Government of Nepal

Ministry of Irrigation

Department of Irrigation

Irrigation and Water Resources Management Project (IWRMP)

Irrigation Infrastructures Development & Improvement (AF), Component-A

(Word Bank Project ID: P144474)

SUBPROJECT COMPLETION REPORT

Radhapur Sitapur DTW, Banke

CMS Engineering Consult Pvt. Ltd.

Full Bright Consultancy Pvt. Ltd. JV

June 2018 / Asar 2075

IWRMP (AF) - COMPONENT A
Radhapur Sitapur DTW Subproject Completion Report

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IWRMP (AF) - COMPONENT A
Radhapur Sitapur DTW Subproject Completion Report

Name of Subproject	Radhapur Sitapur DTW	**Ecological Belt**	Terai
Municipality & Ward No(s)	Sitapur VDC-3, 4, 5, 7, 9		
District	Banke		

SUBPROJECT DESCRIPTION

Brief Description of Subproject

Radhapur-Sitapur cluster of DTW irrigation systems consists of 19 DTWs with command area of 760 ha. These tubewell systems were constructed between 2049/50 BS and 2060/61 BS under the Irrigation Line of Credit (ILC) and Nepal Irrigation Sector Project (NISP) with financial assistance of the World Bank.
The PICC approved rehabilitation of this subproject, limiting the cost to NRs 14.3 million against the estimated cost of NRs 61.9 million.
Out of the 19 deep tube wells, three tubewells had already failed:
• SP-18 had very little discharge; and,
• SP-1 and SP- 4 had started pumping gravel, with the breakdown of their screens.
The present rehabilitation of subproject excluded these three DTWs due to budget constraints. Thus, the rehabilitation work was carried out on only 16 DTW systems. The main works consisted of replacement of submersible electrical pumps in existing DTWs. In addition to this, rehabilitation works included redevelopment of the DTWs, including repair and maintenance open/buried water distribution systems, repair and maintenance of an 11 kV electrical transmission line and 50 kVA transformers.

Size of Command Area	Planned	Gross	800	ha	Net	760 ha
	Achieved	Gross		ha	Net	320 ha

Distance from Command Area to:

nearest road accessible by jeep/tractor			0-0.10 km
nearest paved road			km
nearest urban centre/market	(name)	Nepalgunj	10 km
nearest local IDD/IDSD/GWIDD office	(name)	GWIDD Nepalunj	10 km
nearest local DADO office	(name)	Nepalgunj	10 km

IWMRP INTERVENTION

Irrigation Water Supply & Infrastructure Development Works

Borehole Reference	Depth (m)	Location	(Q) Discharge (lps) Design	Tested	Installed
SP-01	169.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Constructed

Borehole Ref	Depth					Q Design	Q Tested	Q Installed
SP/02	172.0	N	°	'	"	40		
		E	°	'	"			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
Repair and Maintenance of Open Canal	1mx0.4m	650 Rm	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1Set	1 Set
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth					Q Design	Q Tested	Q Installed
SP-03	185.0	N	°	'	"	40		
		E	°	'	"			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe distribution system (DS) Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-72 Rm and 120 Rm; AV-10 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1Set	1Set
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth					Q Design	Q Tested	Q Installed
SP/04	168.0	N	°	'	"	40		
		E	°	'	"			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/05	195.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
Repair and Maintenance of Open Canal	1mX0.4m	575 Rm	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/06	161.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe distribution system (DS) Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-48 Rm and 96m; AV-15 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/07	130.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe distribution system (DS) Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-72 Rm and 48 Rm; AV-7 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/08	158.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe distribution system (DS) Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-60 Rm and 550 Rm; AV-10 No	

Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/09	160.0	N ° ' "	120	130	120
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe distribution system (DS) Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-60 Rm and 150 Rm; AV-10 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/10	158.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe 2.5kgf/cm2 distribution system (DS); Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-60m and150 m; AV-10 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/11	164.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe 2.5kgf/cm2 distribution system (DS); Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-72 Rm and 72 Rm; AV-12 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1Set
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/12	158.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe 2.5kgf/cm2 distribution system (DS); Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-72 Rm and 120 Rm; AV-10 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1Set	1 Set
Maintenance of Transformer and existing 11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/13	161.0	N ° ' "	120	83	100
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe 2.5kgf/cm2 distribution system (DS); Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-60 Rm and 90 Rm; AV-10 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/14	167.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe 2.5kgf/cm2 distribution system (DS); Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-48 Rm and 150 Rm; AV-10 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/15	172.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe 2.5kgf/cm2 distribution system (DS); Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-72 Rm and 60 Rm; AV-10 No	

Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1Set	1 Set
Maintenance of Transformer and existing11 KV transmission line			

Borehole Ref	Depth					Q Design	Q Tested	Q Installed
SP/16	163.0	N	°	'	"	40		
		E	°	'	"			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe 2.5kgf/cm2 distribution system (DS); Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-48 Rm and 425 Rm; AV-9 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth					Q Design	Q Tested	Q Installed
SP/17	165.0	N	°	'	"	40		
		E	°	'	"			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe 2.5kgf/cm2 distribution system (DS); Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-60 Rm and 400 Rm; AV-6 No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth					Q Design	Q Tested	Q Installed
SP/18	157.0	N	°	'	"	40		
		E	°	'	"			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
SP/19	167.0	N ° ' "	40		
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed
uPVC pipe 2.5kgf/cm2 distribution system (DS); Alfa-alfa Valve (AV)	DS-200 mm dia and 160 mm dia; AV-160 mm dia	DS-72 Rm and 200 Rm; AV-10No	
Replacement of Submersible Pump (Amrut) with Accessories	15 HP	1 Set	1 Set
Maintenance of Transformer and existing11 KV transmission line	50 KVA	1	1

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
		N ° ' "			
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
		N ° ' "			
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed

Borehole Ref	Depth		Q Design	Q Tested	Q Installed
		N ° ' "			
		E ° ' "			

Name and Description of Structure	Key Dimensions	Quantity Planned in DFSR	Quantity Constructed

Borehole Ref Depth N ° ' " Q Design Q Tested Q Installed

E ° ' "

Quantity

Name and Description of Structure Key Dimensions Planned in DFSR Constructed

Borehole Ref Depth N ° ' " Q Design Q Tested Q Installed

E ° ' "

Quantity

Name and Description of Structure Key Dimensions Planned in DFSR Constructed

Borehole Ref Depth N ° ' " Q Design Q Tested Q Installed

E ° ' "

Quantity

Name and Description of Structure Key Dimensions Planned in DFSR Constructed

Financial Summary (all figures in '000 NPR)

	Approved Estimate	Contract Value	Final Value
[A] Civil Works			
NCB Contracts (All Packages)	10,655	8,753	7,933
WUA Payable Contracts (All Packages)			
WUA Contribution Contracts (All Package	2,498	2,498	1,550
Subtotal	13,153	11,251	9,483
[B] Coningencies (All NCB Packages)			
Physical	1,157		
Price Escalation	1,157		
Other (5%)	579	532	532
Subtotal	2,893	532	532
[C] Miscalleneous Items	108		0
[D] SEMP	500		0
Total Expenditure [A]+[B]+[C]+[D]	16,654	11,783	10,015
Calculation of DoI/WUA Contributions			
Total DoI Works	14,156	9,285	8,465
WUA Net Cash Contribution*			
Net DoI Contribution	14,156	9,285	8,465
WUA Contribution Contracts (All)	2,498	2,498	1,550
Total DOI+WUA Contributions	16,654	11,783	10,015
Total WUA Contribution	2,498	2,498	1,550
Overall Effective WUA Contribution	15.0%	21.2%	15.5%

(* where appropriate)

WATER MANAGEMENT

Description of How the Physical Water Distribution System Operates

This tube well system has both open channel flow and pipe network for irrigation water distribution. In pipe network, direct pumping is done where as in open channel flow,irrigation is done through lined canal outlets. Tube wells are operated by pump operator on the request of user farmer and outlet is opened such that the tubewell water reaches his command area without any disturbance. There are 19 tubewells bored but only 16 are oprational at present.

Description of How Farmers Share the Water Among Themselves

Person who pays for electricity, oprator's charge and requst for water, irrigates his land . There is no question of sharing of water of same tubewell at the same time by two or more farmers. In case numbers of farmer request for irrigation water of the same tube well, first request gets priority and follows the sequence. Many farmer can irrigate their field in a single day on time basis.

Desciption of Field Application Methods Being Used

Flooding is used as irrigation methods here. But sprinkler and drip irrigation can be practiced in direct pumping.In case of open channel flow, flooding, border and furrow irrigation methods are adopted.

