
   4. Full CLOSE filter valve 4 (FV4)
   5. Full OPEN filter valve 5 (FV5)

MARQUEE PLACE PUMPING STATION

D. To BACKWASH filters: attached FILTER drawing.
   1. Full CLOSE filter valve 1(FV1)
   2. Full OPEN filter valve 2 (FV2)
   3. Full OPEN filter valve 3 (FV3)
   4. Full CLOSE filter valve 4 (FV4)
   5. Full CLOSE filter valve 5 (FV5)

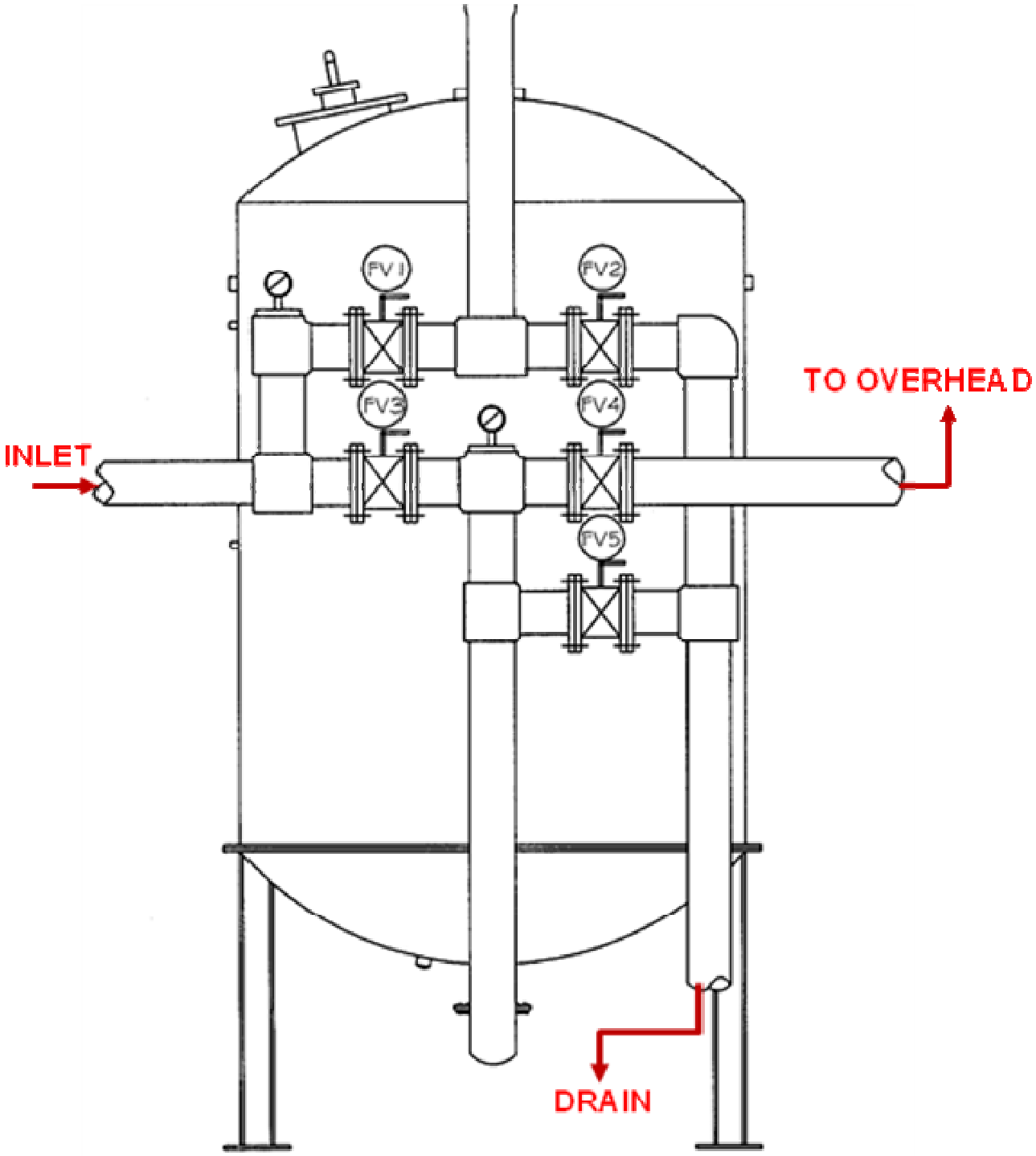
E. To FILL elevated tank 1 and tank 2.
   1. Full OPEN Valve 6A and 6B
   2. Full OPEN Valve 7A and 7B
   3. START Booster/s pump, press START button.

F. OPERATING Chlorine feed pump:
   1. Check tapping point for clogging.
   2. Check dosing pump setting:
      a. Pre chlorination – (75/80=298ml/min.) MIXTURE – 2 cups/1.4 kgs.Chlorine:100 L Water
      b. Post Chlorination – (70/60=210 ml/min.) MIXTURE – 3 cups/2.1 kgs. Chlorine:100 L Water
   3. Check tank LEVEL
   4. Report immediately to the Maintenance Division any LEAKS/DEFECTIVE parts.
   5. If chlorinator is defective, UNPLUGGED it.

