

PARIVARTHANE VOL.2

MAINTENANCE OF PUMPING MACHINERY IN ULBs

Drinking water is the essential commodity for the mankind and it is to be supplied to the public by the governing authority both in Urban and Rural areas. It is very common phenomenon that most of the urban local bodies are depending on ground water as the main drinking water source and the mode of withdrawal is through Bore wells and Open wells by installing a motor/ pumps into the ground water discharging structures. The water is stored in a Service reservoir and then pumped to the public distribution network. It is a Herculean task for many of the local governing bodies and is struggling hard to maintain the pumping and machinery equipments intact. Due to the uncontrollable maintenance cost, overheads are shooting up beyond the budgetary allocation without giving hints about the expenditure to be incurred.

Some of the instructions are given here under for the ULBs to take care of their pumping and machinery mechanism in appropriate manner. The systematic management and maintenance of the mechanism proves the entire operation is in economical way. Therefore it is very vital for us to follow the given procedures.

1 WATER SUPPLY COMPONENTS (IN DETAIL)

Type of Ground Water Discharging Structures:

Number of Bore Wells (BW) fitted with Power pump (PP) – Working/ Nonworking	Ex: 3 Bore wells fitted with PP. 2 working, 1 Not working.
Number of Open Well (OW) or Dug Well (DW) fitted with Power pump (PP) – In use	Ex: 4 OW fitted with PP. 3 In use, 1 Not in use.
Infiltration Well (IW) details and its source (any stream / river etc.)	Ex: 2 IWs. Tungabhadra River
Dug cum Bore Well (DBW) details	Ex: 2 DBW, all are working

Type of existing water supply scheme:

Piped water supply (PWS)	Ex: Piped water supply with over head tank (OHT)
Water supply through Tankers (MWS)	Ex: Water supply through tankers
Only through Hand pumps (HP)	Ex: 6 HPs
Number of Public taps	Ex: 18 Taps
Quantity of water supply and distribution in LPCD	Ex: 1.25 lakh ltr. 65 lpcd
Number of Individual house connections & direct connections along the raising main & Monthly Tariff	Ex: 135 Taps and 12 Taps Rs: 15 per month
Number of Commercial tap connections & Monthly Tariff	Ex: Rs.30 per month
Number of Industrial tap connections & Monthly Tariff	Ex: Rs.60 per month

Material used for Transmission main (Raising main):

PVC / GI / DI etc.	Ex: PVC pipe
Pipe diameter (in mm)	Ex: 90 mm Ø
Total length of the pipe line (in m)	Ex: 2150 meter

Pumping & Machinery:

Type of pump installed (Brand/Make) Submersible/Mono block / Centrifugal etc., Year of pump installation	Ex: Submersible, 1998
Number of stages & its Horse Power	Ex: 12 stages, 7.5 HP



Depth of pump setting level	Ex: 86 m below ground level (bgl)
Number of pumping hours/ pumping yield per hour	Ex: 6 hrs. 21000 lph (from 3Borewells)
Efficiency of the motor noticed	Ex: 70%

2 DETAILS ON SURFACE WATER SCHEME

Water Source:

Tank / Stream / River / Reservoir / Lake / Canal etc.	Ex: River Tungabhadra
Jack well (JW) with details of connecting pipe / trench	Ex: 1 JW with 120 mm Ø PVC pipe
Material used for Transmission main PVC / GI / DI etc. its length (in m) and diameter (in mm)	Ex: 2800 meter length, 90 mm Ø PVC pipe
Storage structure and its capacity – GLSR / OHT etc.	Ex: 1 OHT with 75000 ltr. capacity
Water treatment structures	Ex: Sedimentation/ settlement pond
Operation and maintenance cost	Ex: Average Rs.1300 pm

The above information should be necessarily collected and kept as a record for ever to understand the previous and present scenario of the Water supply system. Once the above all data is updated, ULBs need to collect the information on water 'leakage prone line', 'periodicity of leakage', 'replacement of pipes' etc.

Following observations need to be made periodically

Every Day:	
Visually check for leakages	Checked – Yes/ No
Check for Vibration and Noise	Checked – Yes/ No
Hand test bearing housing for any sign of temperature	Checked – Yes/ No
Check the Motor Temperature, Voltage and current	Checked – Yes/ No

Every Week:	
Check the bearing housing and Motor temperature with a thermometer and noted	Checked – Yes/ No
Adjusting gland as necessary to maintain slight leakage	Adjusted – Yes/ No
Note the Delivery Pressure reading	Noted – Yes/ No

Every Month:	
Check grease lubricated bearings and recharge with grease to a max. of 2/3 rd full	Checked & Recharged – Yes/ No

Every 6 Months:	
Check Gland packing and replace if necessary	Checked – Yes/ No
Check shaft of shaft sleeve for scouring	Checked – Yes/ No
Check alignment of pump and monitor	Checked – Yes/ No
Check holding down bolts for tightness	Checked – Yes/ No
Check coupling for wear	Checked – Yes/ No

Every Year:	
Check rotating element (Impeller, Shaft and Barings) for wear	Checked – Yes/ No
Clean and re-grease bearings	Cleaned & Re-greased – Yes/ No
Measure total dynamic suction and discharge	Measured – Yes/ No
Overhauling the pump if necessary	Completed – Yes/ No

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