WATER USERS ASSOCIATION

Participation		Total	Men	Women	Janajati	Dalit	Other
Number of Households		835					
Total Population	No	4,339	2,065	2,274	912	782	2,645
	%		48%	52%	21%	18%	61%
WUA Executive Committee	No	13	9	4	3	2	8
	%		69%	31%	23%	15%	62%
Number of Training Events							
WUA Training Participation	No	0					0
	%		-	-	-	-	-

WUA Registration

Borehole Reference	Date of WUA Registration			Date of WUA/DoI Subproject Agreement		
	day	month	year	day	month	year
SP-01						
SP/02						
SP-03						
SP/04						
SP/05						
SP/06						
SP/07						
SP/08						
SP/09						
SP/10						
SP/11						
SP/12						
SP/13						
SP/14						
SP/15						
SP/16						
SP/17						
SP/18						
SP/19						

Observations on WUA Organisation, Rules, Regulations and Conflict Resolution

There is No any written rules & regulations formulated till date. User run the system in close consultation with all users on turn by turn basis.Usually, first request gets first priority but urgency also counts.Generally, system operation follows management committee'sdcision of individual bore holes but coordination among all boreholes near by is also important.There is no any conflict of interests among users, if any at all , get resolved through interaction and understanding among all .WUA meeting is need based, and have not established office yet.

Observations on WUA Organisation of Operation and Maintenance (see also Annex F)

WUA organization is not so active here.Users need training on resource generation, mobilization operation and maintenence of pumps and voltage establizers, general knowledge on electric appliances and circuits etc.The community in this area is heterogeneous and lack cohesion. Operation of 16 DTW by such user's group is a challanging one and users need to analyse the cost of irrigation and return from the crops. This tubewell system is facing problem in paying electricity bills with demand charge.

AGRICULTURE EXTENSION AND TRAINING

Participation

		Total	Men	Women	Janajati	Dalit	Other
Total Population	No	4,339	2,065	2,274	912	782	2,645
	%		48%	52%	21%	18%	61%
Number of Traing Events							
Participants in Training	No	0					0
	%		-	-	-	-	-

Productivity

	DFSR Baseline		Latest Available Data, FY: ***<enter FY of data here>***					
	Area (ha)	Productivity (t/ha)	Area (ha)	Productivity (t/ha)	Price (NRs/t)	Gr Income (NRs/ha)	Prod Cost (NRs/ha)	Net Income (NRs/ha)
Spring Paddy						0		0
Increase in Productivity				-				
Paddy	540	3.20	540	3.42	20,500	70,110	53,500	16,610
Increase in Productivity				*7%*				
Wheat	420	1.60	480	1.75	30,000	52,500	41,000	11,500
Increase in Productivity				*9%*				
Maize	150	1.90	150	2.10	30,000	63,000	36,000	27,000
Increase in Productivity				*11%*				
Potato	10	9.00	20	11.00	22,455	247,005	180,000	67,005
Increase in Productivity				*22%*				
Pulses	15	0.90	15	0.90	60,000	54,000	18,000	36,000
Increase in Productivity				*0%*				
Oilseed	85	0.60	90	0.60	100,000	60,000	18,000	42,000
Increase in Productivity				*0%*				
Vegetables	10	8.00	15	10.00	32,500	325,000	180,000	145,000
Increase in Productivity				*25%*				
Other						0		0
Increase in Productivity				-				

Total ISP Net Income (NRs)	26,374,500
Overall Net Income per hectare of Command Area (NRs/ha)	34,703

Command Area Performance	DFSR Baseline	Target	Latest
Cropping Intensity	162%	220%	172%
% Cropped Area Planted with Improved Seed			70%
% Farmers Using Improved Techniques			45%

Adoption of Improved Crop Varieties

Spring Paddy	
Paddy	Radha-4, 9, Janki, Sabhamasuli, Ramdhan, Hybrid 6444, Gorakhanath
Wheat	Bhirkuti, Gautam
Maize	Arun-2, Rampur Composit, Hybrid
Potato	Cardinal, Lalgulab
Pulses	Local
Oilseed	Local
Vegetables	Cauliflower-Snowcrown, Cabbage-Green Coronet, Tomato-Manisha, Radish-Menoearly

SOCIAL AND ENVIRONMENTAL MANAGEMENT

Implementation of SEMP Recommendations

SEMP Issue	Location	Mitigation Measure	Compliance	Remarks
Acquisition of private land & property		Farmers to provide private land for the construction work of DTWs	Yes	
Farm Water Management		Providing additional earthen field channel	Yes	
		In the peak irrigation period, water distribution could be by rotation.	Yes	
Deterioration of Groundwater Quality		Awareness to the people on using fertilizer, pesticides.	Yes	
		Water Quality shall be regularly monitored	Yes	
Change in land use pattern		Advocacy to the farmers for better use of land, advocacy	Yes	
Ground water mining & overdrafting		Spacing of tubewell had been properly managed	Yes	
Drawdown and interference effect .		Tube wells to be kept in adequate distance and drawdown monitored regularly	Yes	
Operation & maintenence		Training about pump operation and maintenance	Yes	

Total Number of Mitigation Measures (not including those no longer relevant)	9
Number of Mitigation Measures Fully Implemented	9
Overall Rate of Compliance	100%

ANNEX A

MAPS AND LAYOUT PLANS


SP-9
SP-13
SP-3
SP-14
SP-6
SP-4
SP-12
SP-17
SP-7
SP-5
SP-8
SP-1
SP-18
SP-2
SP-11
SP-16
SP-15
SP-19
SP-10
Image © 2015 DigitalGlobe
Image © 2015 CNES / Astrium
© 2015 Google
Imagery Date: 11/13/2013 28°06'10.33" N 81°31'53.48" E elev 476 ft
4833 ft
2003