G. Collect DATA and transmit to Central Pumping Station
   1. Production
   2. Electric consumption (KWH)
   3. Pressure (Psi)
   4. Water Level (meter)

H. Perform GOOD housekeeping job.

MARQUEE PLACE PUMPING STATION



CITY HALL PUMPING STATION

Location: Angeles City Hall Compound, Pulung Maragul, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump
RATED CAPACITY	:	68 m^3/hr
TDH	:	39.33 m(129 ft.)
PUMP SETTING	:	44.2 m (145 ft)
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	March 9, 2009

ELECTRIC MOTOR ;

TYPE OF MOTOR	:	Submersible Motor
HP RATING	:	20 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	54 A
SPEED	:	3450 rpm
PHASE	:	3 ∅
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	250 mm (10 in)
SPECIFIC CAPCITY	:	400 gpm (25 lps)
STATIC WATER LEVEL	;	13.5 m (44.28 ft)
PUMPING WATER LEVEL	:	33.7 m (110.54 ft.)
DRAWDOWN	:	20.2 m (66.26 ft.)
DATE DRILLED	:	2003

CITY HALL PUMPING STATION

II. Schematic Diagram

CITY HALL PUMPING STATION

III. OPERATION PROCEDURES

Operation schedule: Minimum of 12 hours (4:00 AM – 10 PM)

I. To FILL Sedimentation/Aeration tank:
1. Start deepwell pump.
   c. Before starting the motor; check valve (Valve 1 & Valve 2) positions.
   Valve 1- 1/4 OPEN; Valve 2 -FULL CLOSE. Start motor by pressing START button.
   d. Flush well for one (1) minute or as needed.
2. Fill sedimentation Tank. Full OPEN valve 2 and close valve 1.
   c. For Sedimentation tank 1, Open Valve 3A
   d. For Sedimentation tank 2, Open Valve 3B
   e. For Sedimentation tank 3, Open Valve 3C
   f. Make sure the Chlorinator is working properly. If not, perform manual chlorination process
   g. Let the chlorine react (oxidation process) for a minimum of 30 minutes.

J. S-tank 1, 2 and 3 are interconnected in Parallel.
1. To use Sedimentation tank 1, Full OPEN valve 4A
2. To use Sedimentation tank 2, Full OPEN valve 4B
3. To use Sedimentation tank 3, Full OPEN valve 4C

K. To RINSE filters:
1. Full OPEN filter valve 1 (FV1)
2. Full CLOSE filter valve 2 (FV2)
3. Full CLOSE filter valve 3 (FV3)
4. Full CLOSE filter valve 4 (FV4)
5. Full OPEN filter valve 5 (FV5)

L. To BACKWASH filters:
1. Full CLOSE filter valve 1(FV1)
2. Full OPEN filter valve 2 (FV2)
3. Full OPEN filter valve 3 (FV3)
4. Full CLOSE filter valve 4 (FV4)
5. Full CLOSE filter valve 5 (FV5)

CITY HALL PUMPING STATION

M. To FILL elevated tank:
   1. Full OPEN filter valve 1(FV1)
   2. Full CLOSE filter valve 2 (FV2)
   3. Full CLOSE filter valve 3 (FV3)
   4. Full OPEN filter valve 4 (FV4)
   5. Full CLOSE filter valve 5 (FV5)

N. To Filter Water, See valve position:
   1. To use filter 1, Full OPEN Valve 5A and valve 6A
   2. To use filter 2, Full OPEN Valve 5B and valve 6B
   3. To use filter 3, Full OPEN Valve 5C and valve 6C
   4. To use filter 4, Full OPEN Valve 5D, valve 6E and valve 6A
   5. START Booster/s pump, press START button.

