



LABORATORY TEST RESULTS

Date: 30.03.2016

Testing done for : The Peerless General Finance & Investment Co. Ltd.
Letter Ref. No : Nil Dated: 22.03.2016
Name of Work : Sinking of deep tube well.
Location : At Matridham Residential Complex, Jairambati, (Dist.- Bankura) 1st Site.
Name of Agency : Auxiliary Tubewell Drillers of 102, Block-B, Bangur Avenue, Kol-55.
Sample Collection : 22.03.2016
Type of test : Bacteriological and Chemical test of Drinking Water.

Test Results :

Sl. No.	Parameters	Results	Limits	Test Method Specifications IS: 10500-91 Amendment No.1-93
1.	Total Dissolved Solids mg/l (Max.)	475	500	As per IS 14543-1998 and Amendment No. 3 May 2001 for packaged drinking water specification
2.	Turbidity, NTU (Max.)	1.70	2	
3.	Copper, mg/l (Max.)	<0.01	0.1	
4.	Iron, mg/l (Max.)	0.105	0.10	
5.	Nitrate, mg/l (Max.)	0.22	45	
6.	Fluoride, mg/l (Max.)	0.80	1.0	
7.	Alkalinity, mg/l (Max.)	130.0	200	
8.	Calcium, mg/l (Max.)	60.0	75	
9.	Arsenic, mg/l (Max.)	0.00	0.05	
10.	Mercury, mg/l (Max.)	<0.001	0.001	
11.	pH value	7.00	5.5 to 9.0	APHA 20 th Edition, Sec.4500,p 4 4-87
12.	BOD at 27° C (mg/l)	1.25	3.0 (Max)	IS:3025 (Part-44) 1993
13.	COD (mg/l)	15.0	250 (Max)	APHA 20 th Edition, Sec.4500,p 4 177
14.	Total Hardness (mg/l CaCO ₃)	85.0	200 (Max)	APHA 20 th Edition, Sec.2340C,p 2 37
15.	Total Coliforms Count, MPN/100 ml	Nil	**	APHA 20 th Edition, 9221 B & C
16.	E. Coli (MPN/100 ml)	Nil	**	APHA 20 th Edition, 9221 F
17.	Fecal Coliform (MPN/100 ml)	Nil	**	APHA 20 th Edition, 9221 E

**** Desirable Limits**

- Throughout any year, 95% of samples should not contain Coliform organisms in 100 ml.
- No sample should contain E.Coli in 100ml.
- No sample should contain more than 10 Coliform organisms per 100 ml.
- Coliform organisms should not be detected in 100 ml of any two consecutive samples.

Note: Tests were carried out for Drinking Water on the sample supplied by the client.

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Report of Electrologging (Study of SP & Resistivity) on a bore hole
At Matridam, Jayrambati 1st tubewell site under The Peerless General
Finance & Investment Co. Ltd.

By

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01. Name of the Executing Agency.	The Peerless General Finance & Investment Co. Ltd.
02. Name of the Drilling Agency	M/S Auxiliary Tubewell Drillers
03. Location.	At Matridam, Jayrambati 1 st tubewell site
04. Witnessed By.	Engineer in charge.
05. Mode of Drilling.	Reverse Circulation Method
06. Bore Hole Diameter.	22 inches.
07. Type of Logging.	SP & Resistivity using multi electrode.
08. Date of Logging.	03.02.2016
09. Logging Parameters.	a) SP 1cm- 10/20 mV, b) Resistivity 1 cm- 2.50/5.00Ohm – mtr. c) Depth 1cm – 10 ft.
10. Interval of Data.	Every 5ft.(1.5 Mtrs)
11. Spacing CIP1.	0.8 Mtrs.(L/N)
12. Observed SP and resistivity at 25 ft bgl.	510mV (+ve) & 7.50 Ohm-mtr respectively.

Introduction:- A bore hole at Matridam, Jayrambati 1st tubewell site was electrically logged on 03.02.2016 down to a depth of 530 ft (161.54 Mtrs.) The parameters are noted above and as well as in the graph.