ANNEX B

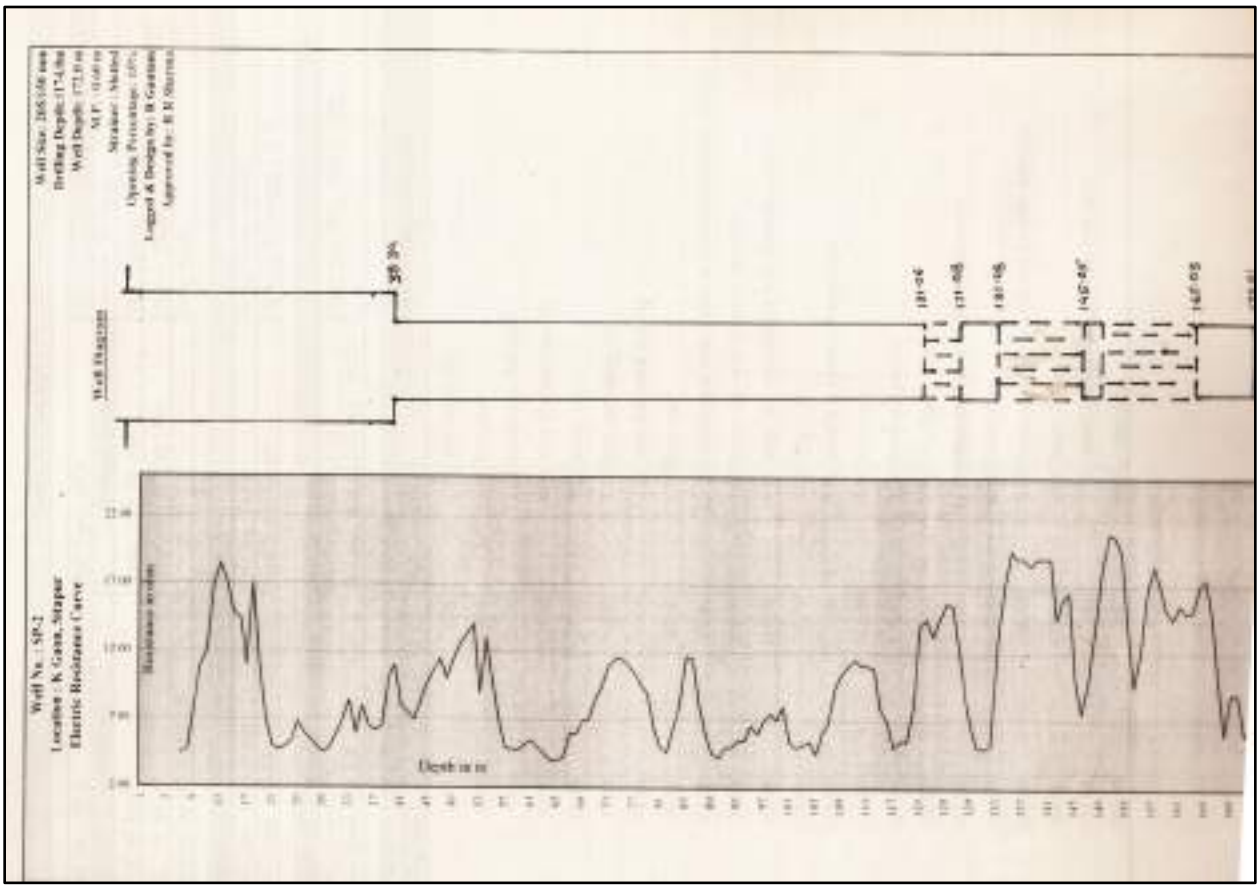
PHOTOGRAPHS

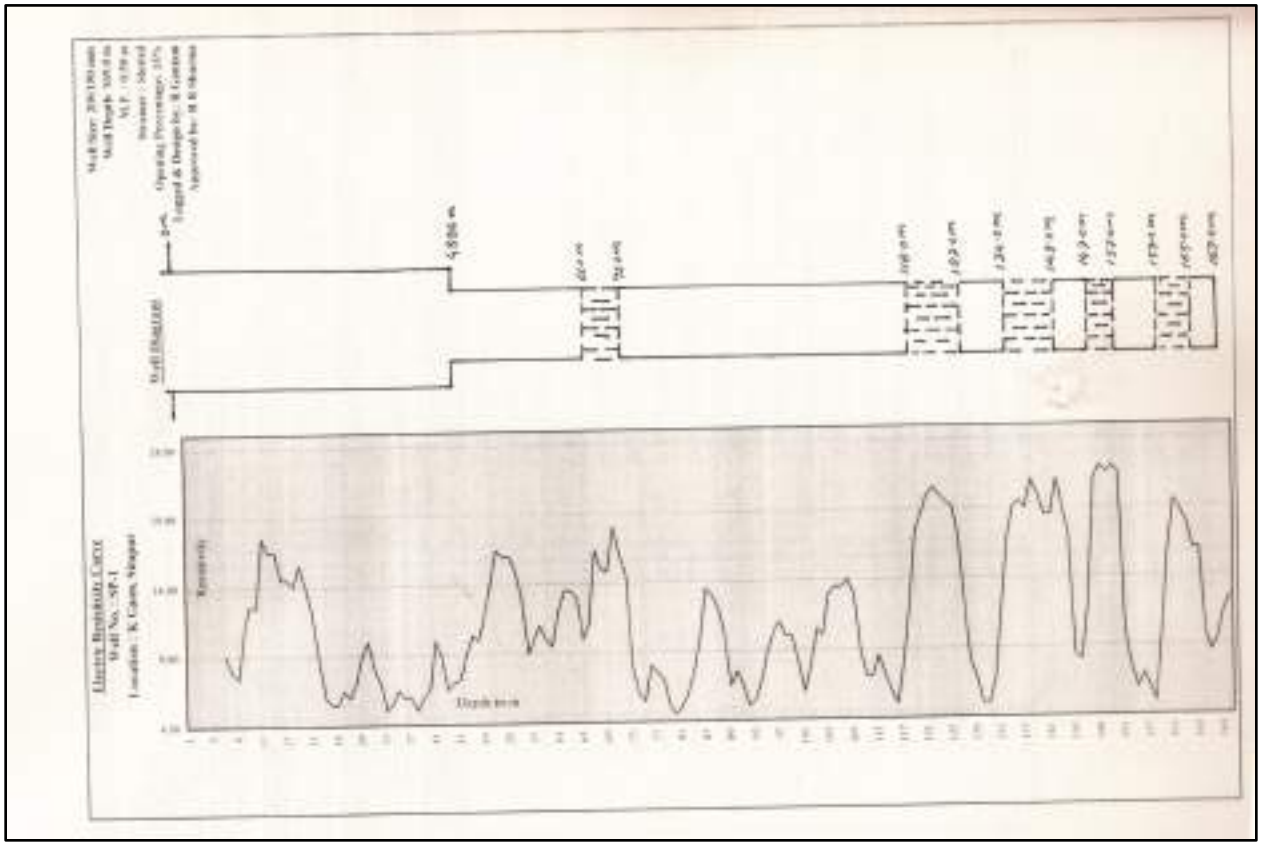
Outlet at Radhapur-Sitapur DTW-6 (18 Jan. 2017)

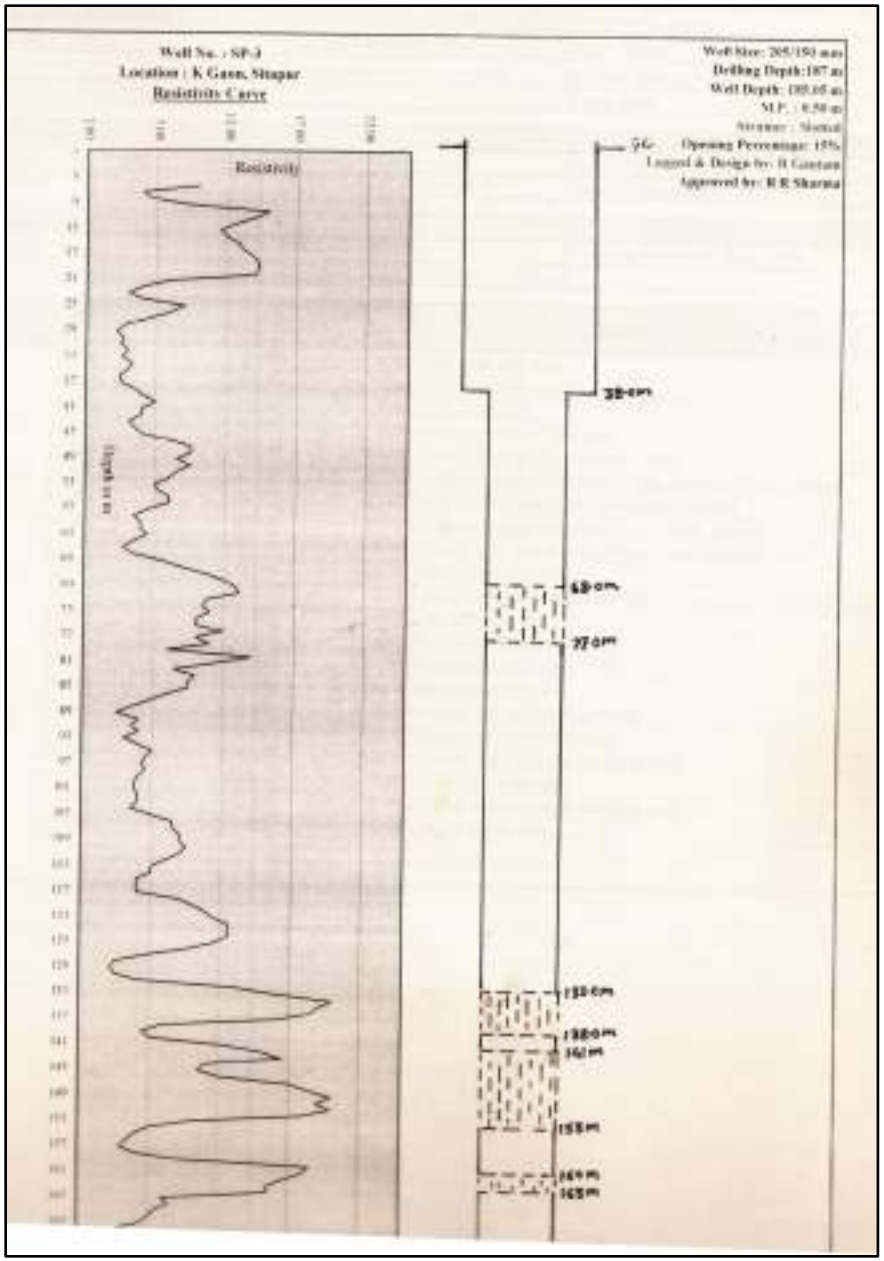
Radhapur-Sitapur DTW-19: Observation of discharge (18, Jan 2017)