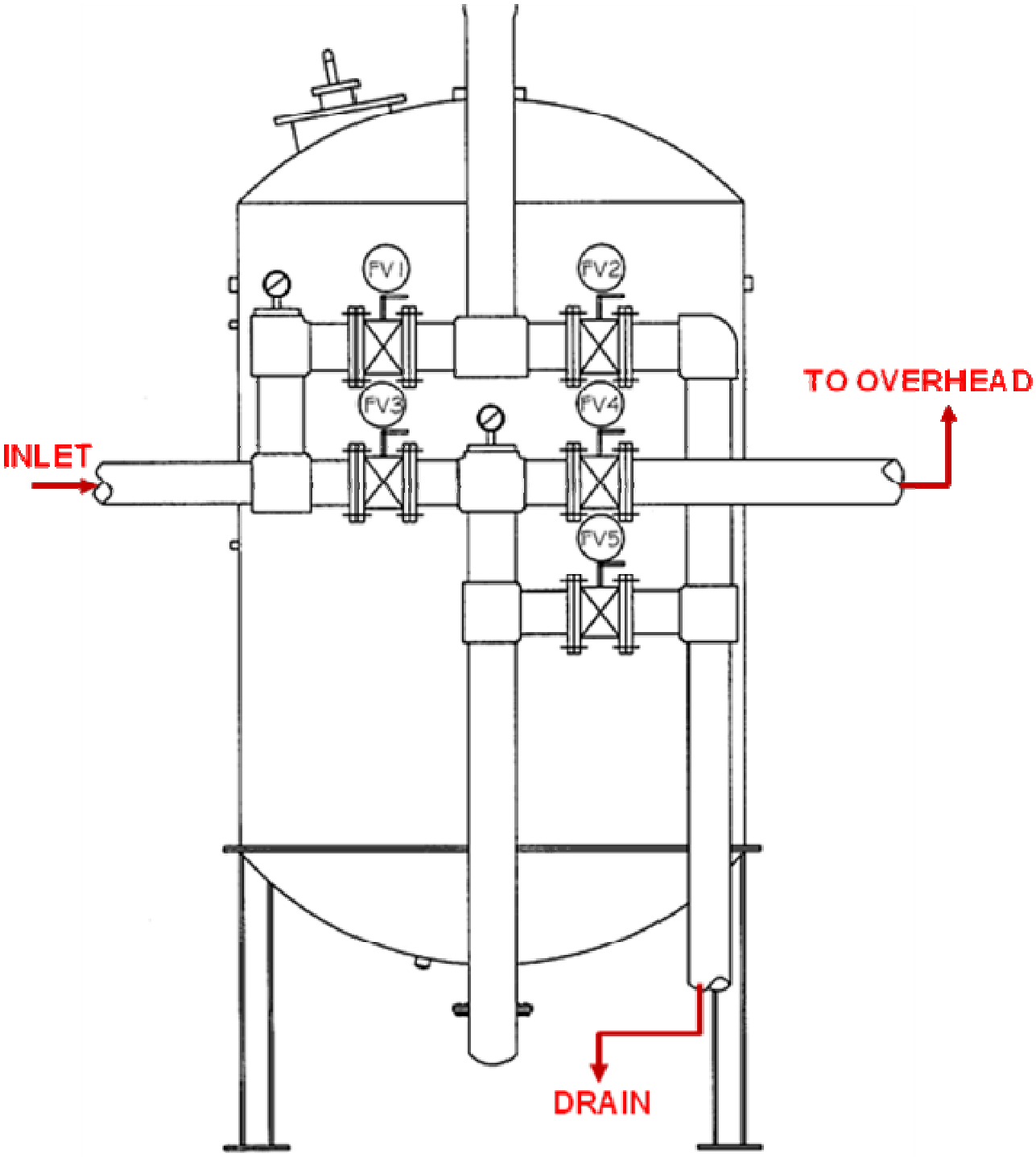
O. Monitor Elevated tank level, Use valve 7 only if needed. Valve 8 must be FULL CLOSE.

P. OPERATING Chlorine feed pump:
   1. Check tapping point for clogging.
   2. Check dosing pump setting:
      c. Pre chlorination – (70/70=240ml/min.) MIXTURE – 4 cups/2.8 kgs.Chlorine:100 L Water
   3. Check tank LEVEL
   4. Report immediately to the Maintenance Division any LEAKS/DEFECTIVE parts.
   5. If chlorinator is defective, UNPLUGGED it.

Q. Collect DATA and transmit to Central Pumping Station
   1. Production
   2. Electric consumption (KWH)
   3. Pressure (Psi)
   4. Water Level (meter)

R. Perform GOOD housekeeping job.

CITY HALL PUMPING STATION



SAPALIBUTAD PUMPING STATION

Location: Brgy. Sapalibutad, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump (GRUNDFOS)
RATED CAPACITY	:	90 m^3/hr
TDH	:	30.6 m (100.3 ft.)
PUMP SETTING	:	36.50 m (120 ft.)
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
DATE INSTALLED	:	September 6, 2010

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible Motor (Franklin Motor)
HP RATING	:	25 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	85 A
SPEED	:	3450 rpm
PHASE	:	3 ∅
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200m (656 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPACITY	:	
STATIC WATER LEVEL	;	11.0 m (36.08 ft.)
PUMPING WATER LEVEL	:	17.9 m (58.7 ft.)
DRAWDOWN	:	6.90 m (22.63 ft.)
DATE DRILLED	:	March 2001

SAPALIBUTAD PUMPING STATION

II.Schematic Diagram

SAPALIBUTAD PUMPING STATION

III. OPERATION PROCEDURES

Operation schedule: Minimum of 16 hours (4:00 AM – 12:00 MN)

A. To FILL Sedimentation/Aeration tank:

1. Start deepwell pump.
   a. Before starting the motor; check valve (Valve 1 & Valve 2) positions.
      Valve 1- 1/4 OPEN, Valve 2 -FULL CLOSE.
      Start motor by pressing START button.
   b. Flush well for one (1) minute or as needed.
2. Fill sedimentation Tank. Full OPEN valve 2 and close valve 1.
   a. Make sure the Chlorinator is working properly. If not, perform manual chlorination process.
   b. Let the chlorine react (oxidation process) for a minimum of 30 minutes.

B. To FILTER water:

1. Valve position of filters for filling Elevated tank:
   a. Full OPEN VALVE 9A and 9B
   b. Full CLOSE valve 7A and 7B, valve 8A and 8B, and valve 6
   c. Full OPEN valve 5A and 5B
   d. Full OPEN valve B1 and B2 and valve 4. Start Booster/s (Press Start Button).

