

Job No : 2690

Created by : S.NATH

Created on : 31/01/2012

Sheet No:

BORE LOG DATA SHEET

BORE HOLE NO.93

Co-ordinates E= 1192.000
N= 1146.000



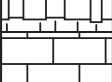




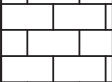
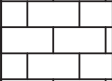






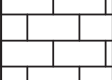



Field Test	Nos	Samples	Nos	Commencement Date : 11/01/12
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 12/01/12
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150 mm. / NX.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 582.454 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : Not found.

DESCRIPTION	SYMBOL	N-VALUE				SAMPLES	
		EACH DIVN. = 15cm				Ref. No	Depth (m)
Hard, light blackish grey clayey silt with decomposed rock fragment.	0.00m 0.70m	50	10	>100 cm Penrn. Refusa	DS-1 SPT-1 DS-2 *SPT-2	0.20 0.40-0.50 0.70-0.74	0.50 0.70
Highly weathered, light grey, medium grained, highly fractured rock.	2.95m	Chiselling from 0.50m to 0.70m				R1	CR=40% RQD=NIL 1.45
Slightly weathered, light grey, medium grained, highly fractured rock.	4.45m	NX rotary drilling from 0.70m to 15.10m				R2	CR=36% RQD=NIL 2.20
						R3	CR=42% RQD=NIL 2.95
						R4	CR=89% RQD=16% 3.70
						R5	CR=90% RQD=66% 4.45
						R6	CR=84% RQD=12% 5.95
						R7	CR=82% RQD=31% 7.45
						R8	CR=82% RQD=26% 8.95
						R9	CR=88% RQD=40% 10.45
						R10	CR=84% RQD=25% 11.95
						R11	CR=83% RQD=NIL 12.95
						R12	CR=95% RQD=46% 14.00
						R13	CR=68% RQD=NIL 15.10
N.B. - '*' means sample could not be recovered.	15.10m						

BORE HOLE NO.96

Co-ordinates	E= 1408.000 N= 1320.000
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Field Test	Nos	Samples	Nos	Commencement Date :	09/01/12
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	11/01/12
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm. / NX.
		Disturbed (DS)	2	Level Of Ground :	587.113 m.
Vane (V)		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	Not found.

DESCRIPTION	SYMBOL	N-VALUE					SAMPLES	
		EACH DIVN. = 15cm					Ref. No	Depth (m)
0.00m Hard light blackish grey, clayey silt with decomposed rock fragments.		50	10	≥ 100	cm	Pentn.	DS-1	0.10
0.60m		50		Refusal			SPT-1 DS-2 *SPT-2	0.30-0.40 0.40-0.50 0.60-0.64 0.60
Highly weathered, greenish grey, medium grained, highly fractured rock.				4.0	cm	Pentn.	R1	CR=41% RQD=NIL
1.35m				Chiselling from 0.40m to 0.60m			R2	CR=78% RQD=NIL
Slightly weathered, greenish grey, medium grained, highly fractured rock.				NX rotary drilling from 0.60m to 10.10m				2.10
2.10m							R3	CR=50% RQD=17%
Highly weathered, greenish grey, medium grained, highly fractured rock.								2.85
2.85m							R4	CR=89% RQD=NIL
								3.60
							R5	CR=85% RQD=62%
								4.35
							R6	CR=90% RQD=46%
								5.50
Slightly weathered to fresh, light grey, fine to medium grained fractured rock.								7.00
							R7	CR=85% RQD=28%
								8.50
							R8	CR=82% RQD=21%
10.10m							R9	CR=83% RQD=18%
								10.10

N.B. — '*' means sample could not be recovered.

Job No : 2690

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BORE LOG DATA SHEET

BORE HOLE NO.98

Co-ordinates E= 1190.000
N= 1405.000

Field Test	Nos	Samples	Nos	Commencement Date : 12/01/12
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 15/01/12
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150 mm. / NX.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 587.175 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : Not found.