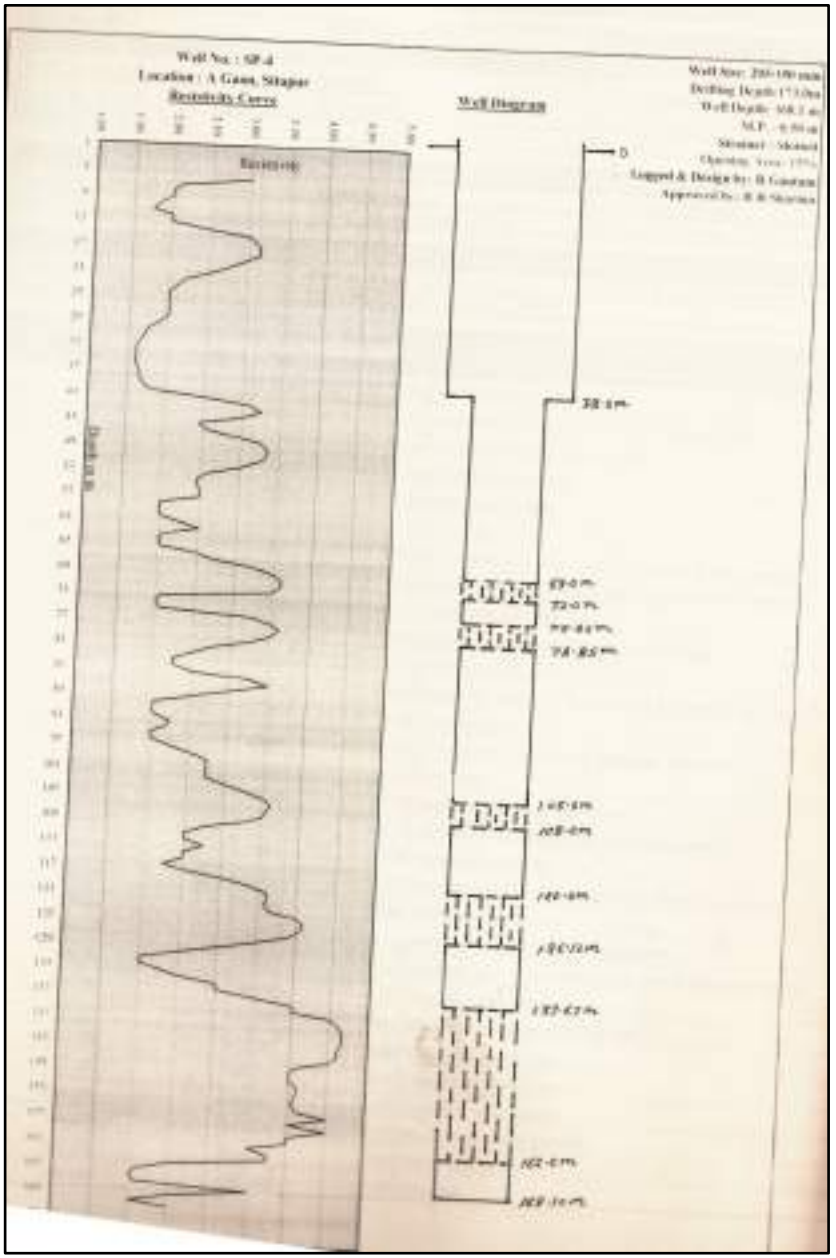
ANNEX G

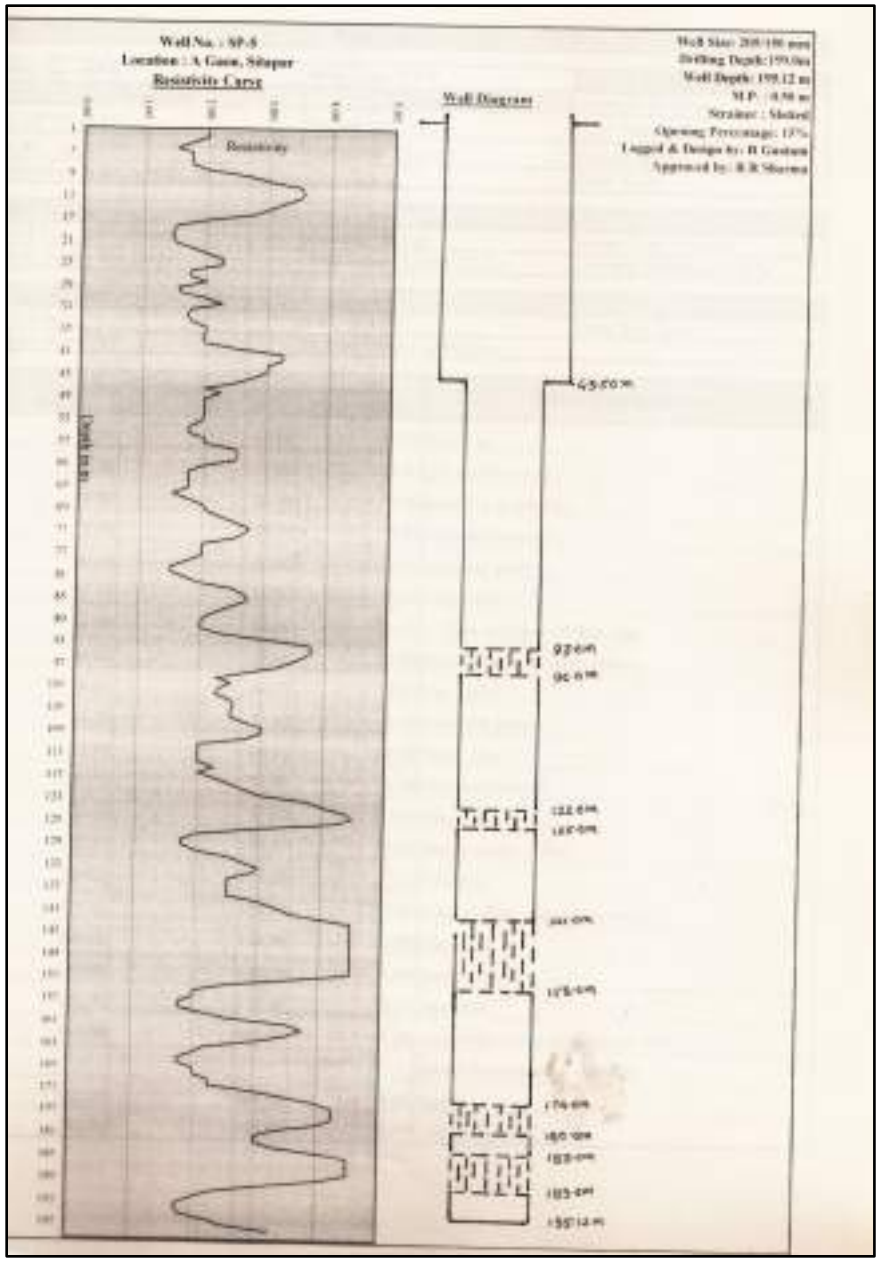
BOREHOLE LOGS AND LITHOLOGY

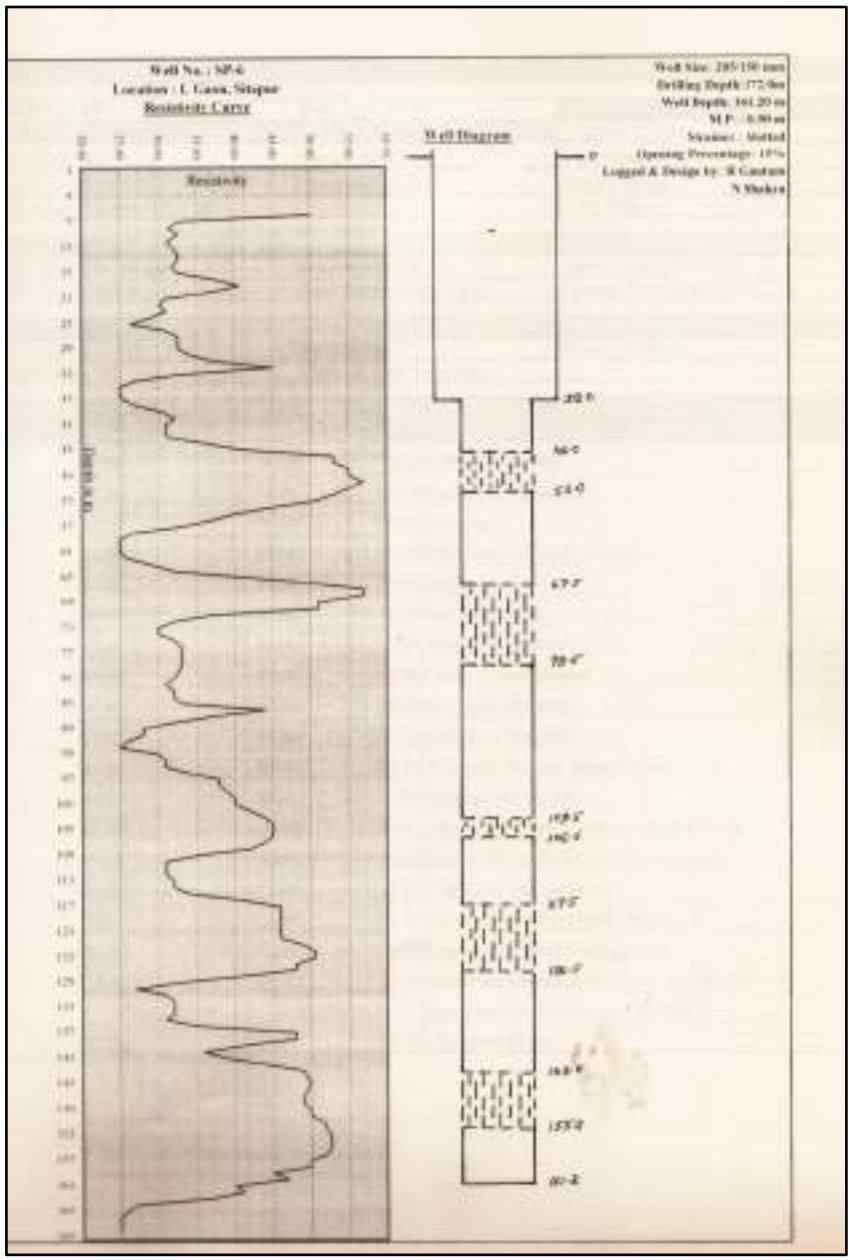

Well No. : SP-2
Location : K. Gaon, Sitapur
Electric Resistance Curve
Resistance in ohm
Depth in m