C. To RINSE filters.

Rinse Filter 1. See valve position below:

1. Full OPEN valve 4, valve B1
2. Full OPEN valve 5A and valve 7A
3. Full CLOSE valve B2, valve 6, valve 5B, valve 7B, valve 8A, valve 9A
4. Start Booster 1 (Press Start Button).

Rinse Filter 2. See valve position below:

1. Full OPEN valve 4, valve B2
2. Full OPEN valve 5B and valve 7B
3. Full CLOSE valve B1, valve 6, valve 5A, valve 7A, valve 8B, valve 9B
4. Start Booster 2 (Press Start Button).

SAPALIBUTAD PUMPING STATION

D. To BACKWASH filters.

Back wash Filter 1. See valve position below:

1. Full OPEN VALVE 8A, VALVE 5A, VALVE 6
2. Full CLOSE valve 8B, valve 9A and valve 7A
3. Full CLOSE valve 5B, valve B2 and valve B1

Back wash Filter 2. See valve position below:

1. Full OPEN VALVE 8B, VALVE 5B, VALVE 6
2. Full CLOSE valve 8A, valve 9B and valve 7B
3. Full CLOSE valve 5A, valve B2 and valve B1

E. OPERATING Chlorine feed pump:
   1. Check tapping point for clogging.
   2. Check dosing pump setting:
      a. Pre chlorination – (70/70=240ml/min.) MIXTURE – 5 cups/3.5 kgs.Chlorine:100 L Water
      b. Post Chlorination – (70/60=210 ml/min.) MIXTURE – 4 cups/2.8 kgs. Chlorine:200 L Water
   3. Check tank LEVEL
   4. Report immediately to the Maintenance Division any LEAKS/DEFECTIVE parts.
   5. If chlorinator is defective, UNPLUGGED it.

F. Collect DATA and transmit to Central Pumping Station
   1. Production
   2. Electric consumption (KWH)
   3. Pressure (Psi)
   4. Water Level (meter)

G. Perform GOOD housekeeping job.

PUNTA VERDE PUMPING STATION

Location: Punta Verde Subdivision, Cutud, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Submersible Pump
RATED CAPACITY	:	108 m^3/hr
TDH	:	36 meters
PUMP SETTING	:	40 meters
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	June 16, 2011

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible Motor
HP RATING	:	25 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	80 A
SPEED	:	3600 rpm
PHASE	:	3 ∅
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	250 mm (10 in.)
SPECIFIC CAPACITY	:	
STATIC WATER LEVEL	;	16 meters
PUMPING WATER LEVEL	:	22 meters
DRAWDOWN	:	6 meters
DATE DRILLED	:	March 5, 2002

PUNTA VERDE PUMPING STATION

II. Schematic Diagram

PUNTA VERDE PUMPING STATION

III. OPERATION PROCEDURES

Operation schedule: Minimum of 16 hours (6:00 AM – 10 PM)

A. To FILL Sedimentation/Aeration tank:
   1. Start deepwell pump.
      a. Before starting the motor; check valve (Valve 1 & Valve 2) positions.
      Valve 1- 1/4 OPEN; Valve 2 -FULL CLOSE. Start motor by pressing START button.
      b. Flush well for one (1) minute or as needed.
   2. Fill sedimentation Tank. Full OPEN valve 2 and close valve 1.
      a. Make sure the Chlorinator is working properly. If not, perform manual chlorination process. For a more effective mixing, circulate water using recycle pump (3 HP). Full open valve 3.
      b. Let the chlorine react (oxidation process) for a minimum of 30 minutes.

B. To FILTER water:
   1. From Sedimentation tank to Filter 1 and Filter 2:
      a. For filter 1, Full OPEN valve 4,valve 4A and valve 5A
      b. For filter 2, Full OPEN valve 4, VALVE 4B and valve 5B

C. To RINSE filters:
   1. Full OPEN filter valve 1 (FV1)
   2. Full CLOSE filter valve 2 (FV2)
   3. Full CLOSE filter valve 3 (FV3)
   4. Full CLOSE filter valve 4 (FV4)
   5. Full OPEN filter valve 5 (FV5)

D. To BACKWASH filters:
   1. Full CLOSE filter valve 1(FV1)
   2. Full OPEN filter valve 2 (FV2)
   3. Full OPEN filter valve 3 (FV3)
   4. Full CLOSE filter valve 4 (FV4)
   5. Full CLOSE filter valve 5 (FV5)

E. To FILL elevated tank.
   1. Full OPEN filter valve 1(FV1)
   2. Full CLOSE filter valve 2(FV2)
   3. Full CLOSE filter valve 3(FV3)
   4. Full OPEN filter valve 4(FV4)
   5. Full CLOSE filter valve 5(FV5)