DESCRIPTION	SYMBOL	N-VALUE					SAMPLES	
		EACH DIVN. = 15cm					Ref. No	Depth (m)
0.00m Hard, light brownish grey clayey silt with decomposed fragments rock.		50	10	>100	cm Penetr.	Refusa	DS-1 SPT-1 DS-2 *SPT-2	0.50 0.80-0.90 1.10-1.14 1.10
1.10m Highly weathered, light grey, medium to fine grained, highly fractured rock.		50	4.0	cm Penetr.			R1	CR=41% RQD=NIL 1.85
3.35m Slightly weathered to fresh, light grey, medium to fine grained, highly fractured rock.							R2	CR=49% RQD=NIL 2.60
6.00m Slightly weathered to fresh, light grey, medium to fine grained, highly fractured rock.							R3	CR=41% RQD=NIL 3.35
							R4	CR=86% RQD=NIL 4.10
							R5	CR=84% RQD=NIL 4.85
							R6	CR=91% RQD=18% 6.00
							R7	CR=84% RQD=24% 7.50
							R8	CR=86% RQD=40% 9.00
							R9	CR=83% RQD=61% 10.50
							R10	CR=81% RQD=24% 12.00
							R11	CR=84% RQD=NIL 13.50
							R12	CR=62% RQD=11% 15.10
15.10m N.B. - '*' means sample could not be recovered.								



BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **NTPC Kudgi**

Date : 22/07/09

Page No. : 1 of 1

Project : **Geotechnical Investigation for Proposed Project at Kudgi TPP**

Client : **NTPC Ltd.**

Co-Ordinate : N:1299.920 E: 1250.728

R.L. : 584.036m

Location : Plant Area

Dia. of Borehole : 150 / Nx m

Depth of GWT : Not Encountered

Bore Hole No. : **PBH-3**

Depth of Bore Hole : 7.35 m

Depth of Casing : 1.5 m

Date of Commencement : 6/27/2009

Date of Completion : 7/1/2009

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m)		SPT 'N' Value					CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
							From	To	15	15	15	15	N				
	0.45	583.5		Filled Up Soil (0.45m)	73	DS	0	0.45									
1				Blackish Fresh Rock													
2					74	SPT-1	1.3	1.75					>100				
3					75	DR1	2.3	3.05						56	40	0.66	
4					76	DR2	3.05	3.8						80	60	0.66	
5					77	DR3	3.8	4.55						57	50	0.91	
6					78	DR4	4.55	5.3						100	100	0.75	
7					79	DR5	5.3	6.05						98	98	1.33	
	7.35	576.6			80	DR6	583.5 583.5	7.35						82	82	2.50	
8				The Bore Hole is Terminated at 7.35 m depth													
9																	
10																	
11																	
12																	
13																	
14																	
15																	

DS: Disturbed Sample

UDS: Undisturbed Sample

SPT: Standard Penetration Test

W/S: Wash Sample

CR: Core Recovery

RQD: Rock Quality Designation

PR: Rate of Penetration in Rock

VST: Vane Shear Test

K: Permeability of Soil / Rock

PT: Packer Permeability Test

DR: Drill Run

GWT: Ground Water Table

Site Engr. Drawn By Chkd. By Client Rept.

GEO TEST HOUSE

B-10, Krishna Industrial Estate, Opp. B. I. D. C., Gorwa Estate, Vadodara - 16

Email: geo_group@yahoo.com Tel.: 22290222, 22282305 Fax: 0265-22282014



BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **NTPC Kudgi**

Date : 22/07/09

Page No. : 1 of 1

Project : **Geotechnical Investigation for Proposed Project at Kudgi TPP**

Client : **NTPC Ltd.**

Co-Ordinate : N 1501.99 - E 1292.00

R.L. : 588.027 m

Location : Plant Area

Dia. of Borehole : 150 / Nx m

Depth of GWT : Not Encountered

Bore Hole No. : **PBH-41**

Depth of Bore Hole : 12.5 m

Depth of Casing : 1.5 m

Date of Commencement : 8/18/2009

Date of Completion : 8/19/2009

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m)		SPT 'N' Value					CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
							From	To	15	15	15	15	N				
	0.50	587.53		Filled Up Soil [0.50m]	463	DS	0	0.45									
1				Brownish Highly weathered Rock													
2					464	SPT-1	1.5	1.95					>100				
3					465	DS	2.25	2.7									
4					466	DS	3	3.45									
5					467	DR1	3.75	4.5						22		1.25	
5	5.25	582.78		[4.75m]	468	DR2	4.5	5.25						27		1.20	
6				Brownish Moderately Weathered Rock	469	DR3	5.25	6						24	13	1.03	
7					470	DR4	6	6.75						43	15	1.13	
7					471	DR5	6.75	7.5						54	17	0.83	
7	7.50	580.53		[2.25m]	472	DR6	7.5	8.25						83	53	1.16	
8				Brownish Fresh Rock	473	DR7	8.25	9						87	57	1.58	
9					474	DR8	9	10.5						91	63	1.75	
10					475	DR9	10.5	12.5						93	66	2.50	
12	12.50	575.53		[5.00m]													
13				The Bore Hole is Terminated at 12.50 m depth													
14																	
15																	