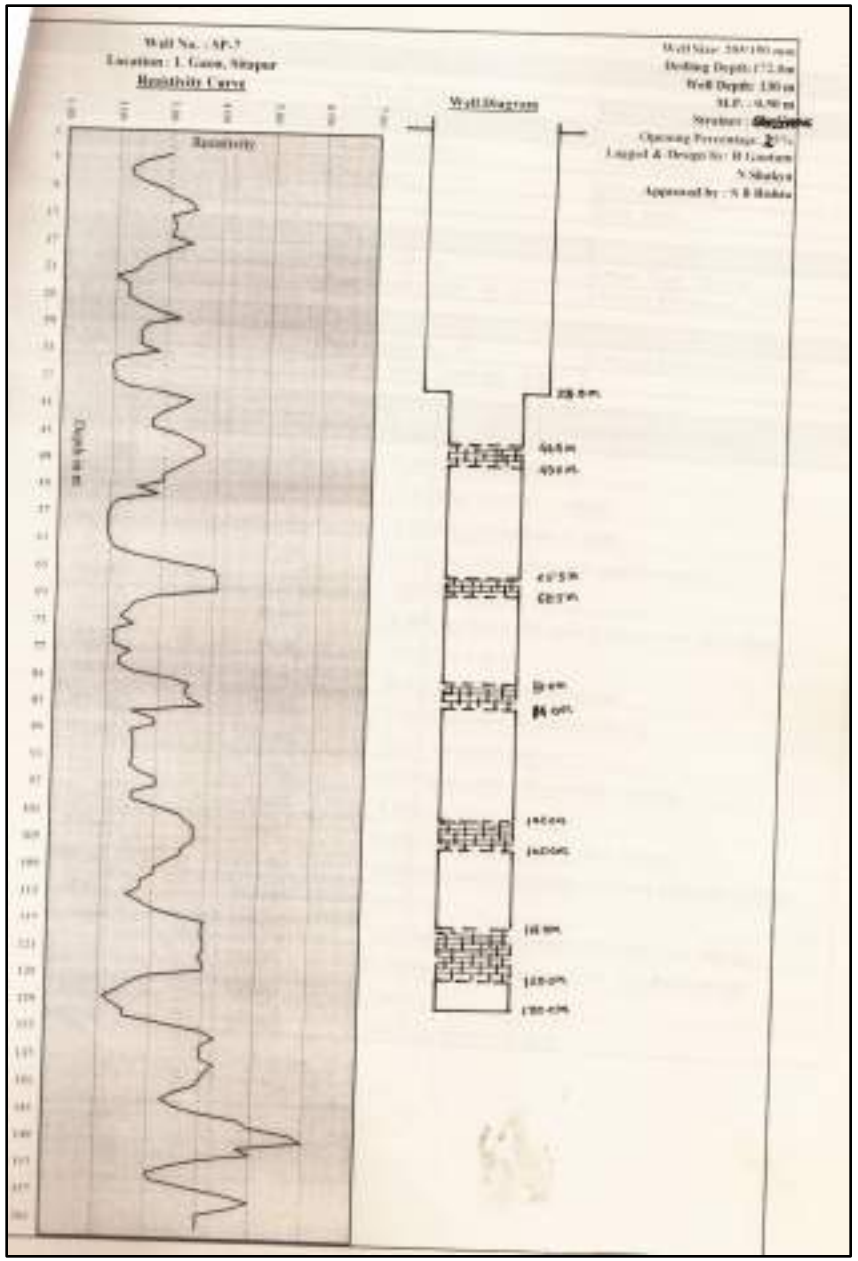

Electric Resistivity Curve
Well No. : SP-1
Location : K Gaon, Sitapur
Resistivity
Depth in m

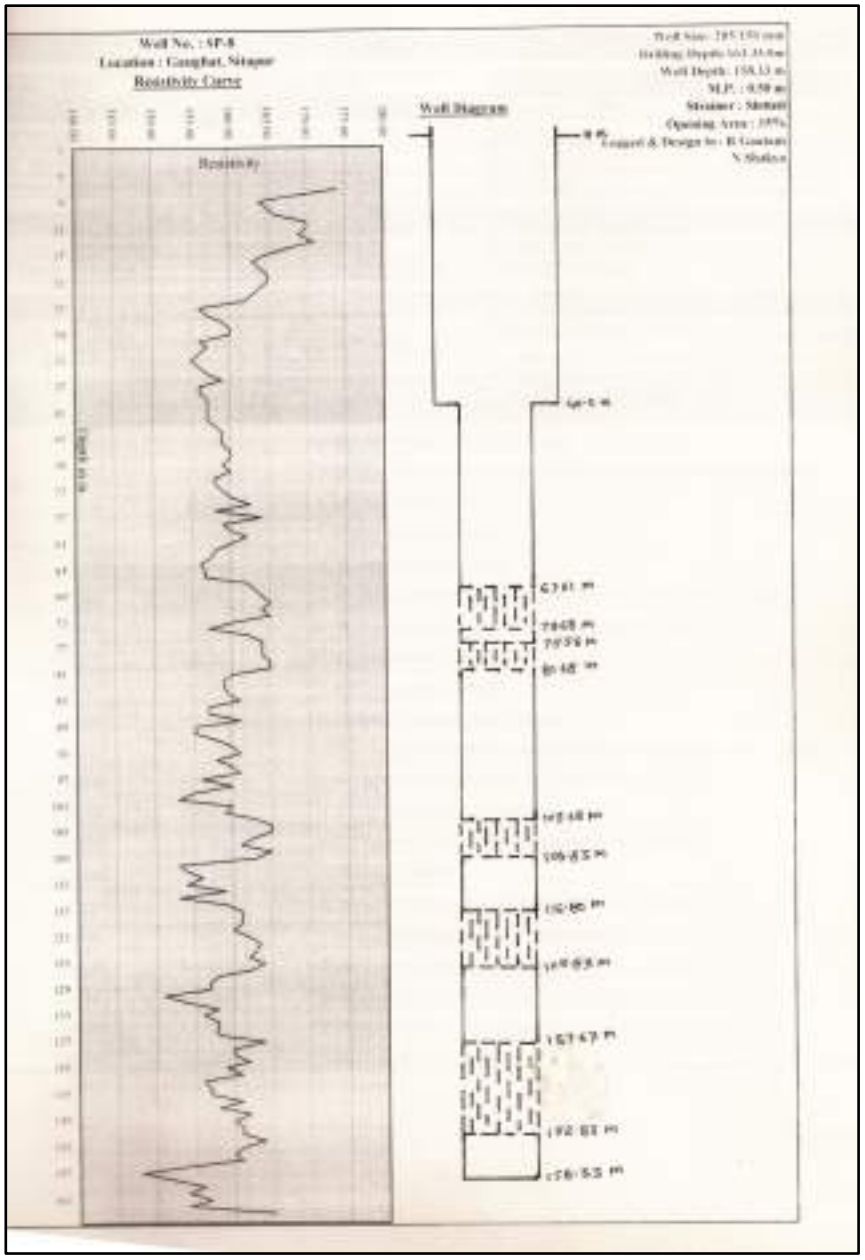

Well No. : SP-3
Location : K Gaon, Sitapur
Resistivity Curve
Well Size: 265/150 mm
Drilling Depth:187 m
Well Depth: 185.05 m
S.P. : 0.50 m
Strainer : Slotted
Opening Percentage: 15%
Logged & Design by: B Gautam
Approved by: R R Sharma
Resistivity
Depth in m
38.0m
63.0m
77.0m
120.0m
138.0m
142m
155m
169m
175m