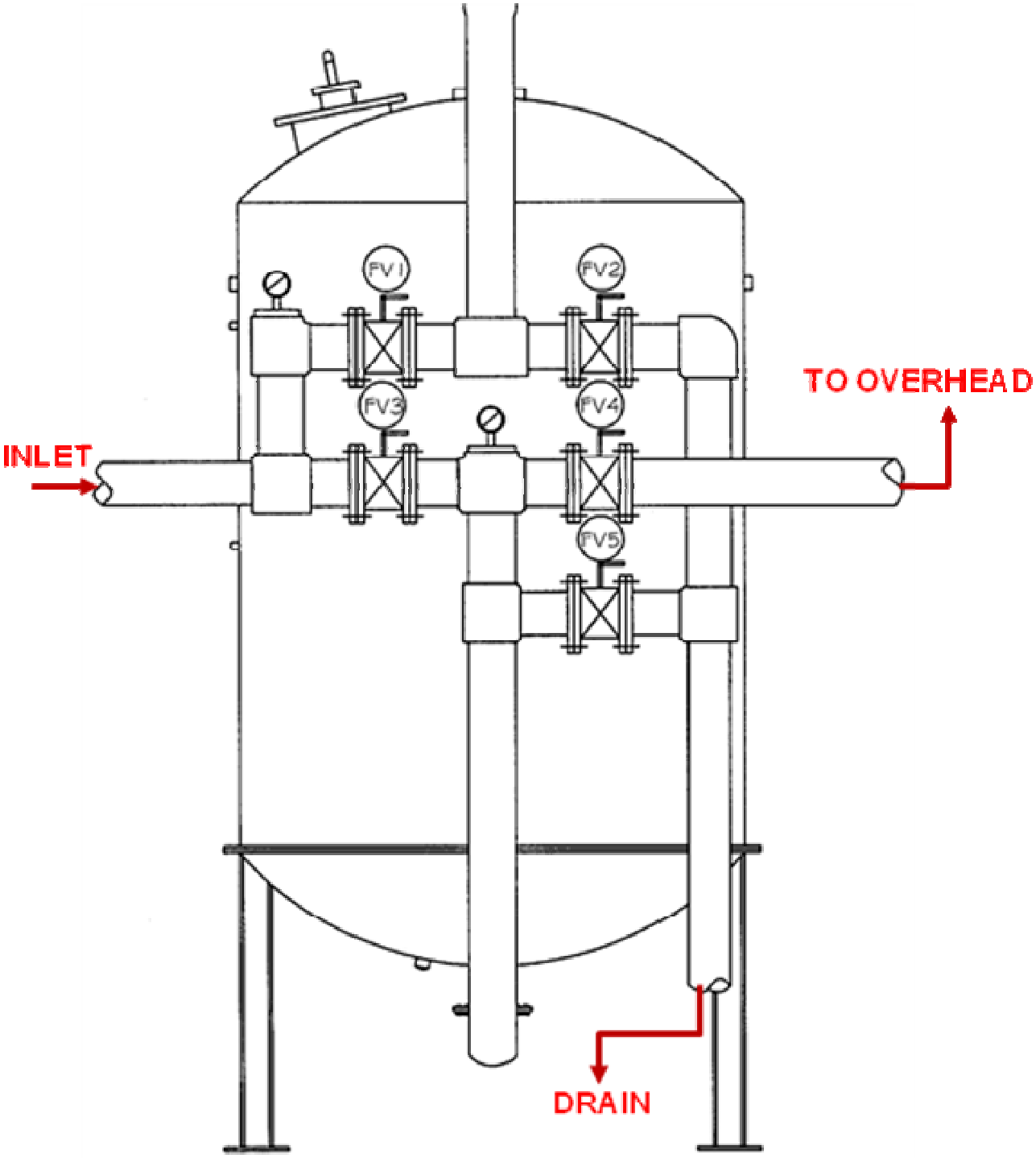
PUNTAVERDE PUMPING STATION

F. OPERATING Chlorine feed pump:
   1. Check tapping point for clogging.
   2. Check dosing pump setting:
      a. Pre chlorination – (70/70=240ml/min.) MIXTURE – 4 cups/2.8 kgs.Chlorine:100 L Water
      b. Post Chlorination – (70/70=240 ml/min.) MIXTURE – 4 cups/2.8 kgs. Chlorine:100 L Water
   3. Check tank LEVEL
   4. Report immediately to the Maintenance Division any LEAKS/DEFECTIVE parts.
   5. If chlorinator is defective, UNPLUGGED it.

G. Collect DATA and transmit to Central Pumping Station
   1. Production
   2. Electric consumption (KWH)
   3. Pressure (Psi)
   4. Water Level (meter)

H. Perform GOOD housekeeping job.

PUNTA VERDE PUMPING STATION



EPZA PUMPING STATION

Location: EPZA Resettlement, Pulung Cacutud, Angeles City

I. Technical Data

PUMP

TYPE OF PUMP	:	Turbine Pump
RATED CAPACITY	:	85 m^3/hr
TDH	:	48 meters
PUMP SETTING	:	36 m (120 ft.)
BOWL SIZE	:	150 mm (6 in.)
SIZE OF RISER PIPE	:	150 mm (6 in.)
SIZE OF SHAFT	:	32 mm (11/4 in.)
LAST DATE INSTALLED	:	August 10, 2012

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Vertical HollowShaft U.S Motor
HP RATING	:	50 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	150 A
SPEED	:	1800 rpm
PHASE	:	3 ∅
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	200 m (656 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPACITY	:	
DATE DRILLED	:	2004

EPZA PUMPING STATION

II. Schematic Diagram

EPZA PUMPING STATION

III. OPERATION PROCEDURES

Operation schedule: Minimum of 20 hours (4:00 AM – 12:00 MN)

A. To FILL Sedimentation/Aeration tank:

1. Start deepwell pump.
   a. Before starting the motor; check valve (Valve 1 & Valve 2) positions. Valve 1- 1/4 OPEN, Valve 2 -FULL CLOSE, Valve 3-FULL CLOSE. Start motor by pressing START button.
   b. Flush well for one (1) minute or as needed.
2. Fill sedimentation Tank. Full OPEN valve 2 or valve 3 and close valve 1.
   a. For S-tank A, Open Valve 2
   b. For S-tank B, Open Valve 3.
   c. Make sure the Chlorinator is working properly. If not, perform manual chlorination process.
   d. Let the chlorine react (oxidation process) for a minimum of 30 minutes.