DS: Disturbed Sample

UDS: Undisturbed Sample

SPT: Standard Penetration Test

WS: Wash Sample

CR: Core Recovery

RQD: Rock Quality Designation

PR: Rate of Penetration in Rock

VST: Vane Shear Test

K: Permeability of Soil / Rock

PT: Packer Permeability Test

DR: Drill Run

GWT: Ground Water Table

Site Engr.	Drawn By	Chkd. By	Client Rept.

GEO TEST HOUSE

B-10, Krishna Industrial Estate, Opp. B.I.D.C., Gorwa Estate, Vadodara - 16
Email: geo_group@yahoo.com Tel.: 22290222, 22282305 Fax: 0265-22282014

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)		Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)
				Bulk	Dry		(%)			In-situ	Saturated				
86	8	9.00 - 10.50	Slightly weathered, steel grey, medium to fine grained, fractured rock.	2.908	2.881		0.923	2.659	2.960	--	--	--	7.43	96.07	--
87	15	12.00 - 13.50	Slightly weathered, brownish grey, medium to fine grained, highly fractured rock.	2.591	2.513		3.106	7.804	2.725	--	4	--	--	--	--
88	11	7.90 - 9.40	Slightly weathered, steel grey, medium to fine grained, fractured rock.	2.833	2.802		1.078	3.022	2.890	--	146	--	--	--	--
89	11	11.50 - 12.50	Slightly weathered, blackish grey, medium to fine grained, fractured rock.	2.871	2.854		0.598	1.707	2.904	--	--	--	43.10	--	--
91	7	8.75 - 9.50	Slightly weathered, light grey, fine to medium grained, fractured rock.	2.864	2.834		1.069	3.031	2.922	388	273	0.70	--	--	5 - 6
91	9	10.00 - 11.50	Fresh, light grey, fine grained, fractured rock.	2.940	2.914		0.895	2.608	2.992	544	268	0.49	--	--	--
93	5	3.70 - 4.45	Slightly weathered, light grey, medium grained, highly fractured	2.770	2.737		1.182	3.235	2.829	--	--	--	--	--	--
93	7	5.95 - 7.45	Slightly weathered, light blackish grey, medium to fine grained, fractured rock.	2.802	2.770		1.135	3.143	2.860	280	108	0.39	--	--	>5.5
94	9	6.25 - 7.00	Slightly weathered, light grey, medium to fine grained, fractured	2.790	2.744		1.708	4.687	2.878	--	--	--	--	--	--
94	12	9.25 - 10.10	Slightly weathered, light grey, medium to fine grained, fractured	2.878	2.843		1.237	3.515	2.946	350	190	0.54	--	--	--
96	5	3.60 - 4.35	Slightly weathered, light grey, medium to fine grained, fractured	2.839	2.798		1.455	4.072	2.917	246	160	0.65	--	--	--

2.11. ELECTRICAL RESISTIVITY TESTS:

Twenty five (25) nos. Electrical Resistivity Tests were carried out at the following locations. The test procedure and results are presented under Section-8.