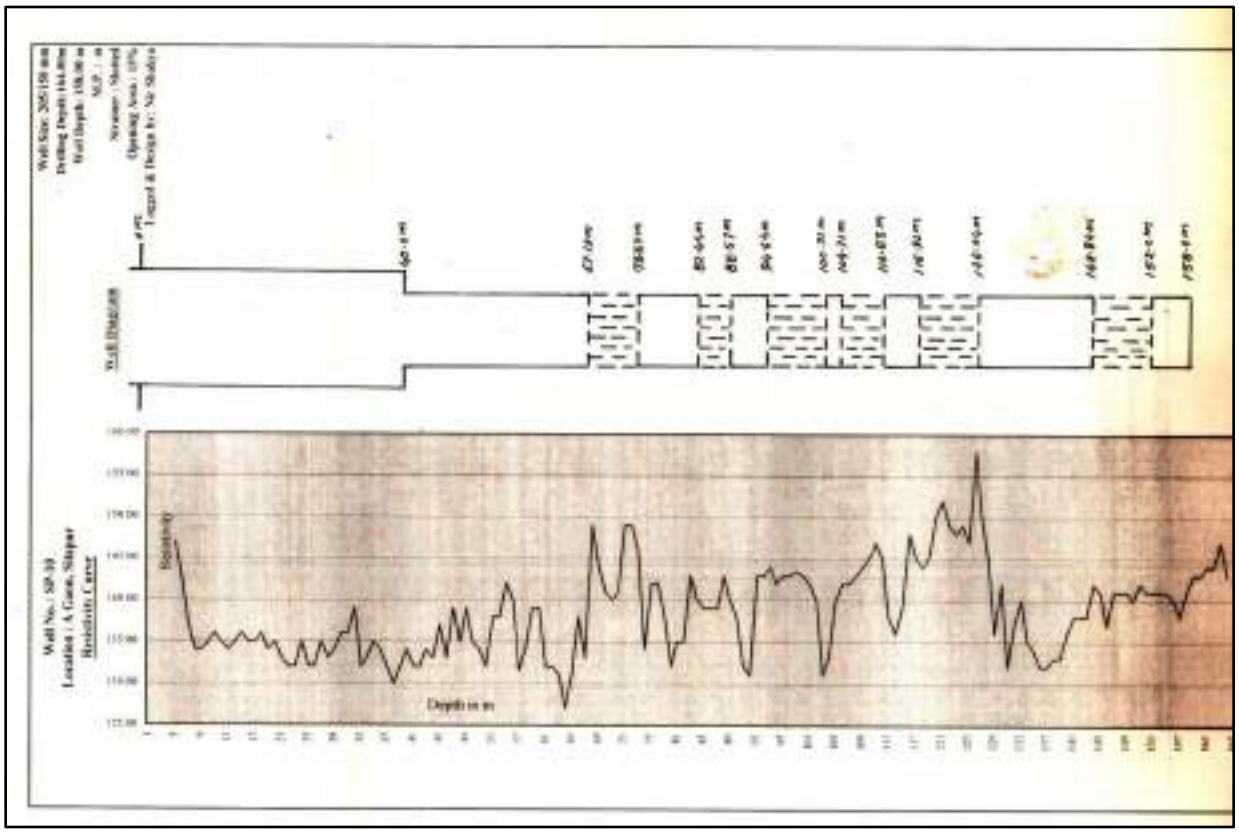

Well No. : SP-4
Location : A Gaon, Sitapur
Resistivity Curve
Well Diagram
Resistivity
Depth in m
38.0m
63.0m
72.0m
78.85m
105.0m
140.0m
150.0m
157.42m
172.0m

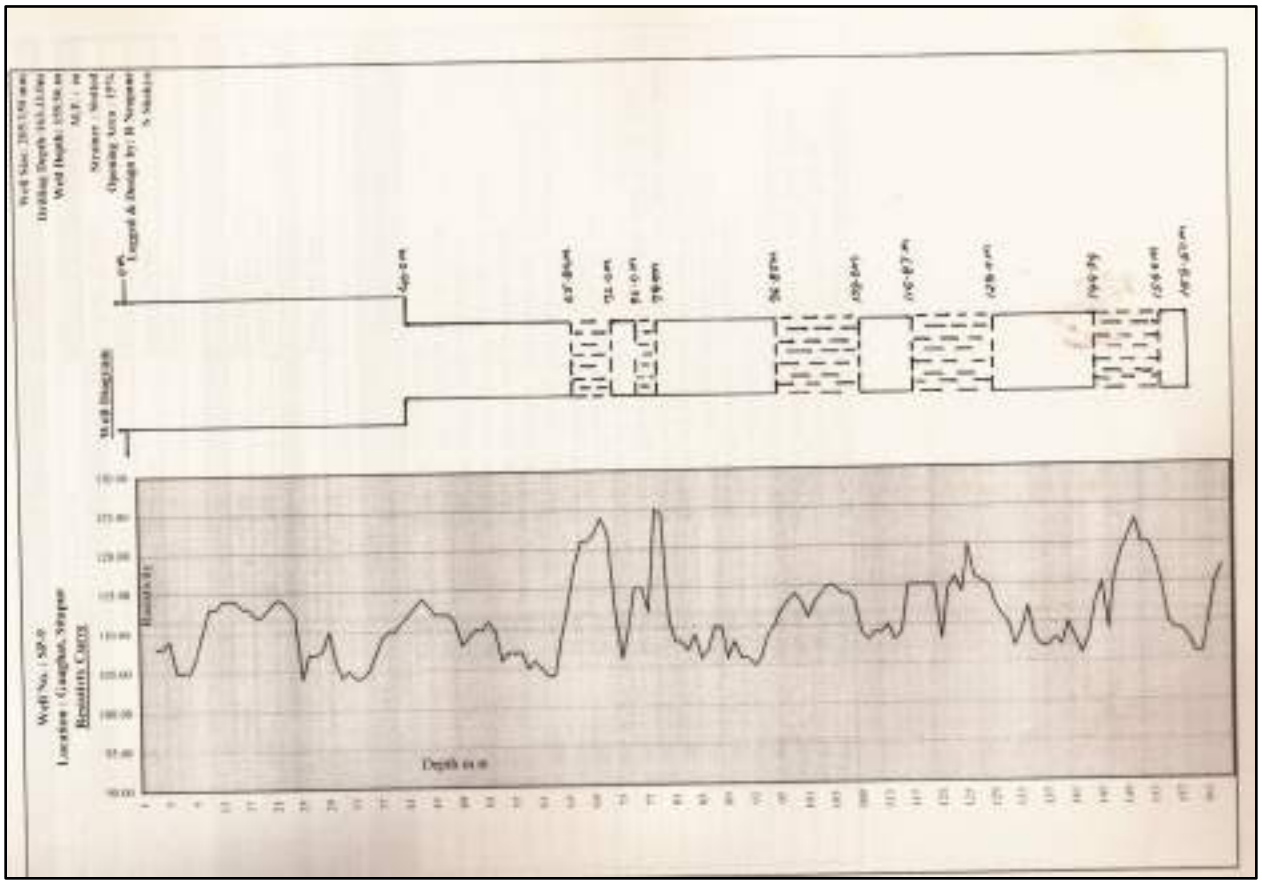

Well No. : SP-5
Location : A Gaon, Sitapur
Resistivity Curve
Resistivity
Depth in m
Well Diagram
45.00 m
92.0 m
96.0 m
122.0 m
165.0 m
175.0 m
174.0 m
180.0 m
183.0 m
185.0 m
155.0 m

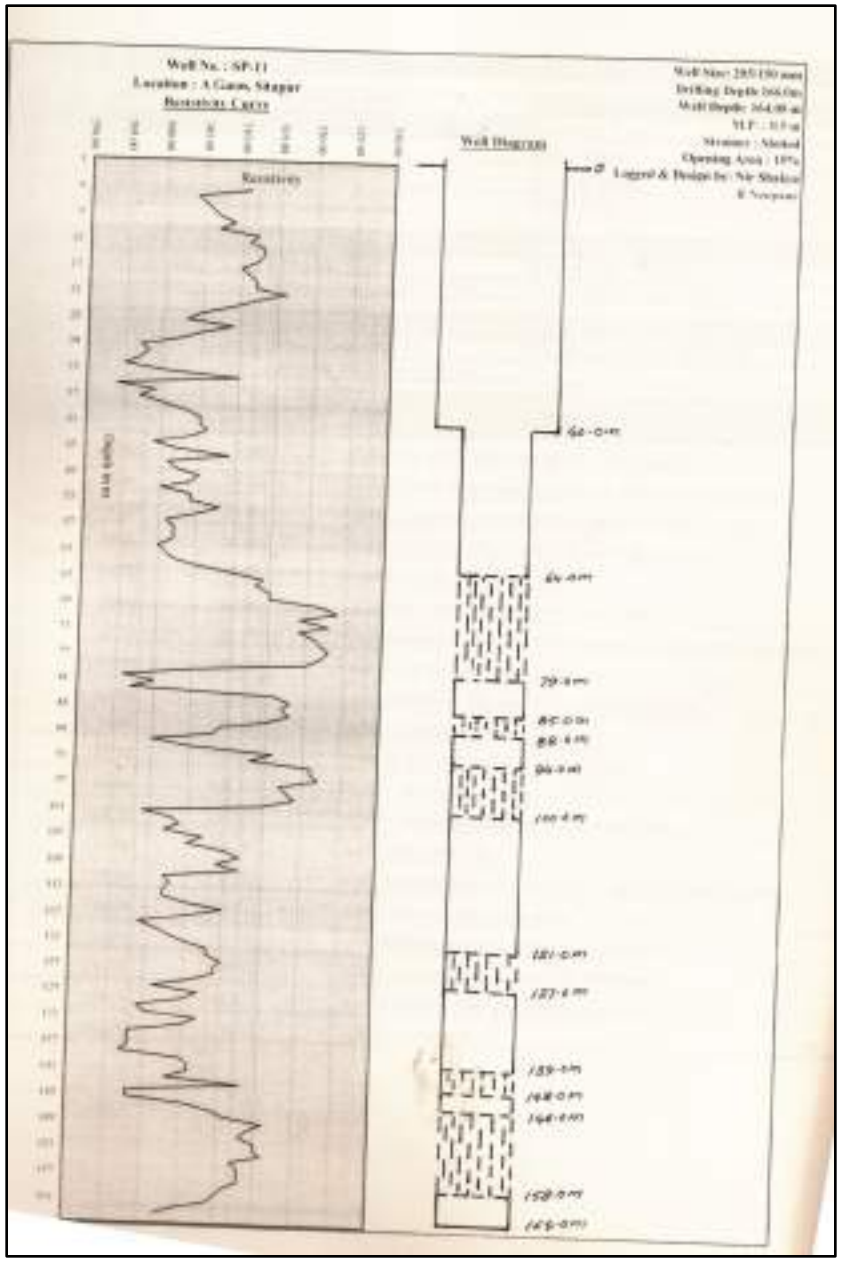

Well No. : SP-6
Location : L Gaon, Sitapur
Resistivity Curve
Resistivity
Well Diagram