B. To FILTER water:
1. From S-tank A to Filter 1, Filter 2,Filter 3 and Filter 4:
   a. Full OPEN valve 4A and valve 4B
   b. Full CLOSE valve 4C and valve 4D
2. From S-tank A to Filter 1, Filter 2,Filter 3 and Filter 4:
   a. Full OPEN valve 4C and valve 4D
   b. Full CLOSE valve 4A and valve 4B
3. Valve position of filters for filling Elevated tank:
   a. Full OPEN filter valve 1 (FV1)
   b. Full CLOSE filter valve 2 (FV2)
   c. Full CLOSE filter valve 3 (FV3)
   d. Full OPEN filter valve 4 FV4)
   e. Full CLOSE filter valve 5 (FV5)
   f. Full OPEN valve B1, B2, B3, and B4. Start Booster/s (Press Start Button).

C. To RINSE filters:
1. Full OPEN filter valve 1 (FV1)
2. Full CLOSE filter valve 2 (FV2)
3. Full CLOSE filter valve 3 (FV3)
4. Full CLOSE filter valve 4 (FV4)
5. Full OPEN filter valve 5 (FV5)

EPZA PUMPING STATION

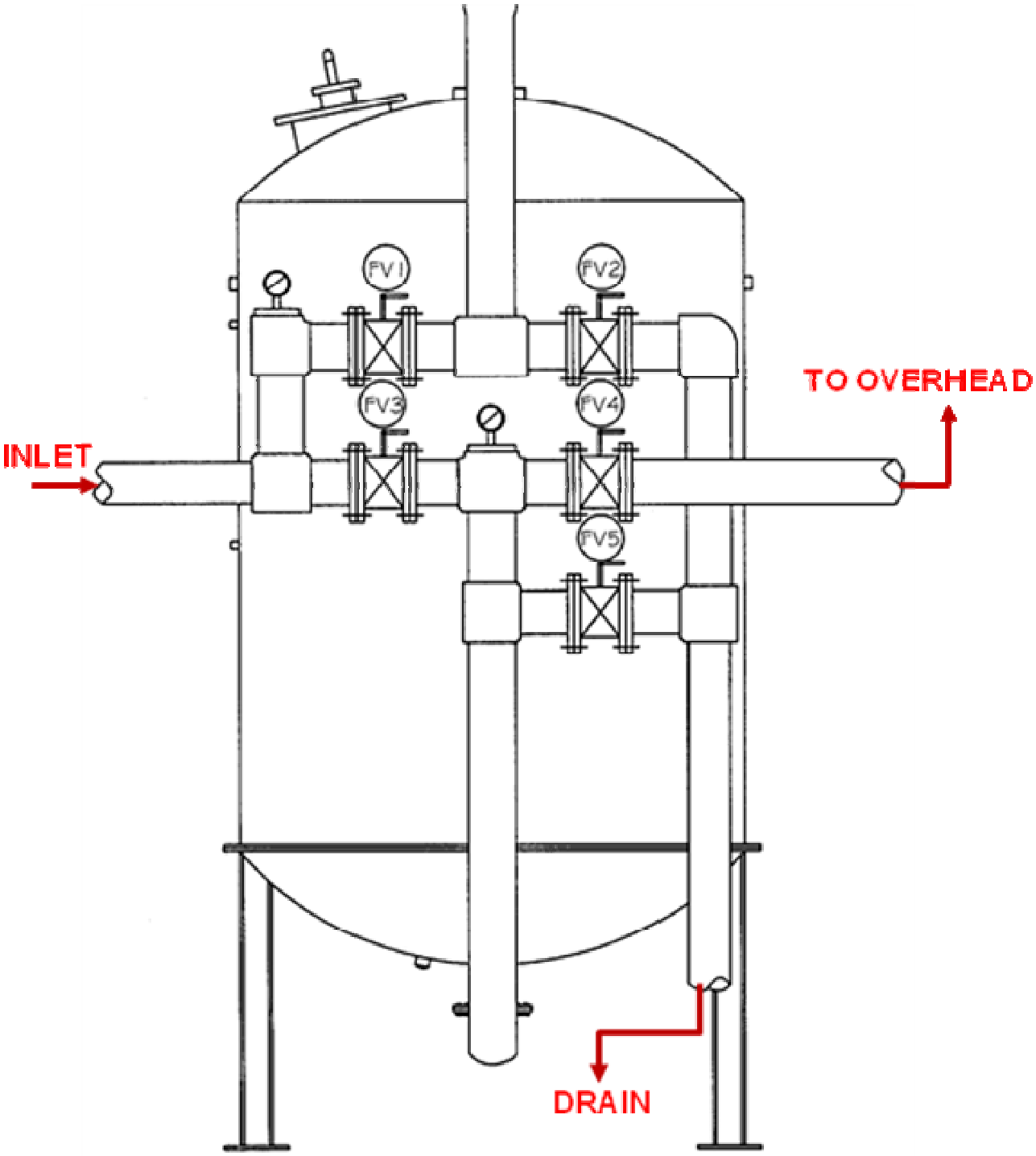
D. To BACKWASH filters:
   1. Full CLOSE filter valve 1(FV1)
   2. Full OPEN filter valve 2 (FV2)
   3. Full OPEN filter valve 3 (FV3)
   4. Full CLOSE filter valve 4 (FV4)
   5. Full CLOSE filter valve 5 (FV5)