The above study is made to assess the best possible zone out of the specified depth of the contract, where strainer shall be placed to harness water to be used by human beings and for other purpose.

Interpretation:-

Depth Range in Ft.	SP	Resistivity.	Inference.
0-180	Slight low	Slight low	Clay
180-280	Higher trend	Higher trend	Sand of varied texture
280-430	As above	As above	As above
430-510	High with minor fluctuation	As above	As above
510-530	As above	Slight low	As above

Lithological Log:- Interpretation of the data observed during electrical logging and on the observation of the drill cuttings, the lithological log is as under.

0-20 ft.	Surface clay
20-60 ft.	Yellow hard clay
60-90 ft.	Yellow coarse sand
90-150 ft.	Fine sand
150-180 ft.	Yellow hard clay
180-200 ft.	Fine sand
200-230 ft.	Yellow hard clay
230-280 ft.	Coarse sand
280-320 ft.	Clay

320-350 ft.	Coarse sand
350-430 ft.	Clay
430-510 ft.	Coarse sand
510-530 ft.	Fine sand

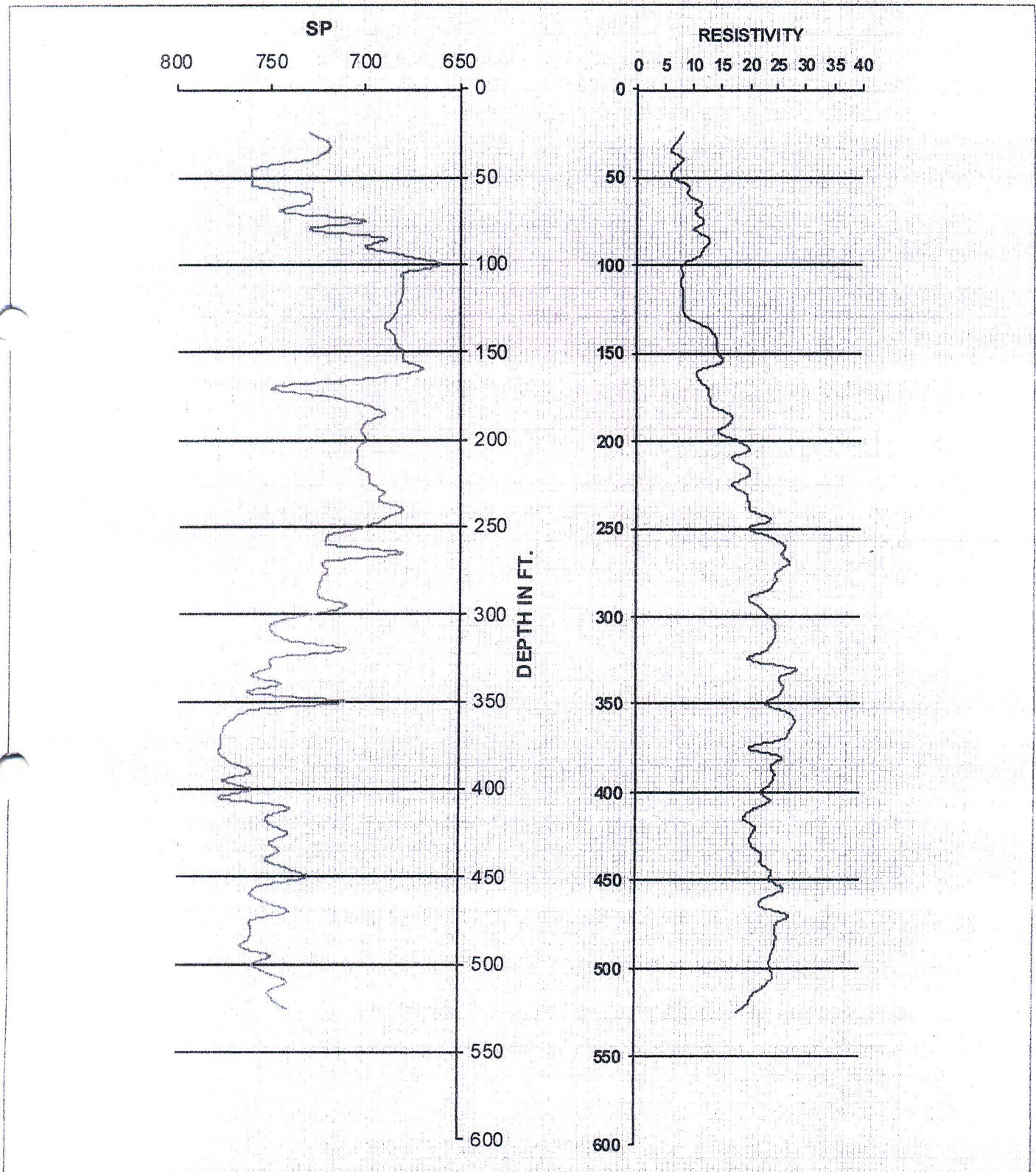
Hydrogeological data:- Comparative study of both lithological and electrical logs revealed the existence of one major granular zone of varied texture and character from 200 to 530 ft (60.96 to 161.54 Mtrs.) of only fine dominated with medium aquifer material at depth with clay bed in between and having slight uniform in porosity and can be considered as confined one. The order of resistivity is high all throughout in aquifer as such pore water within the formation shall be good in quality and considered to be fresh water.