ERT	Co-ordinates (M)		R.L. (M)	ERT	Co-ordinates (M)		R.L. (M)
	E	N			E	N	
ERT-1	1475.00	1253.00	587.003	ERT-14	1839.151	1837.019	579.891
ERT-2	1703.00	1250.00	584.683	ERT-15	1500.00	1979.00	582.612
ERT-3	1995.00	1249.00	582.898	ERT-16	1947.764	1971.840	577.406
ERT-4	1586.00	1384.00	587.479	ERT-17	1698.226	2041.940	578.644
ERT-5	1880.00	1366.00	586.003	ERT-18	1113.00	2633.00	581.645
ERT-6	1461.00	1594.00	585.590	ERT-19	2512.631	2067.720	572.551
ERT-7	1600.00	1592.00	584.583	ERT-19A	2350.00	2120.00	572.767
ERT-8	1746.00	1590.00	584.376	ERT-20	2140.00	1495.00	582.858
ERT-9	1913.00	1594.00	583.478	ERT-21	1492.848	2522.517	582.189
ERT-10	1478.00	1660.00	584.628	ERT-22	825.00	3345.00	591.055
ERT-11	1816.00	1662.00	582.498	ERT-23	3225.365	2503.059	560.978
ERT-12	1840.00	1757.00	581.151	ERT-24	2115.00	1839.00	578.412
ERT-13	1552.00	1824.00	582.001				

APPARENT RESISTIVITY VALUES**ERT No. 01**

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.5	34.54	35.80	34.85	36.42	35.40
2	1.0	33.97	31.45	33.34	32.71	32.87
3	2.0	30.17	30.17	30.17	31.42	30.48
4	3.0	28.29	26.40	24.52	30.18	27.35
5	4.0	22.63	25.64	20.11	27.15	23.88
6	5.0	25.14	25.77	18.86	27.66	24.36
7	6.0	26.40	26.40	22.63	27.91	25.84
8	7.0	29.04	25.52	26.40	27.28	27.06
9	8.0	29.17	26.15	27.16	27.16	27.41
10	10.0	28.91	32.69	27.66	35.20	31.12

Mean Resistivity at ERT-01 is 28.58 Ohm - m.

ERT No. 02

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.5	41.45	25.94	41.13	26.12	33.66
2	1.0	40.26	35.35	39.00	35.60	37.55
3	2.0	50.28	43.00	46.51	45.00	46.20
4	3.0	43.38	48.66	41.49	50.17	45.93
5	4.0	47.26	44.25	45.75	45.75	45.75
6	5.0	43.37	44.00	40.86	45.89	43.53
7	6.0	40.73	42.99	37.71	45.25	41.67
8	7.0	39.60	42.24	36.96	44.00	40.70
9	8.0	36.21	40.23	33.19	42.24	37.97
10	10.0	35.20	44.00	32.69	46.52	39.60

Mean Resistivity at ERT-02 is 41.26 Ohm - m.

ERT No. 03

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.5	34.85	33.60	35.48	33.60	34.38
2	1.0	33.34	30.82	32.71	30.19	31.77
3	2.0	30.17	28.91	28.91	31.42	29.85
4	3.0	30.18	28.29	26.40	32.06	29.23
5	4.0	27.65	29.16	26.15	30.67	28.41
6	5.0	29.54	31.43	28.29	32.69	30.49
7	6.0	31.68	31.68	29.41	33.94	31.68
8	7.0	29.04	31.68	27.28	34.32	30.58
9	8.0	30.17	30.17	28.16	32.18	30.17
10	10.0	31.43	32.69	30.17	35.20	32.37

Mean Resistivity at ERT-03 is 30.89 Ohm - m.

Annexure-C (SIMHADRI)

SOIL DATA AND FOUNDATION SYSTEM

Employer has carried out geotechnical investigation in the proposed area. Logs of boreholes of proposed area are enclosed with this Annexure.

- a) The minimum founding level and the corresponding net allowable bearing pressure shall be as given in Table – 1 below

Table-1

Founding RL	Net Allowable Bearing Pressure T/m ²		
	Isolated and combined footings		Rafts (width > 6m)
	Width upto 3.0m	Width > 3.0m upto 6m	
RL (+) 7.5 M	8	6	8
RL (+) 7.0 M	10	8	12
RL (+) 6.5 M	16	14	18
RL (+) 6.0 M	25	25	25
RL (+) 5.5 M	35	35	35

For Finished ground level (FGL) refer General layout plan (GLP)

In case any loose/soft pockets is encountered at founding level, the same shall be removed completely upto the hard strata and filled up with PCC (1:4:8).

The net allowable bearing pressure higher than above mentioned values shall not be permitted. At intermediate levels the bearing capacity shall be same as the net allowable bearing pressure corresponding to the immediate shallower level mentioned above.