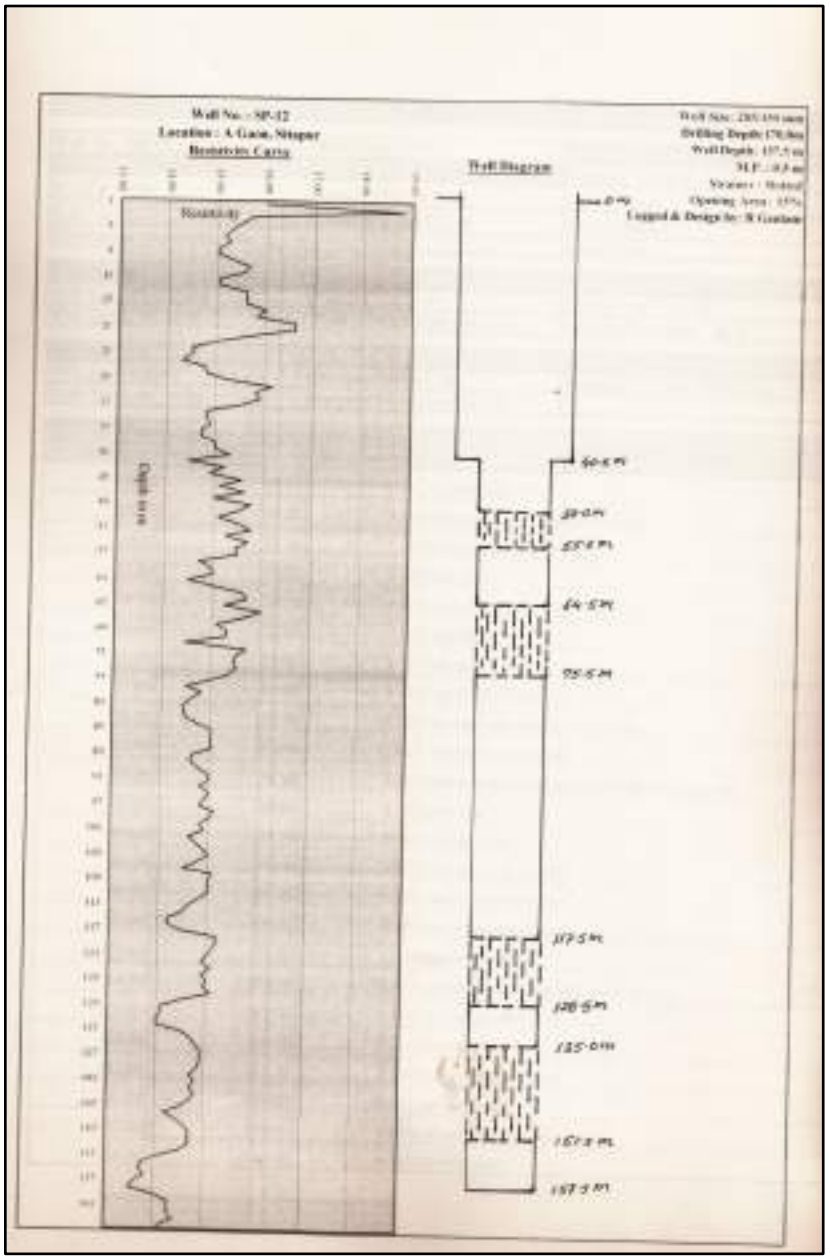

Well No. : SP-7
Location : I. Gaon, Sitapur
Resistivity Curve
Well Diagram
Resistivity
Depth in m

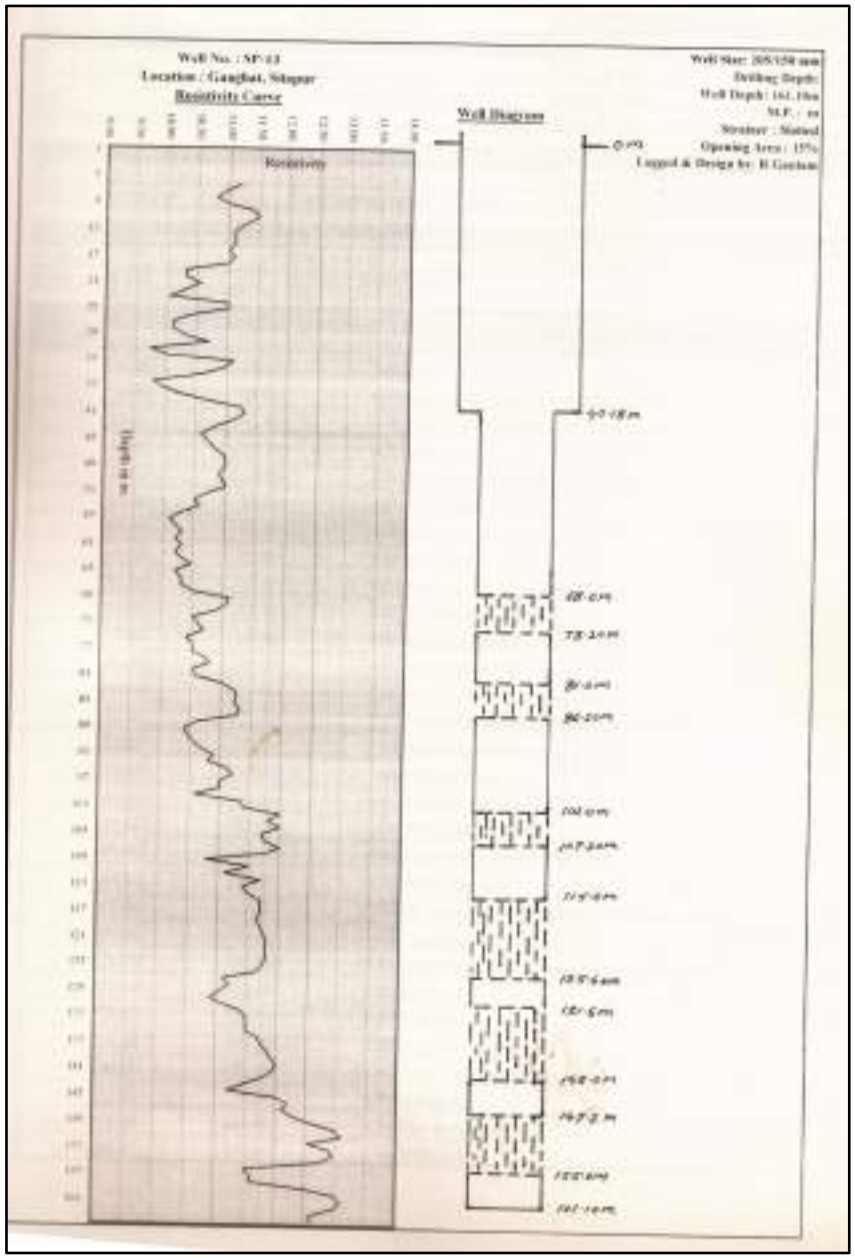

Well No. : SP-8
Location : Gaughat, Sitapur
Resistivity Curve
Well Diagram
Resistivity
Depth in m