E. OPERATING Chlorine feed pump:
   1. Check tapping point for clogging.
   2. Check dosing pump setting:
      c. Pre chlorination – (70/70=240ml/min.) MIXTURE – 4 cups/2.8 kgs.Chlorine:100 L Water
      d. Post Chlorination – (70/70=240 ml/min.) MIXTURE – 3 cups/2.1 kgs. Chlorine:200 L Water
   3. Check tank LEVEL
   4. Report immediately to the Maintenance Division any LEAKS/DEFECTIVE parts.
   5. If chlorinator is defective, UNPLUGGED it.

F. Collect DATA and transmit to Central Pumping Station
   1. Production
   2. Electric consumption (KWH)
   3. Pressure (Psi)
   4. Water Level (meter)

G. Perform GOOD housekeeping job.

EPZA PUMPING STATION



NORTHVILLE PUMPING STATION

Location: Northville Subdivision, Cutud, Angeles City

I. TECHNICAL DATA

PUMP

TYPE OF PUMP	:	Submersible Pump (GRUNDFOS)
RATED CAPACITY	:	110 m^3/hr
TDH	:	30.31 m (99.43 ft.)
PUMP SETTING	:	39 m (128 ft.)
BOWL SIZE	:	100 mm (4 in.)
SIZE OF RISER PIPE	:	100 mm (4 in.)
DATE INSTALLED	:	January 2010

ELECTRIC MOTOR :

TYPE OF MOTOR	:	Submersible Motor (HITACHI)
HP RATING	:	30 Hp
VOLTAGE	:	220 Volts
AMPERAGE	:	82 A
SPEED	:	3450 rpm
PHASE	:	3 Ø
HERTZ	:	60 c/s

WELL

DEPTH OF WELL	:	190 m (623.2 ft.)
SIZE OF CASING	:	300 mm (12 in.)
SPECIFIC CAPCITY	:	760.9 gpm (48 lps)
STATIC WATER LEVEL	;	7.5 m (24.6 ft.)
PUMPING WATER LEVEL	:	16.23 m (53.23 ft.)
DRAWDOWN	:	8.73 m (28.63 ft.)
DATE DRILLED	:	June 10 2009

NORTHVILLE PUMPING STATION

II. SCHEMATIC DIAGRAM

NORTHVILLE PUMPING STATION

III. OPERATION PROCEDURES

Operation schedule: Minimum of 16 hours (6:00 AM – 10 PM)

A. To FILL Sedimentation/Aeration tank:
   1. Start deepwell pump.
      a. Before starting the motor; check valve (Valve 1 & Valve 2) positions.
      Valve 1- 1/4 OPEN; Valve 2 -FULL CLOSE. Start motor by pressing START button.
      b. Flush well for one (1) minute or as needed.
   2. Fill sedimentation Tank. Full OPEN valve 2 and close valve 1.
      a. For S-tank A, Open Valve 3A
      b. For S-tank B, Open Valve 3B.
      c. Make sure the Chlorinator is working properly. If not, perform manual chlorination process. For a more effective mixing, circulate water using recycle pump (3 HP).
      d. Let the chlorine react (oxidation process) for a minimum of 30 minutes.

B. To FILTER water:
   1. From S-tank A to Filter 1 and Filter 2:
      a. Full OPEN valve 6A and valve 6B
      b. Full CLOSE valve 7A and valve 7B
   2. From S-tank B to Filter 1 and Filter 2:
      a. Full OPEN valve 7A and valve 7B
      b. Full CLOSE valve 6A and valve 6B
   3. Valve position for filling cistern:
      a. Full OPEN filter valve 1 (FV1)
      b. Full CLOSE filter valve 2 (FV2)
      c. Full CLOSE filter valve 3 (FV3)
      d. Full OPEN filter valve 4 FV4)
      e. Full CLOSE filter valve 5 (FV5)

C. To RINSE filters:
   1. Full OPEN filter valve 1 (FV1)
   2. Full CLOSE filter valve 2 (FV2)
   3. Full CLOSE filter valve 3 (FV3)
   4. Full CLOSE filter valve 4 (FV4)
   5. Full OPEN filter valve 5 (FV5)