For open foundations, the total permissible settlement shall be governed by IS: 1904 / IS: 13063 and from functional requirements whichever is more stringent. However, total settlement shall be restricted to the following:

Isolated & Strip	40 mm
Raft	75 mm
Foundations in Weathered rock / rock	12 mm

In case the total permissible settlement is to be restricted to less than as above specified from functional requirements, then the net allowable bearing pressure shall be reduced after review in consultation with Engineer.

(17)

Borehole No.	Ground R.L. (m)	Co-ordinate (m)	Depth below G.L. (m)	Soil Boring Depth (m)	Rock Drilling Depth (m)	Standing water level below G.L. (m)	Samples collected				Core *
							UDS	SPT	Disturbed	Water	
BH-108	6.454	N-1050 / W-2400	19.70	GL - 10.70	10.70 - 19.70	1.80	1	6	9	-	12
BH-109	6.923	N-1050 / W-2350	25.00	GL - 12.55	12.55 - 25.00	2.85	1	7	9	-	16
BH-110	6.004	N-1050 / W-2300	25.64	GL - 7.75	7.75 - 25.64	2.25	1	4	6	-	16
BH-111	6.018	N-1050 / W-2160	25.04	GL - 6.30	6.30 - 25.04	1.26	-	4	1	-	19
BH-113	6.988	N-1015 / W-2430	25.20	GL - 9.30	9.30 - 25.20	2.50	-	6	7	-	14
BH-115	6.672	N-1005 / W-2320	19.35	GL - 7.50	7.50 - 19.35	2.60	1	4	6	1	16
BH-117	7.628	N-1000 / W-2550	25.00	GL - 6.00	6.00 - 25.00	2.32	1	3	5	-	13
BH-118	7.043	N-1000 / W-2450	25.00	GL - 6.00	6.00 - 25.00	2.20	1	2	5	-	13
BH-120	5.875	N-1000 / W-2380	40.02	GL - 7.70	7.70 - 40.02	2.00	1	4	6	-	41
BH-121	6.135	N-980 / W-2380	40.09	GL - 9.30	9.30 - 40.09	2.00	1	5	8	1	26
BH-122	5.952	N-990 / W-2360	40.12	GL - 9.10	9.10 - 40.12	1.80	1	5	7	-	41
BH-123	5.938	N-990 / W-2300	25.00	GL - 7.45	7.45 - 25.00	2.25	1	5	7	-	12
BH-124	5.644	N-1000 / W-2200	25.05	GL - 10.15	10.15 - 25.05	2.08	1	7	1	-	20
BH-125	7.323	N-950 / W-2550	25.00	GL - 6.20	6.20 - 25.00	2.18	1	3	5	-	13
BH-127	6.397	N-950 / W-2380	15.00	GL - 7.50	7.50 - 15.00	2.15	1	4	6	-	7
BH-128	5.590	N-950 / W-2500	15.00	GL - 6.00	6.00 - 15.00	2.20	1	3	5	-	7
BH-129	5.231	N-950 / W-2160 *	25.00	GL - 8.80	8.80 - 25.00	2.16	-	5	2	-	11
BH-130	7.142	N-900 / W-2600	25.00	GL - 6.00	6.00 - 25.00	2.15	1	4	6	-	13
BH-132	6.045	N-900 / W-2400	15.00	GL - 5.75	5.75 - 15.00	2.81	1	3	5	-	7
BH-133	5.691	N-920 / W-2300	15.00	GL - 6.00	6.00 - 15.00	2.75	1	3	5	-	6
BH-134	5.721	N-900 / W-2200	25.00	GL - 10.60	10.60 - 25.00	2.81	-	7	1	1	10
BH-139	6.718	N-820 / W-2500	11.00	GL - 9.00	9.00 - 11.00	3.10	1	4	2	-	2
BH-141	5.236	N-820 / W-2300	10.50	GL - 8.50	8.50 - 10.50	2.80	1	4	2	-	2
BH-144	5.705	N-1700 / W-2150	13.50	GL - 4.50	4.50 - 13.50	1.72	-	1	3	-	12
BH-145	9.015	N-1500 / W-2150	17.25	GL - 6.00	6.00 - 17.25	4.95	-	1	4	1	19
BH-147	7.893	N-1350 / W-2150	30.00	GL - 5.70	5.70 - 30.00	3.15	-	4	1	-	22

* No. of Core Samples indicates no. of runs from which cores were collected