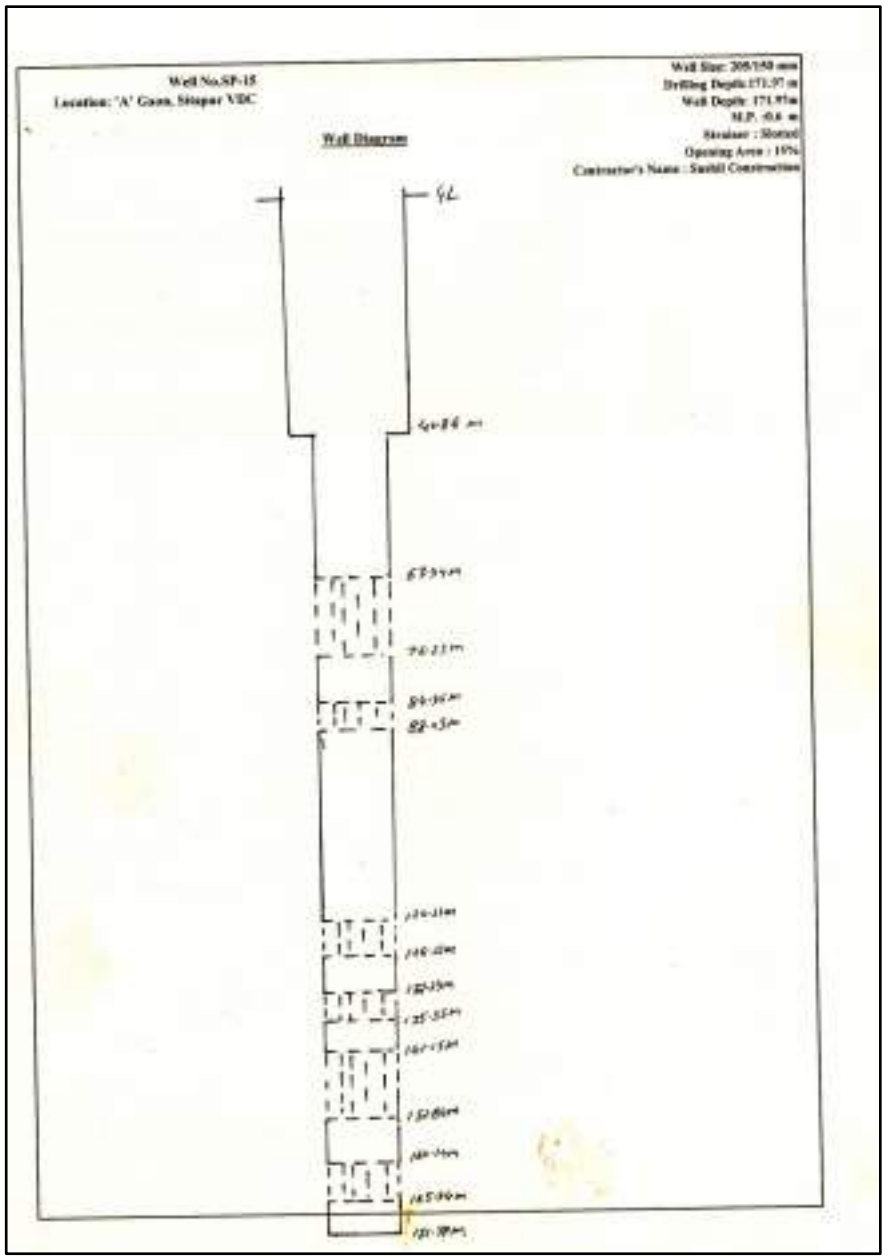





Well No. : SP-11
Location : A Gaon, Sitapur
Resistivity Curve
Well Diagram
Resistivity
60.0 m
64.0 m
79.0 m
85.0 m
88.5 m
96.0 m
100.5 m
121.0 m
127.5 m
139.0 m
148.0 m
154.0 m
158.0 m


Well No. : SP-12
Location : A Gaon, Sitapur
Resistivity Curve
Well Diagram
Resistivity
60.5 m
88.0 m
95.5 m
117.5 m
128.5 m
135.0 m
151.5 m

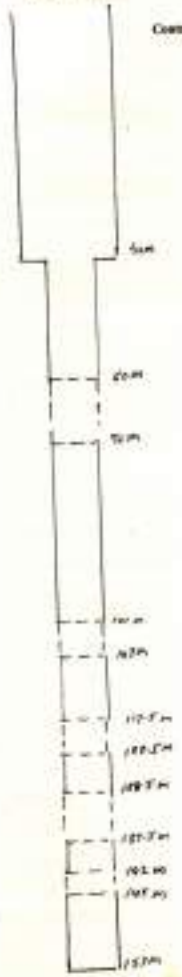

Well No. : SP-13
Location : Gaighat, Sitapur
Resistivity Curve
Resistivity
Depth in m
Well Diagram
Well Size: 305/150 mm
Drilling Depth:
Well Depth : 162.18m
S.F. : m
Strainer : Slotted
Opening Area : 15%
Logged & Design by: B Gautam
0 m
90.18 m

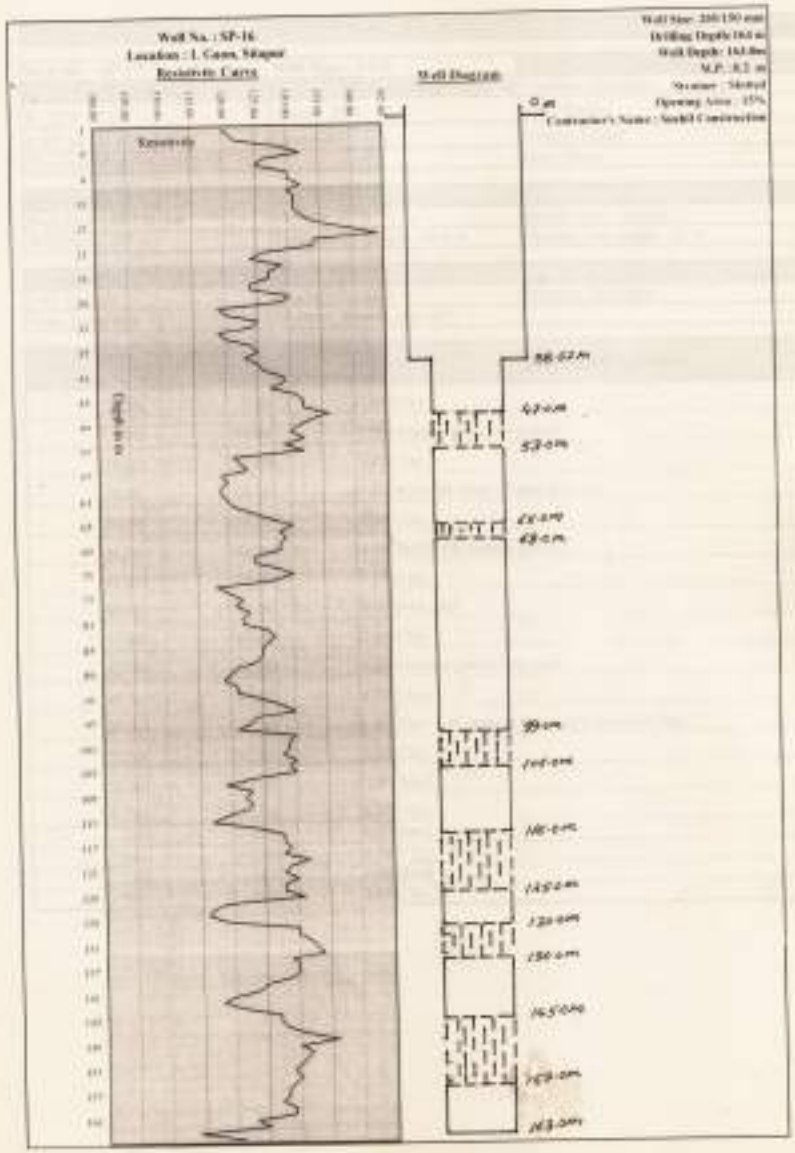

Well No.SP-15
Location: 'A' Gaon, Sitapur VDC
Well Diagram
Well Size: 305/150 mm
Drilling Depth: 171.97 m
Well Depth: 171.97m
M.P. -0.6 m
Strainer : Slotted
Opening Area : 15%
Contractor's Name : Sushil Construction
GL
64.84 m

Well No. SP-18
Location : K Gaon

Well Diagram

Well Size: 205/150 mm
Drilling Depth:179.0 m
Well Depth: 107.0m
M.P. 0.2 m
Strainer : Slotted
Opening Area : 15%
Contractor's Name : Sushil Construction





ANNEX I

DETAILS OF WELL CASING, SCREEN AND PUMP INSTALLATION

Details of Well casing and screens

DTW No	Depth (m)	Housing length (m)	Screen length (m)	SWL bgl (m)	Tested discharge (lps)
Sp-1	169	44	39	10.42	31
Sp-2	172	38	36	11.21	32
Sp-3	185	38	36	10.63	30
Sp-4	168	38	40	10.64	35
Sp-5	195	44	30	11.92	30
Sp-6	161	38	27	10.40	30
Sp-7	130	38	21	12.30	40
Sp-8	158	40	44	10.94	39
Sp-9	160	40	43	10.73	40
Sp-10	158	40	43	10.53	40
Sp-11	164	40	45	11.24	42
Sp-12	158	41	44	11.23	42
Sp-13	161	40	44	13.80	35
Sp-14	167	40	42	14.20	40
Sp-15	172	41	42	13.80	40
Sp-16	163	39	42	9.24	25
Sp-17	165	40	45	10.80	35
Sp-18	157	40	36	11.30	35
Sp-19	167	40	38	11.90	35

SWLs and tested discharge tabulated above are the old data collected just after tubewell construction.and subsequent pumping test.

Drawdowns for tested discharge are not received.