

The PRODUCTION DIVISION

Monitoring of Pumping Stations:

1. Check and ensure that the pumping station runs smoothly. If there are unusual Conditions, (for example, irregular sound in the control or in the discharge pipe), record it in the remarks portion of the logbook and report immediately to the supervisor/foreman.
2. Read carefully and record correctly the registers of wattmeter, flow meter, hour meter, ammeter, voltmeter, pressure gauge, and other measuring or monitoring devices. If any of them is not functioning well, report to the supervisor/foreman.
3. Check and ensure that the chlorination operates well, that is, chlorine solution is being fed to supply line. When the assigned pumping station clean regularly the solution and discharge hoses pump head and the entire body of the metering pump. Ensure the 2% chlorine solution in clean containers is always prepared and ready for use.
4. Inspect the condition of the standby generator set. When in the assigned pumping station, regularly clean it's interior and exterior.
5. When the assigned pumping station assigned to your group.
6. Proceed to other pumping station assigned to your group.
7. Do the above tasks at least every two (2) hours.

Collection of Water Samples for Bacteriological Examination:

1. Clean the tap. Remove from the tap any attachments that may cause splashing, and, using a clean cloth, wipe the outlet in order to remove any dirt.
2. Open the tap. Turn on the tap at maximum flow rate and let the water flow for 1 to 2 minutes.
3. Sterilize the tap. Sterilize the top for a minute with the flame from an ignited cotton wool swab soaked in alcohol; alternatively, a gas burner or cigarette lighter may be used.
4. Open the tap prior to sampling. Carefully open the tap and allow the water to flow for 1 to 2 minutes at a medium flow rate.
5. Open the sterilized bottle. Untie the string fixing the protective brown paper cover and pull out or unscrew the stopper.
6. Fill the bottle. While holding the cap and protective cover face downwards (so as to prevent entry of dust that might carry micro-organism), immediately hold the bottle under the water jet, and fill. A small air space (2.5 cm) should be left to facilitate shaking at the time of inoculation prior to analysis.
7. Put stopper or cap the bottle. Place the stopper in the bottle or screw on the cap and fix the brown paper protective cap in the place with the string.

8. Fill out completely the information sheets and send them with the properly labeled sample.

Collection of water Samples for physical and Chemical Analyses:

1. Remove any attachments from the tap, and, using a clean cloth, wipe the outlet to remove any dirt.
2. Allow water to flow freely for at least one (1) minute.
3. After the service line has been cleaned, fill a clean one (1) liter bottle. Allow air space and put the stopper immediately.
4. Fill out completely the information sheets and send them with the properly labeled samples.
5. Sample should reach the laboratory within six (6) hours of collection. The use of an ice cooler or icebox is the best way to preserve the sample for twenty-four (24) hours.

Maintenance of pumping Equipment:

1. Perform test pumping. Measure the discharge, voltages, currents, pressure and pumping water level simultaneously. Compute the pump efficiency. Pump efficiency should be higher than 50%. Otherwise replace it.
2. Measure test winding resistance between the leads of the drop cable. For three-phase motor, the deviation between the highest and the lowest value should not exceed 10%. If the deviation is higher, pull out the pump and motor. In single-phase, 3-wire motors, the operating winding will assume the lowest resistance value.
3. Measure the installation resistance is less than 0.5 M Ω , the motor is due for replacement or repair.
4. Set up the service rig. Shut off the motor control. Disconnect the drop cable from the control. Remove harness of discharge pipe. Pull out the pump and motor.
5. Measure the depth of the well and static water level. Record them.
6. Record the data on the plates of the pump and motor that has been pulled out.
7. Clean the column pipes, pump and motor.
8. If the motor is still good, replace just the pump. Otherwise, splice the new motor lead wire to the drop cable.
9. Measure and record length of all column pipes and the distance from the suction end of the pump to the top of the coupling or check valve attached to the other end of the pump.
10. Carefully install the pump and motor with 1"Ø PE sounding side by side with the drop cable.
11. Replace back the harness of the discharge pipe.
12. Test the operation of the motor control without the load. If there is trouble fix it first.
13. Reconnect the drop cable to the terminals.
14. Open the bypass valve by $\frac{1}{4}$. Close the supply valve.

15. Measure the voltages. They should be within a tolerance of -10%/6%, for 230V rating, 250V-244V.
16. Lower the probe of the water level indicator up to the static water level.
17. Start the motor.
18. Measure the discharge, pumping water level, pressure, current and voltages, Discharge must not exceed the design yield of the well to avoid over pumping.
19. Continue the measurements until the pumping water level stabilizes and the water runs clear.
20. Feed the supply to the line. Open the supply valve and close the bypass valve.
21. Measure the discharge, pumping water level, pressure, current and voltages again. These are the operational data.

Standard Operating procedure in Case or Equipment Trouble:

A. Generator Set

1. Check the physical condition of the equipment.
2. Test run. Observe the monitoring instruments and control devices.
3. Report to supervisor/foreman any irregular condition.
4. Any trouble should be fixed by competent technician.
5. The qualified technician will troubleshoot the equipment.

B. Pump and Motor

1. If the motor stops due to thermal overload, do not attempt to restart the motor, report immediately to the supervisor.
2. Any trouble should be fixed by competent technician.
3. The qualified technician will troubleshoot the equipment.

Preparation of program of Work (POW)

1. Survey of project site.
2. Gathering of data.
3. Design and analysis.
4. Quantity estimate and costing.
5. Preparation of POW.

Preparation of Production Report:

1. Operators submit production report of their respective pumping stations after the end of each month.
2. Review of raw data. Checking of mathematical computations and deviation from previous month.
3. Collation of data.

4. Encoding of the data onto the readied report format.
5. Review of the final output.
6. Submission of Production Report.

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