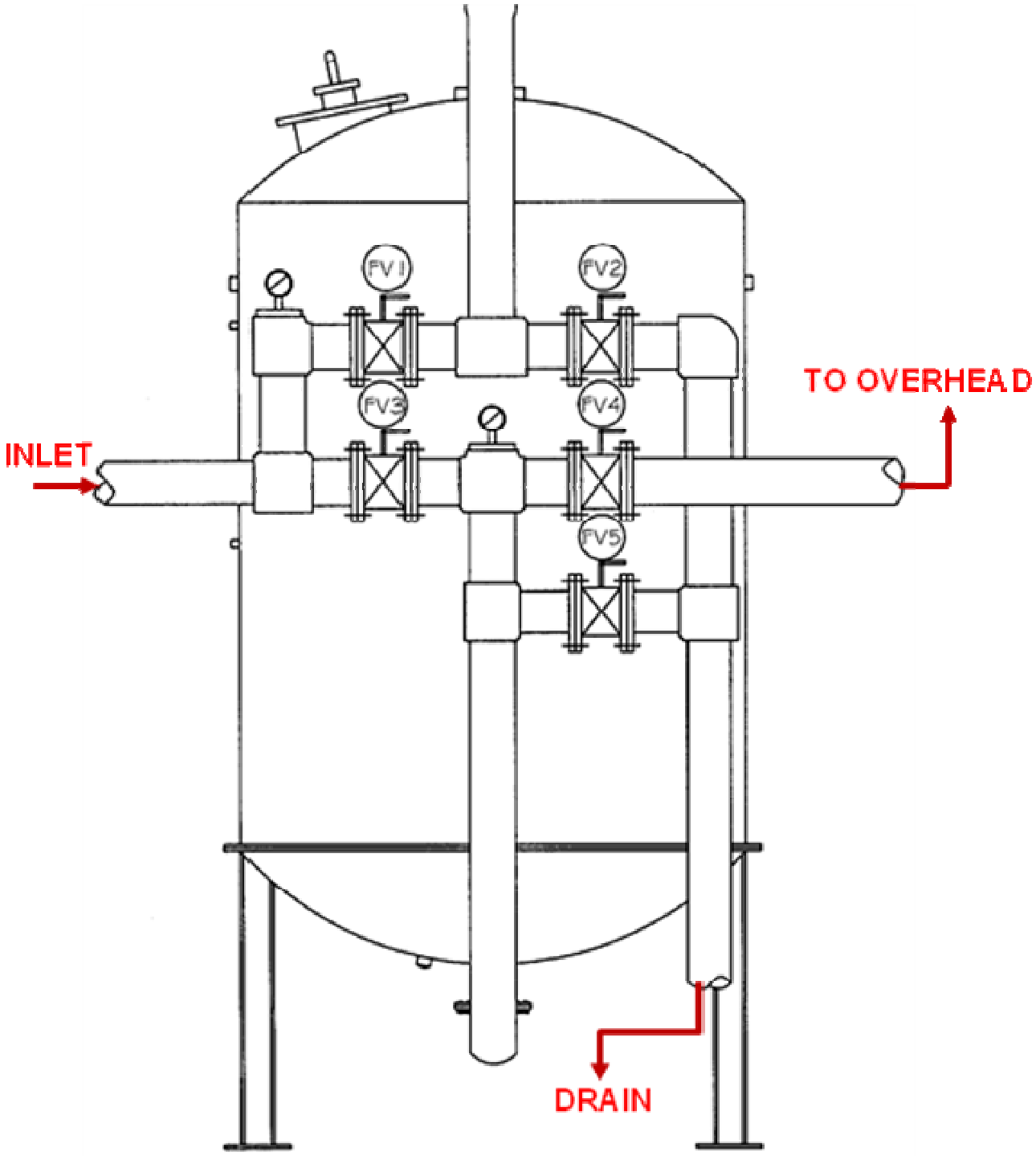
NORTHVILLE PUMPING STATION

D. To BACKWASH filters:
   1. Full CLOSE filter valve 1(FV1)
   2. Full OPEN filter valve 2 (FV2)
   3. Full OPEN filter valve 3 (FV3)
   4. Full CLOSE filter valve 4 (FV4)
   5. Full CLOSE filter valve 5 (FV5)

E. To FILL elevated tank.
   1. Full OPEN Valve 8A
   2. Full OPEN Valve 8B
   3. Full OPEN Valve 9
   4. Full Open Valve 10 for maximum distribution of water supply
   5. START Booster pump, press START button.

F. OPERATING Chlorine feed pump:
   1. Check tapping point for clogging.
   2. Check dosing pump setting:
      c. Pre chlorination – (70/70=240ml/min.) MIXTURE – 4 cups/2.8 kgs.Chlorine:100 L Water
      d. Post Chlorination – (70/60=210 ml/min.) MIXTURE – 3 cups/2.1 kgs. Chlorine:100 L Water
   3. Check tank LEVEL
   4. Report immediately to the Maintenance Division any LEAKS/DEFECTIVE parts.
   5. If chlorinator is defective, UNPLUGGED it.

G. Collect DATA and transmit to Central Pumping Station
   1. Production
   2. Electric consumption (KWH)
   3. Pressure (Psi)
   4. Water Level (meter)

H. Perform GOOD housekeeping job.

NORTHVILLE PUMPING STATION