Recommendation:- Considering all data including the value of resistivity and trend of SP together with other features it is suggested to place the strainer from 430 to 510 ft (131.06 to 155.45 Mtrs.) below ground level and further depth where content of iron is increasing.

Quantity of Water:- In general with 72 ft or 22.00 Mtrs. of 150mm diameter of PVC Ribbed Strainer the yield through pump in this tube well must be restricted maximum up to 75 CM of water per hour at GL but suggested to run the same at reduced rate of 70 CM of water per hour at GL to achieve the life of the same due to wide concentration of tube wells in the same profile of the area and for fine sand.

Quality of Water:- As regards the quality of water to be assessed from the electrical character of the formation material it can be said that the quality of water shall be of slight high of iron.


 (Sanat Kr. Biswas)



Geophysical investigation report of borehole on 03.02.2016 at Matridam, Jayrambati 1st tubewell site under The Peerless General Finance & Investment Co. Ltd.



PEERLESS

NAME OF SITE:- MATRIDHAM 1st

1) CALCULATION OF GRAVEL FED:-

$$= [\pi/4 \{ d_2^2 - d_1^2 \} L] + [\pi/4 \times d_2^2 \times L]$$

$$= [0.785 \times \{ (0.50 \times 0.50) - (0.15 \times 0.15) \} \times 117.00] + [0.785 \times (0.50 \times 0.50) \times 2.09]$$

$$= [0.785 \times \{ 0.25 - 0.02 \} \times 117.00] + [0.785 \times 0.25 \times 2.09]$$

$$= [0.785 \times 0.23 \times 117.00] + [0.785 \times 0.25 \times 2.09]$$

$$= [21.12 + 0.41]$$

$$= 21.53 \text{ M}^3$$

2) CALCULATION OF PUDDLE CLAY:-

$$= [\pi/4 \{ d_2^2 - d_1^2 \} L]$$

$$= [0.785 \times \{ (0.50 \times 0.50) - (0.20 \times 0.20) \} \times 42.45]$$

$$= [0.785 \times \{ 0.25 - 0.04 \} \times 42.45]$$

$$= [0.785 \times 0.21 \times 42.45]$$

$$= 6.99 \text{ M}^3$$

- Note :-
- 1) Total Depth 161.54 Mtrs.
 - 2) Lowering 159.45 Mtrs.
 - 3) 6" Blank pipe including Strainer 117.00 Mtrs.
 - 4) 8" Housing Pipe & Reducer 42.45 Mtrs.